Community health insurance contributes to universal health coverage in India

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### Abbreviations

<table>
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<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ACCORD</td>
<td>Action for Community Organisation, Rehabilitation and Development (an NGO)</td>
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<tr>
<td>CHE</td>
<td>Catastrophic Health Expenditure</td>
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<td>CHI</td>
<td>Community Health Insurance</td>
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<tr>
<td>CI</td>
<td>Confidence Interval</td>
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<td>df</td>
<td>Degrees of Freedom</td>
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<td>DHAN</td>
<td>Development for Humane Action and Network (an NGO)</td>
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<tr>
<td>FFS</td>
<td>Fee-for-service</td>
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<td>FWWB</td>
<td>Forum for World Women Banking</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<tr>
<td>KKVS</td>
<td>Kadamalai Kalanjiam Vattara Sangam (an NGO)</td>
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<tr>
<td>NCAER</td>
<td>National Council for Applied Economic Research</td>
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<tr>
<td>NGO</td>
<td>Non-governmental Organisation</td>
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<td>NRHM</td>
<td>National Rural Health Mission</td>
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<td>OOP</td>
<td>Out-of-pocket payment</td>
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<td>OR</td>
<td>Odds Ratio</td>
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<tr>
<td>RCMS</td>
<td>Rural Co-operative Medical Scheme</td>
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<td>RSBY</td>
<td>Rashtriya Swasthya Bima Yojana (National Health Insurance Scheme)</td>
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<tr>
<td>SEWA</td>
<td>Self-employed Women's Association (an NGO)</td>
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<tr>
<td>SHI</td>
<td>Social Health Insurance</td>
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<tr>
<td>THE</td>
<td>Total Health Expenditure</td>
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<tr>
<td>USS</td>
<td>US Dollars</td>
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Acknowledgements

This thesis is dedicated to my mother – who prayed to the zillion Gods of the Hindu pantheon to bless me with a PhD. Every time I returned from Antwerp, she would hopefully ask – “did you submit your thesis?”

Yet another inspiration was Prof. Jean-Marie Jacque and his wife Nadine Menier. Without these two guardian angels, the long, dark and cold days in Antwerp would have been unbearable. The warmth and love that they showered on me will always be etched in my memory. Jean-Marie, I know that you will be there watching over me when I defend my thesis.

A close friend warned me that embarking on a PhD at the age of 43 was dangerous for the family. “At the end, you will have either a wife or a PhD, not both”. I am happy to say that Roopa has proved my friend wrong. She stood by me during this entire period, taking care of the children and our parents single-handedly. I would like to thank you Roopa for walking with me along this arduous path.

My children accused me of having HIV (health insurance virus) because it was health insurance at the dining table, on a family vacation and in my sleep. Having to share their father with the HIV for seven years was not very comfortable. Thank you, Gayu and Vasu, for being so patient with me.

Patrick my coach raised the bar high enough to stretch me. I do not think that I always lived upto his expectations, but I did my best. Bart was as patient as always, helping me keep the balance between the quantitative and qualitative aspects of my research. I would never have embarked on this lonesome journey, had it not been for Wim’s influence. He was the first to put the idea into my head and supported me throughout the voyage. Between the three of them, I learnt a lot of science but also the ability to look at life through the lens of “hypothesis”.

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Summary
India’s economy has tripled in size in the last three decades, yet government spending on health care remains remarkably meagre: just US$11 per person per year. Due to these low levels of government spending, patients have to make out-of-pocket (OOP) payments when they seek care. While many are able to cope with this, the poor and the vulnerable usually have to choose between either forgoing necessary health care or indebtedness and impoverishment when seeking care.

Some Indian non-governmental organisations (NGOs) have initiated community health insurance (CHI) schemes to address this problem. Experts define CHI as any not-for-profit insurance scheme aimed primarily at the informal sector, formed on the basis of a collective pooling of health risks, and in which the members participate in its management. The number of CHI schemes in India has grown exponentially in the past decade, partially fuelled by the micro-credit movement.

In theory, CHI is a relevant option for the informal sector with its combination of pre-payment and risk pooling mechanisms. However, there is little evidence that Indian CHI schemes increase access to care and protect against catastrophic health expenditures (CHE). The objective of our research was to investigate whether and under what conditions CHI improves access to hospital care, provides protection against CHE and increases patient satisfaction.

We first undertook a detailed case study of 10 purposively selected CHI schemes to improve our understanding of the variety of CHI schemes in India. Based on these findings, we selected three CHI schemes and studied them in greater detail. Each of the three chosen schemes (ACCORD, KKVS and SEWA) represents one of the types of CHI in India.

1 ACCORD – Action for Community Organisation, Rehabilitation and Development
We conducted household surveys in randomly selected insured and uninsured households at ACCORD and KKVS. Data on socio-economic characteristics, morbidity patterns, health-seeking behaviour, health expenditures and patient satisfaction were collected. In addition, we conducted focus group discussions with insured and uninsured individuals, with hospital patients and providers in order to understand their perceptions of quality of care and of the CHI scheme. In all three schemes, we compiled secondary data on details of hospitalisations from existing registers and records. We measured access and the incidence of CHE.

All 10 CHI schemes studied were initiated by NGOs with the objective of increasing access to health care, preventing indebtedness and empowering communities. These CHI schemes explicitly targeted the poorest and most vulnerable households in Indian society, i.e., scheduled castes and tribes, as well as women. Further, all schemes used existing community organisations to introduce CHI, thereby building on prevailing social capital and trust. Three distinct types of CHI schemes can be distinguished based on the role of the NGO. In the provider type, the NGO was both the insurer and the provider of health care. In the mutual type, the NGO was the insurer and purchased care from providers. Finally, in the linked type, the NGO insured the community with an insurance company and purchased health care from providers.

Most of the schemes were based on voluntary enrolment, with the individual as the unit of enrolment. Membership levels in the schemes ranged from 1,000 to 100,000 individuals. Premiums were community-rated and ranged from US$0.5 to US$5 per person per year. All 10 schemes insured against hospitalisation expenses but only up to a certain amount. While most common diseases were

KKVS – Kadumalai Kalanjia Vattara Sangam
SEWA – Self Employed Women’s Association
covered, some conditions such as chronic ailments and pre-existing conditions were excluded. Very few of the schemes had proper documentation or monitoring systems. This lack of data meant that none of these schemes had empirical evidence to suggest that they increased access to hospital care or protected families from CHE.

The household survey at ACCORD demonstrated that 57% of insured and 58% of uninsured individuals experienced minor ailments during the period 2004-2005. The proportion of individuals with chronic ailments was 5% among the insured and 2% among the uninsured. The proportions of insured and uninsured individuals with major ailments were 14 and 8%, respectively.

The admission rates among the insured and uninsured were 92 and 42 per 1,000 people per year, respectively. Ninety percent of insured pregnant women delivered in a hospital, while the corresponding figure for the uninsured was 45% ($\chi^2 = 8.6$; df = 1). The study also revealed that 65% of insured patients with major ailments were admitted to a hospital, compared to 44% of uninsured patients (OR 2.2; 95% CI 1.31, 3.77). This higher admission rate among insured patients was also found in vulnerable groups, such as children, females, people of lower socioeconomic status and those living far from a hospital. In the lowest income quintile, the probability of admission for insured patients was 3.47 times higher than it was for the uninsured. Insurance status remained a significant determinant of increased utilisation of hospital services after controlling for confounding factors such as age, gender, distance from a hospital and the presence of pre-existing ailments.

This study clearly indicates that the ACCORD CHI was able to increase access to hospital care, even for the poorest and most vulnerable groups in society. Some reasons for this may be its comprehensive
benefit package, affordable and subsidised premiums, credible and effective provider and a cashless system.

Our analysis of data extracted from the registers at ACCORD and SEWA showed that, in 2003 and 2004, there were 683 and 3,152 admissions, respectively. All of the patients insured by ACCORD were admitted to a not-for-profit hospital, while those insured by SEWA were mostly admitted (86%) to private-for-profit facilities. The median hospital bill per admission was US$12 for patients at ACCORD and US$46 for patients at SEWA. The median annual household income was US$630 for patients insured by ACCORD and US$545 for those insured by SEWA.

Overall, 74% of patients insured by ACCORD and 38% of patients insured by SEWA did not have to make any payments at the time of hospitalisation. The rest had to make out OOP payments because of co-payments, exclusions or both. Without health insurance, 8% of the families of patients insured by ACCORD and 49% of the families of patients insured by SEWA would have experienced CHE. The CHI scheme managed to reduce the incidence of CHE to 3.5% at ACCORD and 23% at SEWA. Not only was the incidence of CHE halved, but the intensity of the OOP payment also decreased. Without the CHI scheme, families of patients insured by both ACCORD and SEWA would have spent 14% of their annual income on hospital expenses, but the CHI scheme reduced this figure to 9% of annual income in both locations. The chances of experiencing a CHE for families of patients insured by SEWA were increased if the patient was poor, had gone to a private health care provider or needed surgery.

Our study of ACCORD and SEWA showed that in both of these schemes, CHI provided financial protection against OOP payments and CHE. However, this protection was only partial, and some
patients enrolled in both of the schemes still experienced CHE. The main reasons for this were the low upper limits in both schemes and the exclusion of some clinical conditions at the SEWA scheme.

The analysis of household survey data from ACCORD indicated that 92 and 87% of insured and uninsured patients, respectively, were satisfied with the care that they received. At KKVS, the corresponding figures were 95 and 79%. While the difference in satisfaction between insured and uninsured patients was not statistically significant at ACCORD, it was at KKVS ($\chi^2 = 7.65; \text{df} = 1$).

At ACCORD, the main reasons for satisfaction among both the insured and uninsured were the health care infrastructure (84 and 78%, respectively), followed by the interpersonal interaction with the doctors and nurses. However, only about half of the patients, both insured and uninsured, were satisfied with the care process. This was because either they had to wait for a long time to receive care or their relatives were not allowed to visit them. Uninsured patients who sought care in private hospitals were less likely to be treated courteously and to receive medications from the hospital pharmacy.

At KKVS, the reasons for satisfaction were slightly different. Most of the patients, both insured and uninsured, were satisfied with the infrastructure (86 and 98%, respectively) and the doctors’ services (91 and 85%, respectively). However, a sizable number of insured and uninsured patients were dissatisfied with the nursing care they received (47 and 56%, respectively) and the care process (84 and 91%, respectively).

Our research indicates that there was little difference in satisfaction levels between insured and uninsured patients at both ACCORD and KKVS. This finding may be attributed to a lack of strategic
purchasing by the respective NGOs. Also, we measured satisfaction levels on a dichotomous scale. Had we used a wider scale, we would probably have obtained a more nuanced response.

This study is one of few that have systematically evaluated the insurance functions of CHI schemes in India. Most of the CHI schemes in Africa and Asia adopt either the provider or the mutual model. However, in India, we observed the emergence of the linked model, where the risk-taker is an insurance company. This model is advantageous in that the risks are pooled more widely, both between the healthy and the ill as well as between the rich and poor.

The evidence from our study demonstrates that Indian CHI schemes can increase access to hospital care and at least partially protect families from CHE. However, to make them more effective, some critical issues must be addressed. Design features, such as minimal exclusions to reduce OOP payments, enrolment of families as a unit to control adverse selection and a referral system to prevent moral hazard, should be addressed. Simultaneously, the community must be empowered so that its members understand the complexity of the CHI and are given the space to make informed decisions. The capacity of the CHI management should be built up so that the organisers can purchase care strategically and monitor the scheme effectively. To increase financial viability, CHI schemes need to consider reinsurance with an insurance company. However, another route to financial viability is to increase the size of the scheme by federating many CHI schemes into a single body. This provides the added advantage that such a federation will be able to negotiate effectively with both insurance companies and providers. Concomitantly, the government must create a more supportive policy environment for the development of CHI programmes in India. This could include giving legal recognition to these entities and providing the necessary subsidies to permit the poor to enrol.
The government of India recently introduced a fully subsidised national health insurance scheme (RSBY) to protect its poorest citizens from incurring hospital expenses. CHI schemes can complement the RSBY in two ways. CHI schemes can increase the depth of cover by covering ambulatory expenses for RSBY members. The second mechanism is by targeting the near-poor and low-income groups, who are also exposed to the challenges of reduced access and CHE. These changes would help with enhancing health security for a larger section of the Indian population.

To conclude, CHI schemes in India can increase access to hospital care and protect households from CHE, provided that they are properly designed and implemented. Premiums must be affordable, benefit packages must be comprehensive, providers must be regulated, and reimbursements must be cashless and effortless. Such a scheme can play a crucial role in increasing the depth and breadth of social health protection in India.

Chapter 1. Introduction

The Indian health system consists of a complex mixture of government and private health care providers. Patients have the freedom to choose from any of these providers, but their options are limited due to inherent weaknesses in both sectors.

The government has an extensive network of primary health centres, first referral units and hospitals, especially in rural areas. Unfortunately, the government spends only US$11 per person per year on health care,¹ resulting in understaffed and underequipped government facilities that do not perform to their full potential.² Though government health services should be available at no price to the patient,
there is evidence to suggest that patients spend money to receive appropriate care. Patients must buy medications from private pharmacies, cover the costs of diagnostic tests and pay informal fees. A nationally representative survey revealed that rural patients admitted to government facilities spend an average of US$70 per admission.\(^3\)

The private sector in India ranges from individual practitioners in stand-alone clinics to small hospitals to multi-specialty enterprises.\(^4\) A survey conducted in the state of Madhya Pradesh revealed that more than 50% of private practitioners did not have a formal diploma or degree.\(^5\) Private providers invariably charge patients on a fee-for-service basis. Because most Indians do not have health insurance coverage, these charges are met through out-of-pocket (OOP) payments at the time of the utilisation of services.\(^6\) Patients admitted to private facilities spend an average of US$159 per admission.\(^3\)

These data suggest that patients may face substantial financial barriers when seeking health care in India. Evidence from the literature focusing on India indicates that 5% of rural patients and 2.2% of urban patients do not seek ambulatory care due to financial constraints.\(^3\) However, the disparity worsens when one disaggregates the above figures by economic status. More than 17% of rural patients do not access care due to financial reasons. This was further corroborated by another study from India showing that 35% of poor women who experienced problems accessing care attributed these difficulties to financial reasons.\(^7\)

Some patients cannot utilise health services due to financial constraints; others face problems when they do use health services. Low incomes and negligible social health protection imply that many families have to mortgage or sell their assets to pay the high medical costs. Narayanan (2001) studied health expenses and access in three different states and found that 7 and 14% of households in
Chennai and Kerala respectively, spent more than 20% of their annual income on health care. Forty-one percent of rural families borrowed money, while another 8% were forced to sell their assets to pay their hospital bills. Krishna reports that medical expenses were one of the top three reasons for indebtedness in rural Rajasthan. Singh confirmed this finding in a recent study of indebtedness in Punjab. Garg et al. calculated that the poverty head count increased by 3.5 points due to health expenditures. In a recent study, Berman et al. estimated that 63 million Indians fell below the poverty line in 2004 due to medical expenses. In extreme conditions, family members resort to suicide to escape the cycle of health shocks, indebtedness and poverty.

To summarise, Indians are expected to use the underfunded and poorly functioning government health services. The low quality of care provided therein results in patients shifting to the private sector. For some, this is unaffordable; for others, it can be catastrophic. Impoverishment due to medical expenses has been termed ‘iatrogenic poverty’. One of the main reasons for this situation is the lack of social health protection among the Indian population. Only about 10% of the population has some form of social protection in health. The majority of this small group belong to the formal sector and are protected through either social or private health insurance.

Various authors have suggested strengthening prepayment and pooling mechanisms to tackle this problem. This could occur either by improving the existing tax-based financing system or by extending health insurance coverage to larger populations. The Indian government has been unable to increase government health spending over the past decade; it has remained stagnant at 0.9% of the GDP. The other alternative is to expand health insurance coverage. Although the upper and middle classes are usually protected through social health insurance, medical reimbursements or private health insurance, the poor traditionally fall through this safety net. In response, some non-governmental organisations (NGOs) have introduced community health insurance (CHI) to protect the
poor. CHI is defined as *any not-for-profit insurance scheme aimed primarily at the informal sector, formed on the basis of a collective pooling of health risks, and in which the members participate in its management.* Various actors, both national and international, have recommended CHI as a means of protecting the informal sector.

Unfortunately, in India, there is little evidence that these schemes are successful in terms of increasing access to quality health care or providing financial protection. The current study specifically explored these dimensions of performance; we did not examine other dimensions of performance (e.g., enrolment rates, renewal rates, financial sustainability, community empowerment or social transformation. While these factors are important, we chose to focus on the core insurance functions of a health financing system, i.e., improving access to quality health care and providing financial protection.

### 1.1 Hypothesis
CHI schemes in India increase access to quality health care and protect households from catastrophic health expenditures. Consequently, they play an important role in the Indian health system.

### 1.2 Research objectives
- To explore the characteristics of CHI schemes in India.
- To determine whether and under what conditions CHI schemes:
  - Increase access to health care for the insured,
  - Protect the insured against catastrophic health expenditures, and
  - Enhance the satisfaction levels of insured patients.
- To examine the current and future roles of CHI schemes in the Indian health system and propose evidence-based policy recommendations.
Chapter 2. Literature review

2.1 Introduction
Health insurance is a financial arrangement based on prepayment and pooling of funds with the purpose of sharing health care risks. Traditionally, most literature on health insurance has concentrated on social health insurance (SHI) or private-for-profit health insurance. However, in the last two decades, a new entity - CHI - has crept into the insurance nomenclature. CHI has many synonyms, e.g., community-based health insurance, mutual health organisations, micro health insurance, or mutuelles de santé. However, the programmes to which these different descriptors refer usually share the following characteristics:

- Based on prepayment and pooling of funds to share health care risks,
- Organised for local communities, usually in the informal sector,
- Some level of involvement of the beneficiary community in the management of the scheme,
- Non-profit in character, and
- Contribution to the scheme is of a voluntary nature

For the sake of this literature review, the author proposes the following working definition of CHI: any not-for-profit insurance scheme that is aimed primarily at the informal sector, formed on the basis of a collective pooling of health risks, and in which the members participate in its management.

CHI is an international and historical phenomenon. While many traditional societies have developed forms of risk-sharing for health care, one of the earliest recorded descriptions of CHI is that of the ‘sickness funds’ developed in Germany in the second half of the nineteenth century. Industrial workers organised these funds by contributing to a common fund that was used for contingency
expenses, like medical treatments and funerals. A similar movement occurred in Japan,\textsuperscript{29} where people contributed money into a fund called the ‘Jyorei’ to finance prospective health care costs.

2.2 \textbf{CHI around the world}

CHI developed in Africa in the 1980s, in a context where a combination of user fees and failing economies made it difficult to access health care. To improve access, communities (with the assistance of external support organisations) began organising CHI schemes. While there have been various descriptions of individual schemes\textsuperscript{30-36} and their performance, Bennett was one of the first to study this movement in a more systematic manner. She investigated 82 schemes, of which 31 were located in Africa.\textsuperscript{37} The characteristics of the schemes in Africa were as follows:

- Organisation by local communities in a specific geographical setting,
- Small risk pools, usually with less than 1000 members,
- Health care benefits mainly limited to outpatient care,
- Community involvement in the management of the scheme, and
- Providers usually within the government sector

There are currently more than 600 CHI schemes in West Africa, the numbers are more modest in East and Central Africa.\textsuperscript{30}

In Asia, China was one of the early adopters of CHI. The Rural Cooperative Medical System (RCMS) was initiated in the 1960s as part of a political process. By the 1970s, it covered more than 90\% of the rural population. Contributions were made from three sources: income-based household premiums, collective welfare funds and state subsidies. In turn, the insured received comprehensive health care ranging from preventive to primary and secondary care.\textsuperscript{38} However, in the 1980s, the RCMS rapidly collapsed with the implementation of economic reforms. There are now attempts to re-introduce CHI
in China through the New Cooperative Medical Services. The other countries in Asia that have introduced CHI schemes are Nepal, Bangladesh, the Philippines, Indonesia and India.

In India, CHI schemes slowly became popular at the turn of the twentieth century. The first was initiated in 1955, and the 1990s saw a small spurt of schemes, mostly initiated by hospitals. However, the next thrust in CHI schemes came in the early 2000s, when microfinance organisations expanded their operations to protect their members from CHE. In 2003, there was about 25 functional CHI schemes, most of which were initiated by NGOs. Most of these NGOs were involved in various development activities and introduced CHI among their target populations with the purpose of increasing access to health care. These CHI schemes protected people in the informal sector, especially farmers, vendors, landless labourers and women in microfinance groups. Unlike their African counterparts, the risk pools in the Indian CHI schemes were larger, covered mostly hospital care and used private providers. Three types of CHI schemes can be distinguished: Type I, where the organiser is both the insurer and the health care provider; Type II, where the organiser is the insurer, but care is purchased from private providers; and Type III, where the organiser purchases care from private providers and insurance from private insurance companies. However, in 2003, there was still very little evidence about the contexts in which these schemes functioned, their performance and their role in the Indian health system. The few studies on Indian CHI schemes were usually limited to merely describing the schemes, with little or no analysis of their impact. Ranson conducted the first analytical studies and pointed to some evidence that the Self Employed Women’s Association (SEWA) CHI scheme provided financial protection but did not improve access to health care or improve the quality of care. Aside from these studies, there was no evidence about the performance of CHI schemes in India. Thus, we undertook this study to fill this gap. The two principal variables of performance in the present study are access to health care and financial protection.
2.3 **Access to care**

Increasing access to quality health care is a policy goal in most low-income countries. Governments want people, especially the vulnerable, to use health services when needed in order to get optimal care. However, the poor usually face many barriers, both financial and non-financial, when attempting to access health care. Access has been defined as "the ability to secure a specified range of services, at a specified level of quality, subject to a specified maximum level of personal inconvenience and cost, whilst in possession of a specified level of information". Access is about the availability of quality and affordable health care services. Obviously, access is not just about supply-side considerations; there is also a demand-side component to it (Figure 2-1).

Patients have to be aware of their illness and feel a need for treatment (1 – felt need). They can either seek care (3 – expressed need) or forego care (2 – unmet need) because of various barriers, such as distance, cost (direct, indirect and opportunity), and socio-cultural factors. If they receive care, then the need is met (4); otherwise, it remains an unmet need (2). The dimension of information is a cross-cutting issue – the more the patient is aware about the health and health services, the more he is empowered to make informed choices. Ensor distinguished demand- and supply-side barriers to health care.

How does one measure access to health care? Although general availability of services may be relatively easy to assess, one must also keep in mind the equitable distribution of services. Need is more difficult to measure. One could examine all members of the community using a biomedical measure to assess health needs and health status, but no such measure exists. The feasibility of undertaking such a venture would be daunting, not to mention the questionable validity of the results it would yield. Yet another way of measuring need is to capture self-reported morbidity. This method is obviously not sensitive to need that is not perceived, and it is subject to the ways in which the
questions are asked, interpreted and answered. A third way of approaching this issue is to appreciate
the interaction between felt needs and supply (i.e., the utilisation of services). Monitoring utilisation is
by no means a perfect measure but is nevertheless considered as an operational proxy indicator for
access to health care. While need may be seen as ‘potential access’, utilisation can be seen as ‘realised access’.

Again, there are many ways to measure the utilisation of health services. One could measure the
number of outpatient contacts, or the number of admissions or the number of people who use the
emergency room as a usual source of care. In our study, we used hospital admission rates as an
indicator of the utilisation of health services and as a proxy for access to health care. Admission rates
vary from region to region depending on the morbidity pattern, health-seeking behaviour and the
availability of health services. In India, the average admission rate in 2004 was 23 per 1000 people in
rural areas. There was considerable interstate variation, ranging from 9 per 1000 people in Jharkhand
to 101 per 1000 people in Kerala.
One important barrier to utilisation of health services is the financial barrier. Health care has a cost. If the individual patient must bear this cost, then it constitutes a significant barrier to accessing health care.\textsuperscript{59} There is evidence that user fees and OOP payments at the time of illness reduce access to health services.\textsuperscript{60} Patients then either forego health care or must cope with high medical bills. The poor and vulnerable are usually excluded from health care because of their inability to afford OOP payments at the time of illness. To overcome this barrier, policy-makers advocate pre-payment systems of financing health care.\textsuperscript{2,23,59,61,62} The objective of pre-payment systems is to maximise the temporal distance between contribution and utilisation.
Table 2-1. Demand and supply barriers to accessing health care.

<table>
<thead>
<tr>
<th>Demand-side barriers</th>
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<tr>
<td>• Lack of information about health services</td>
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<tr>
<td>• Lack of education to identify the illness or recognise its seriousness^{63}</td>
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<td>• Distance from a hospital</td>
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<tr>
<td>• Low socioeconomic status^{64}</td>
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<tr>
<td>• Lack of health insurance^{65}</td>
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<tr>
<td>• High opportunity cost</td>
</tr>
<tr>
<td>• Household/community beliefs about aetiology, treatment and providers^{65,66}</td>
</tr>
<tr>
<td>• Complex decision-making process within the family</td>
</tr>
<tr>
<td>• Availability of ‘informal’ substitute services, including home remedies</td>
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<table>
<thead>
<tr>
<th>Demand- and supply-side interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• High cost of services</td>
</tr>
<tr>
<td>• User fees^{67,68}</td>
</tr>
<tr>
<td>• Informal fees</td>
</tr>
<tr>
<td>• Long waiting time</td>
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</table>

<table>
<thead>
<tr>
<th>Supply-side barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Lack of staff</td>
</tr>
<tr>
<td>• Poor staff attitudes towards patients^{64}</td>
</tr>
<tr>
<td>• Lack of drugs and supplies</td>
</tr>
<tr>
<td>• Lack of technology</td>
</tr>
</tbody>
</table>

Adapted from Ensor et al. (2004).

There are two possible ways of collecting resources in a prepaid system. One is through taxes, and the other is through contributions to a health insurance fund. In most low- and middle-income countries, the tax base is narrow, and health budgets are usually inadequate to finance the necessary health services. Social and private health insurance products are usually limited to the formal sector and the elite, respectively^{69,70} One option that remains, especially for the informal sector and the poor, is community financing, especially CHI^{71} It is hypothesised that CHI schemes enable their members to access health care by removing part or all of the financial barriers. Households make a prepayment at a point in time when their members are healthy and able to pay. Thanks to the pooling of prepaid resources, the amount of prepayment is usually much less than the potential health bill, thereby making it affordable and acceptable.
2.4 **Financial protection**
Patients who utilise health care face the challenge of making OOP payments at the time of service utilisation, especially in low- and middle-income countries. Unlike their counterparts in most high-income countries, these patients do not have the security of a prepayment system to finance their health care. Therefore, they face a double burden: that of the illness itself and the need to find the necessary funds to finance the treatment. While certain expenses may be met by the household from its current income and/or savings, there are unfortunately situations where the family has to mortgage or sell assets to pay the patient’s medical bills. Such expenses can be catastrophic for many families, especially if a sizable proportion of their current or future income has to be spent on health care.\(^7_2\) There is increasing evidence that some families are impoverished or pushed further into poverty because of these expenses.\(^{14;73-75}\)

2.4.1 **The notion of catastrophic health expenditure (CHE)**
There is much debate on the definition of CHE. One of the first definitions was by Berki in 1986: *any medical expenditure that endangers the family’s ability to maintain its customary standard of living should be considered catastrophic.*\(^7_6\) Subsequently, various authors have used different measures to define CHE. Some define an absolute amount and consider total health expenditure (THE) above this absolute amount to be catastrophic.\(^7_7\) Others agree that if the THE of a family exceeds a certain proportion of its annual income, it should be considered catastrophic. However, there is no unanimity about the value of this proportion. Some authors have fixed the threshold at ‘more than 10% of the annual income,’\(^7_2;7_8\) while others state that if a family spends more than 40% of their disposable expenditure on health care, the expense should be considered catastrophic.\(^17;7_9-8_2\) Indeed, the World Health Organisation (WHO) recommends this last definition.\(^8_3\) However, the above definitions only measure CHE among households that have sought care. The households that had no choice but to forego care because they could not afford it (and then experienced a health shock because of loss of
productivity) are not captured by the above definition. This inherent weakness can be overcome by using panel surveys.

Yet another point of debate is whether such a threshold is applicable to all income levels. Obviously, a poor family would face a health shock even if they had to spend a small proportion of their annual income on health care. In contrast, a rich family may be perfectly able to cope with a health shock that drains more than 20% of its annual income. Hence, the relevance of fixing thresholds on the basis of income levels must be questioned.

There is also a need to consider the type of medical event. A planned event, even if costly, may be managed through savings and borrowings from family and friends. The family may be able to smooth out the consumption in spite of the high medical expenses. Conversely, an emergency event, even if less costly than the former, may make it necessary for a family to sell their assets, thereby compromising future income and consumption.

Moreover, many authors only focus on direct health expenditures when measuring THEs. Indirect expenses such as transportation, informal fees and loss of wages are not included in the calculation. However, these expenses can be sizable and can increase the incidence and intensity of CHE. Given the limitations of this economic measure, it may become necessary to consider non-economic measures, like borrowing from the market, selling an asset or downgrading one’s lifestyle. Of course, this argument needs to be validated and is a topic for future research.

2.4.2 Measuring CHE
How does one measure CHE? Usually three indicators are used: the incidence, intensity and impoverishing effect of CHE. The incidence of CHE is the fraction of households in a population that
experience CHE (as defined above). The intensity of CHE is the average of the amount above the threshold spent by those households that experience CHE. This provides an idea of the size of the problem for those households that experience CHE. The impoverishing effect is calculated as the fraction of households whose THE causes their total consumption to fall below the poverty line.\textsuperscript{84}

2.4.3 Determinants of CHE
CHE usually occurs in an environment where the following three elements are present:\textsuperscript{79}

1. Health services requiring OOP payments,
2. Lack of pre-payment mechanisms, and
3. Low capacity to pay

Health services requiring OOP payments
CHE occurs when patients have to spend money while using health services, i.e., in health systems that depend mainly on OOP payments to finance health care. There is an overall positive relation between the incidence of CHE and the share of OOP payments in THE.\textsuperscript{16,79} In countries like India, Vietnam and Brazil, where OOP payments are very high, the incidence of CHE is higher, even after controlling for other possible determinants. A 1% increase in the proportion of THE due to OOP payments is associated with an average increase of 2.2% in the proportion of households facing CHE.

Lack of prepayment mechanisms
In health systems that provide financial protection through pre-payment mechanisms, the likelihood of CHE is reduced unless the co-payments or indirect costs are very high.\textsuperscript{81} Another important element is the cost of medical care. Many authors have documented hospital admission (especially emergency hospitalisation) as the main cause of CHE.\textsuperscript{9,85} However, there is increasing evidence that even ambulatory care,\textsuperscript{82,86} treatment of chronic ailments\textsuperscript{17,86,87} and maternal care can be catastrophic.\textsuperscript{88}
Low capacity to pay

The third element is poverty. Obviously, poor families will experience CHE with even small health expenditures.\textsuperscript{17,81,83,87} Indeed, even in high-income countries like the United States of America, there is evidence of CHE among the poor.\textsuperscript{77} There is also evidence that better-off families may experience CHE, especially when the family is large,\textsuperscript{17,89} includes elderly members\textsuperscript{83} or has household members with a chronic ailment\textsuperscript{90} or a disability. A health shock compounded by other shocks (e.g., a religious function in the family\textsuperscript{9} or a crop failure\textsuperscript{13}) can also lead to impoverishment. Richer families, which tend to consume more health care from costly private providers, can also experience CHE.\textsuperscript{89,91} An ailment that may not be very costly to treat but that incapacitates the earning member of the household may cause the family to experience a health shock by virtue of reduced income.\textsuperscript{92} These considerations notwithstanding, CHE is most likely to occur in households with inadequate coping mechanisms. Such mechanisms include restricted access to credit, limited assets, no opportunity for labour substitution and a negligible social solidarity network. Thus, small (especially female-headed) households are more prone to CHE.

Catastrophic payments are the biggest issue when all three of these factors are prominently present. Therefore, we would expect to see high rates of CHE in countries with high rates of poverty, large groups of people excluded from financial risk protection mechanisms such as social health insurance, and moderate to high levels of health care access and use. India is a classic example where more than 80\% of the population uses OOP payments to meet their health care needs, only about 3\% of the population is covered by any form of health insurance, and more than 26\% of the population is below the poverty line.

2.4.4 The effects of CHE on families

The effects of a health shock can be divided into three broad categories. The immediate effect is a reduction in consumption, including of food. This change may or may not be associated with labour
substitution. Children may be pulled out of school and asked to look after their siblings while the mother seeks work. Previously non-working members of the family may also start working to augment the family income. In a worst-case scenario, families may be broken up because of migration or suicide. If the shock is limited or if the family has sufficient coping mechanisms, the family is able to tide over this acute phase and bounce back to normalcy. In contrast, if the shock results in indebtedness or sale of an income-generating asset, then future income is also compromised. Consumption will be reduced in the medium to long term, resulting in malnutrition, more frequent illness episodes and further widening of the poverty gap. The situation worsens if adults must work and lack the time to care for their children. Finally, if the children have been pulled out of school and food consumption is compromised, the next generation will also be affected as the family remains in the trap of illiteracy and poverty. These possibilities are depicted in the figure below.
Sauerborn identified 11 coping strategies that households use to mitigate the effects of CHE. They include using current savings, selling or mortgaging assets, borrowing from formal or informal creditors, labour substitution (usually by including children in the labour pool) or diversifying the income sources by doing extra work to meet the burden of health costs. The choice of a strategy depends on the household’s economic and social standing prior to incurring the medical expense. Poorer households have fewer options available to cope with CHE. Evidence suggests that families relying solely on informal mechanisms are not able to insure consumption over periods of major illness. A study in China showed that people tapped their social networks first and tended to protect core assets, such as land and cattle. Those households that ultimately had to sell these core assets invariably found it difficult to recover from the catastrophe. Results are similar in India, where the National Sample Survey Organisation’s (NSSO) report showed that among 12,497 hospitalisation episodes, more than one third borrowed to meet the costs. However, only 4-5% of the patients sold...
assets to cope with the calamity. This pattern of results held in both the upper and the lower quartiles. A study using nationally representative survey data shows that more than 3% of Indians were impoverished because of medical expenses in 1999.

2.4.5 Preventing CHE
Protecting families from CHE should be a policy goal of every government. The ability to pay matters. The ethical position is that no one should spend more than a given fraction of his or her income on health care. There are many ways of providing health security, ranging from increasing income to increasing the depth of the benefit package or controlling medical costs. However, most authors are unanimous in recommending that the best way to reduce the incidence and intensity of CHE is by reducing OOP payments. They recommend that countries shift to prepayment as the predominant mechanism for financing health care. Therefore, countries must either strengthen their tax-based systems or introduce health insurance to protect vulnerable households.

2.4.6 Health insurance and CHE
Conceptually, health insurance (by its prepayment and pooling mechanism), should protect families from unexpected health expenditures. In this section, we examine the evidence first from the international scenario and then from the Indian context.

Studies from Mexico provide strong evidence that health insurance prevents CHE. Using data from nationally representative surveys, the authors show that the incidence and intensity of CHEs and impoverishment decreased after the introduction of the Seguro Popular, a health insurance programme for the poor. Another study from China’s Gansu province indicates that with the introduction of the New Cooperative Medical Scheme, insured families had a lower incidence of CHE compared to uninsured families. These studies provide empirical evidence for the protective effect of CHI.
Conversely, many authors have stated that there is no clear evidence that health insurance protects families from CHE. A study from three countries in Africa shows that health insurance was protective only in Senegal and for the rich in South Africa. In Kenya, there was no protective effect of health insurance.\(^8^2\) Wagstaff et al. (2009) demonstrated that the protective effect of the NCMS in China is negligible.\(^3^9\) Carrin (2003) concurred, stating that few CHI schemes are able to protect households from CHE.\(^7^1\) The main reason for this counterintuitive finding is that many health insurance schemes have a very shallow benefit package. This leads to high OOP payments by the patient and thereby to CHE.\(^7^5;1^0^0\)

Another set of studies revealed that health insurance may even increase the incidence of CHE. Studies from China show that the combination of a shallow benefit package and the insurance incentive to use more health services increases the incidence of CHE.\(^1^0^1;1^0^2\) Ekman (2007) argues that insured patients have more health care needs and make more use of health services, leading to higher THE and possibly CHE.\(^1^0^3\)

To summarise, the evidence that health insurance protects households against CHE is equivocal. The design of the health insurance scheme is crucial. Health insurance schemes with substantial co-payments, shallow benefit packages and high OOP payments at the point of use are hardly protective. On the contrary, schemes with a more comprehensive package, minimal exclusions and little or no OOP payments can prevent CHE.

Similar findings are found in the Indian context. Ranson (2003) states that there is scant evidence regarding the protective effects of Indian CHI schemes.\(^2^1\) Only the Vimo SEWA scheme has been demonstrated to have some protective effect.\(^4^9\) There is thus a need to generate more evidence from within the country on the protective effect of CHI on CHE.
2.5 Quality of care

Quality of care is one of most important determinants of health service utilisation. Various studies have indicated that health services utilisation is very sensitive to users’ perceptions of the quality of care that is offered.\textsuperscript{104-107} Many studies concentrate on clinical aspects of this question,\textsuperscript{108-111} but increasingly, studies approach quality of care from the patient’s perspective.\textsuperscript{66;104;107}

2.5.1 Defining quality of care

Quality is a very complex dimension of healthcare. The late Donabedian, a leading expert on quality, explicitly stated that several definitions are possible, depending on where one is located in the health system. For the health care provider, quality may be synonymous with technical competence, while for the user, quality includes availability of medicines and a friendly attitude of the provider. Conversely, for the policy maker, quality may be tantamount to efficiency.\textsuperscript{112}

The OECD definition of quality of care is “the degree to which health services .... increase the likelihood of desired health outcomes and are consistent with current professional knowledge.”\textsuperscript{113} Campbell (2000) simplifies this further and states that care is of good quality if it is accessible and effective.\textsuperscript{114}

Quality of care is a complex and multidimensional entity and is difficult to measure directly. Most authors assess various dimensions of quality. While some categorise the dimensions as clinical and non-clinical,\textsuperscript{115} others divide the dimensions into access and effectiveness.\textsuperscript{114} The framework presented in Table 2-2 is an attempt to present these diverse views and to reconcile the vocabulary of quality into a common framework. In this framework, we distinguish between domains of health care delivery (i.e., structure, process and outcome) and dimensions (i.e., clinical and non-clinical).
The structural and procedural domains are necessary but not sufficient to produce quality care. The ultimate tests of quality are the outcome of health care, whether it was effective, whether it was safe and whether it met the expectations of the patient. The latter concern, patient satisfaction, is a very important aspect of quality of care. It describes the patient’s perspective on the health care received and has an evaluative component.\textsuperscript{116} Studies have indicated that adherence to medical advice and treatment is related to patients’ satisfaction.\textsuperscript{117} Linder-Pelz (1982) defined patient satisfaction as “positive evaluations of distinct dimensions of health care.”\textsuperscript{118} However, satisfaction is determined by various socio-psychological variables, such as perception of the health care event, the expectations of the patient, personal preferences of the patient, the extent to which health care violated the patient’s sense of self and the interpersonal component of care.\textsuperscript{117} Patients then arrive at satisfaction levels based on whether their expectations have been met. This process implies that patients with low expectations may have high levels of satisfaction. Several studies have shown that prior experience with health services is also a strong determinant of satisfaction.\textsuperscript{116} However, Atkinson (2009) disagrees; her study shows that Brazilian patients are aware of the duties and responsibilities of the health services. Their satisfaction is based on a mixture of the performance of the broader health care system and improvements in health services over time.\textsuperscript{119}

Other than this, some ‘contextual dynamics’ influence the expression of satisfaction. Patients want to ingratiate themselves to the researchers and medical staff and so prefer to give more positive responses than correspond to their true opinions. This, combined with a ‘cognitive consistency bias’ and a ‘Hawthorne effect’, can result in an overestimation of actual satisfaction levels.\textsuperscript{119}

Many frameworks exist to measure patient satisfaction.\textsuperscript{71} These include the ‘Expectation Fulfilment’ model by Linder Pelz,\textsuperscript{118} the ‘Cognition – Affect’ model by Oliver,\textsuperscript{55} and the ‘Zone of Tolerance’
model by Parasuraman et al.\textsuperscript{120} However, all of these models were developed and used in high-income countries, where the context is very different from that of India. The only framework that has been tested in a low-income country was one developed by Andaleeb and validated in Bangladesh.\textsuperscript{121} The framework uses six variables, with various measures for each variable. According to the analysis, \textit{service orientation of the doctor} is the most important determinant of patient satisfaction. \textit{Service orientation of nurses} comes next, and this is followed by \textit{confidence in the providers’ technical skills}, \textit{physical infrastructure} of the facility, \textit{good interpersonal communication}, \textit{empathy in the staff}, and \textit{the process of care}. This framework is similar to the one developed and validated by Rao et al. (2006) for the Indian context.\textsuperscript{104} Rao found that there were five dimensions of perceived quality of care; \textit{doctor’s behaviour, staff behaviour, availability of medicines, medical information and facility’s infrastructure}, which led to general patient satisfaction.
Table 2-2. Framework for measuring patient satisfaction.\textsuperscript{114,115,122-127}

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<thead>
<tr>
<th>DOMAINS</th>
<th>DIMENSIONS</th>
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<tbody>
<tr>
<td></td>
<td>Clinical</td>
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<tr>
<td><strong>Structure</strong></td>
<td>Availability of competent staff</td>
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<td></td>
<td>Accountability of staff</td>
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<td></td>
<td>Availability of medicines</td>
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<td></td>
<td>Adequate infrastructure and equipment</td>
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<td></td>
<td>Organisational access, i.e., an appointment system, a referral system, and multidisciplinary teams</td>
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<td></td>
<td>Facility is clean and hygienic</td>
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<tr>
<td><strong>Process</strong></td>
<td>Accuracy of diagnosis and treatment</td>
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<td></td>
<td>Appropriate and necessary care</td>
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<td>Continuity of care</td>
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<td>Efficiency</td>
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<td>Integrated care</td>
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<tr>
<td><strong>Outcome</strong></td>
<td>Treatment is effective</td>
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<td></td>
<td>Patient is safe</td>
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<td></td>
<td>Equity</td>
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2.5.2 CHI and patient satisfaction

Demand-side financing is considered an important tool to improve the quality of care and, thereby, patient satisfaction. One of the mechanisms is when the organiser of the CHI scheme strategically purchases health care from the provider.\textsuperscript{71} Carrin defines strategic purchasing \textit{when there is a continuous search for the best health services to purchase, the best providers to purchase from and the best payment methods and contracting arrangements}. Strategic purchasing includes, among other facets, a mandate to set quality standards of care. This could include the following activities: gate keeping, contracting out with specific providers, maintaining a provider profile and monitoring quality and financial performance, conducting utilisation reviews, quality assurance, introducing
generic medicines and implementing standard treatment protocols. To summarise, the organiser of the scheme can negotiate with the provider for a better quality of care because they control the funds and are ultimately responsible for paying the provider.

Yet another mechanism to improve the quality of care is by empowering communities to demand for better services. In any health insurance scheme, there is an element of ‘service guarantee’ (i.e., once the insured patient pays the premium, the insurer has to guarantee the promised services). This can give the insured patient the authority to ‘demand’ the services from the provider. Thus, the insured patient can ideally access the care that is required.

In both of these mechanisms, the organisers of CHI schemes focus the collective bargaining power of the CHI on market forces that compete for patients. In a competitive market where providers vie for patients, the latter can leverage a better level of health services than would otherwise be possible.

However, there is minimal evidence that CHI schemes are able to improve patient satisfaction among their members. In fact, one of the main reasons for low enrolment in CHIs is the poor quality of care that members perceive. Conversely, there is evidence to suggest that CHI schemes may increase access to services of poorer quality. Thus, it is important to research the impact of CHI schemes on quality of care and patient satisfaction.

2.6 Conclusions
Various stakeholders, ranging from donors to governments, are actively promoting CHI. The basic premise is that pre-payment and the risk pooling mechanism will improve access to quality health services. However, evidence based on the above literature review does not support this premise
equivocally, especially in India. Hence, the performance of CHI schemes needs to be investigated to acquire the necessary evidence to make informed decisions.
Chapter 3. Context of the study

We initially used a case study methodology to investigate existing CHI schemes in India. Based on the findings of this study, we purposively selected three schemes that represented each of the three models of CHI in India.

A literature review revealed that there were 25 CHI schemes in India in 2003. Of these, eight provided only outpatient care. We excluded these eight and purposively selected 10 schemes from the remaining 17 (Figure 3-1). We then visited each of these ten schemes and collected data by interviewing key stakeholders and by extracting data from registers and reports.

Figure 3-1. CHI schemes in India - 2003.

After completing the initial study, we purposively selected three CHI schemes, each representing a different model of CHI. ACCORD represented the provider model, KKVS the mutual model and
SEWA the linked model. We studied these schemes in greater detail, including conducting household surveys to gather relevant information.

### 3.1 The ACCORD CHI scheme

This scheme is located in Gudalur, a forested sub-district in Tamil Nadu, India. ACCORD, an NGO engaged in the overall development of indigenous people, or adivasis, initiated the ACCORD CHI scheme in 1992. The CHI scheme’s main objective was to improve access to hospital care for the adivasis living in the Gudalur sub-district.

The adivasis could enrol by paying a premium to the local adivasi union. If hospitalised, insured patients were entitled to care on payment of a small fee. Uninsured adivasis had to pay the cost of medicines. All adivasis received free primary care irrespective of their insurance status.

Using data extracted from registers, we estimated the admission rates for insured and uninsured patients. Using these rates, we arrived at a sample size of 250 families each for insured and uninsured populations (confidence level of 95% and power of 80%). The list of adivasi households on July 1, 2004 was the sampling frame. Insured households were randomly selected from this list using systematic sampling. Of the 324 households sampled, 305 consented to enrol for the study. We then matched each enrolled family with an uninsured family in the same neighbourhood. Families were matched based on demographic and socio-economic parameters.

Next, we administered a structured baseline questionnaire to the sampled families. Village volunteers followed up with these sampled households every week to record the incidence of any illness. Any family with a major ailment was interviewed in detail to document morbidity, health-seeking behaviour, expenditure on medical care and the perception of care received.
We measured access to hospital care by using admission rates. CHE was defined if total health expenditure exceeded 10% of the annual household income.

We used $\chi^2$ tests and Mann-Whitney tests to determine differences in admission rates between insured and uninsured patients. Associations were quantified using risk or odds ratios and 95% confidence intervals (CI). To control for confounding, we constructed two logistic regression models.

Data were also collected from the hospitalisation register at the Gudalur Adivasi Hospital. Details of each patient’s socio-economic profile, diagnosis, length of stay and total bill were used to document the direct health expenditures on hospitalisations incurred by the insured and uninsured.

More details of the methods used at ACCORD are given in our article, *Community health insurance in Gudalur, India, increases access to hospital care* (Page 45).

### 3.2 The KKVS CHI scheme

Development for Humane Action (DHAN) is an NGO that promotes micro-credit activities among poor women in the Theni district of Tamil Nadu. These village-level groups federate at the sub-district level into ‘Kalanjiums’.

One such federation is the Kadamalai Kalanjiam Vattara Sangam (KKVS), a federation of 5,391 female members. The KKVS federation introduced a CHI scheme for its members and their families. Members could enrol by paying a premium to the group, which in turn handed the premium over to the KKVS insurance committee.
Enrolled individuals could access hospital care in any of the eight empanelled private hospitals. The patient paid the bills and submitted relevant documents to the insurance committee for reimbursement.

We used stratified random sampling to select households for inclusion in the study. Households were stratified according to geographic clusters, and proportionate random samples of insured and uninsured households were selected from each cluster. A total of 500 insured and 500 uninsured households were sampled. We then administered a pre-tested, structured questionnaire to these households, documenting their demographic, social and economic profiles. Hospitalisations in the past year, health-seeking behaviour, perceived quality of care and health expenditure incurred during these hospitalisations were also noted. Median and proportions with 95% (CI) were used to quantify associations.

Three focus group discussions were conducted at KKVS with community representatives. The main objective of the FGD was to develop the indicators for quality of care as perceived by the communities.

More details of the methods used at KKVS are given in our article, *The effect of community health insurance on patient satisfaction – evidence from India* (Page 47).

### 3.3 Self-Employed Women’s Association (SEWA)

The Self-Employed Women’s Association (SEWA) is a union of women employed in the informal sector. Although SEWA has a national presence, its work is mainly concentrated in the state of Gujarat. SEWA provides an integrated insurance package for its members and their husbands. In 2003, for an annual premium of US$3.20, a couple was insured against hospital expenses but only up
to a maximum of US$45. Patients could use either government or private hospitals, had to pay the hospital bills and were later reimbursed by SEWA after producing the necessary documents.

Data from SEWA’s claims register were used to collect information about insured patients and their claims. Socio-economic data and details of the disease, hospitalisation, cost of treatment and reimbursement were used to evaluate the health expenditure by insured patients. We also interviewed nine pairs of insured and uninsured patients to document their experiences when they were hospitalised.

More details of the methods used at SEWA are given in our article, *Indian community health insurance schemes provide partial protection against catastrophic health expenditure* (Page 46).

The methodologies used in the three schemes differ for contextual reasons. The original plan was to perform a randomised cross-sectional household survey in all the three schemes. Although this was done at KKVS, it was not possible at SEWA, mainly because another researcher was performing a different study concurrently. SEWA management was concerned about a conflict between these two studies and, hence, requested that we use only the secondary data. At ACCORD, instead of a cross-sectional survey, we used a panel survey. Both ACCORD staff and community representatives felt that there would be significant recall bias, especially because the indigenous community has a different framework of time.

In the next section, we present the results of our study, using text from already published or accepted papers.

This paper provides an overview of CHI schemes in India based on our 10 case studies. It highlights the three types of CHI schemes in India and their specific characteristics. Strengths and weaknesses are documented.


This paper investigates whether CHI schemes increase access to hospital care. Using a panel survey conducted at ACCORD, we followed up 568 families over a one year to search for differences in the utilisation rates between insured and uninsured households.

Article 3 - Devadasan N, Criel B, Van Damme W, Ranson K, Van Der Stuyft P. Indian community health insurance schemes provide partial protection against catastrophic health expenditure. BMC Health services research. 2007. (Impact factor – 1.66)

We used secondary data from ACCORD and SEWA to study whether insured patients were protected from catastrophic health expenditures.

We studied the satisfaction levels of insured and uninsured patients in both ACCORD and KKVS to see if insurance made any difference.
Chapter 4. Published and accepted papers

Article 1 - The landscape of community health insurance in India: an overview based on 10 case studies.
Health Policy. 2006: 78: 224-34. (Impact factor – 1.348)
The landscape of community health insurance in India: An overview based on 10 case studies

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Abstract

The Indian health system is mainly funded by out-of-pocket payments. More than 80% of health care expenditure is borne by individual households. Only about 3% of the population, mostly those in the formal sector, benefit from some form of health insurance. Several Indian Non-Governmental Organisations (NGOs) have initiated Community Health Insurance (CHI) schemes within their existing development programmes. This article describes the principal features of the design and functioning of a selection of 10 CHI schemes and presents a brief overview of the current landscape of CHI in India. The schemes explicitly target the poorest and most vulnerable households in Indian society—scheduled tribes, scheduled castes and poor women. Three CHI management models can be distinguished. The first model consists of local NGOs acting as both insurer and provider. In the second model, the NGO is the insurer but does not itself provide care, which is then purchased from a private provider. In the third model, the NGO neither does provide health care nor acts as an insurer: the NGO, on behalf of a community, links with an insurer and purchases health care from a provider. The benefit packages generally include both primary and secondary care and most of the providers are in the private sector. Most of the schemes require external resources for financial sustainability. There is currently little information on the impact of CHI schemes on the performance of local health systems and more research is warranted in that respect.

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Keywords: Community Health Insurance; Typology; India

1. Introduction

While the Constitution of India states that it is the “duty of the State to raise the level of nutrition and standard of living and to improve public health” [1], a lot remains to be done to reach these goals. Forty-seven percent of children are underweight; infant mortality
rare has been stagnating at about 70 per 1000 live births; TB, malaria, childhood illnesses and pregnancy-related diseases still kill millions. This is due to many reasons, one of them being the low allocation of government finances to the health sector [2]. Currently the Government spends about 0.9% of GDP on health care. The rest of the health expenditure (4.3% of GDP) comes from out of pocket payments by individual patients, through user charges. Health insurance covers only about 3% of the population, either civil servants or employees in the formal sector [3]. The main providers of health care in India are the ‘free’ government health services or the extensive network of private dispensaries and hospitals.

The public sector provides inadequate and low-quality health care [4]. Common complaints include poor utilisation of the primary health care facilities, overcrowding in hospitals, lack of adequate manpower, drugs and equipment [5]. The private sector on the other hand provides health care at a cost. This has serious repercussions in terms of access to health care and impoverishment. The poorest quintile of the population accesses inpatient care six times less than the highest quintile [4]. Accessing care, especially inpatient care, often leads to catastrophic health expenditure [6]; 24% of all hospitalised patients in India become impoverished because of hospital expenses [4].

Some Non-Governmental Organisations (NGOs) have initiated Community Health Insurance schemes (CHIs) to ease the burden on the poor. While there is much literature about African and Asian CHIs [7–12], there is little documented evidence from India [13,14]. This article attempts to rectify this imbalance by describing and analysing a selection of case studies of Indian CHIs. On the basis of a largely inductive analysis, more knowledge is generated on the contexts in which the CHIs developed, on the different mechanisms they use to provide insurance cover and on the specific features of the nascent Indian CHI movement. It concludes by identifying lessons that can be applied to CHIs in India as well as other countries.

2. Methods

We used a case study methodology to document the design, activities and performance of 10 CHI schemes in India. For the purpose of this study, we included only those community-financing schemes that use an insurance mechanism. Insurance is defined as “a financial instrument which, in return for payment of a contribution (or premium), provides members with a guarantee of financial compensation or service on the occurrence of specific events. The members renounce ownership of their contributions. These are primarily used to meet the costs of the benefits” [15]. We defined Community Health Insurance as “any not-for-profit insurance scheme aimed primarily at the informal sector and formed on the basis of a collective pooling of health risks, and in which the members participate in its management.” This is a slightly modified version of Atim’s original definition of Mutual Health Organisations [7].

We initially conducted a literature review on all the (documented) community financing schemes in health care in India [14,16]. Using our working definition of CHI, 25 schemes were short-listed. We excluded those providing only outpatient services (eight in number). As time and finances were limited, 10 out of the remaining 17 CHI schemes were studied. We believe that they are reasonably representative of the Indian CHI landscape.

Using the tool designed by WHO [17] and the assessment protocol of Infosure [18], a comprehensive researcher-administered questionnaire was developed. The major elements looked at were (1) the context in which the CHIs developed, (2) the principal design features of the CHI schemes, (3) the details on the premium, (4) the nature of the benefit package, and finally (5) the identity of the various stakeholders and their respective roles.

One of the three authors (ND, KR or AA) visited each of the schemes for 4 days and administered the questionnaire to its managers. Note-taking was used to record these interviews and preliminary written findings were shared with the scheme managers for their feedback, which was incorporated into the final versions. Quantitative data on subscription, utilisation and finances were extracted from registers and reports of the different CHI schemes. The data of the different cases were analysed using a case description strategy and a cross case synthesis technique [19].

The purpose of the present study is to increase our understanding of the expression CHI takes in the Indian context. The analysis of the schemes was not guided by a set of well-defined and pre-established research
hypotheses, but relied upon a more inductive approach aiming to increase our general understanding of the complex phenomenon that CHI is. It is expected that the analysis will lead to more clarity in the different types of CHI that exist in the country and to gain more insight in their design and operating features. Eventually, a rough level of comparison with the features of the CHI movement in sub-Saharan Africa could be established.

### 3. Results

#### 3.1. The context

All the CHIs studied were initiated by Non-Governmental Organisations (NGOs) or Community based organisations (CBO). The 10 NGOs are all local organisations involved in providing various development services to their target populations and nine of

<table>
<thead>
<tr>
<th>Name, acronym and location of the NGO (year of initiation of the CHI)</th>
<th>Target population for the insurance programme (size of the population)</th>
<th>Main activities of the NGO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action for community organisation, rehabilitation and development (ACCORD), Tamil Nadu (1992)</td>
<td>Scheduled tribes of Guadalur Block who are members of the Adivasi Munnetra Sangan (AMS)—a tribal union (N = 11,875 individuals)</td>
<td>Activist organisation that organises tribes to fight for their rights. Also provides health services (through a 20-bed hospital and 7 health centres), education services, agricultural and housing support</td>
</tr>
<tr>
<td>Bharat Agro Industries Foundation (BAIF), Maharashtra (2001)</td>
<td>Poor women members of the community banking scheme and living in the villages around Ulkh Kanchan town (N = 1500 women)</td>
<td>Development NGO that supports poor farmers in their agricultural operations. Works in many states. In Pune, it also operates a small health programme</td>
</tr>
<tr>
<td>DHAN Foundation (KKVS), Tamil Nadu (2000)</td>
<td>Poor women, members of the community banking scheme and living in the villages of Mayiladumparai Block. Total of 4514 members and their families (N = 19,049 individuals)</td>
<td>Organising women for micro-credit and savings activities. Also provides support for income generation and has a small primary health care programme</td>
</tr>
<tr>
<td>Jowar Rural Health Insurance Scheme (JRHS), Maharashtra (1981)</td>
<td>Small farmers and landless labourers living in 40 villages around Kasurba Hospital (N = 30,000 individuals)</td>
<td>Integrated development work including primary health care. Is supported by a Medical college hospital that provides referral services</td>
</tr>
<tr>
<td>Karuna Trust, Karnataka (2002)</td>
<td>Total population of T. Narsipur Block, with a focus on scheduled tribes and scheduled caste populations (N = 278,156 individuals)</td>
<td>Development NGO that provides development services like health, education, and income generation support</td>
</tr>
<tr>
<td>Navsarijan Trust, Gujarat (1999)</td>
<td>Select Scheduled Caste individuals in two Blocks of Pata District, North Gujarat (N is unknown)</td>
<td>Activist organisation that supports the scheduled castes in 200 villages in Gujarat and fights for their basic rights</td>
</tr>
<tr>
<td>Raigarh Ambikapur Health Association (RAHA), Chattisgarh (1980)</td>
<td>Poor people living in the catchment area of 92 rural health centres and hostel students (N = 92,000 individuals)</td>
<td>Provides technical and financial support to a network of 92 faith-based health care institutions in four districts</td>
</tr>
<tr>
<td>Self-Employed Women’s Association (SEWA), Gujarat (1992)</td>
<td>534,674 SEWA Union women members (urban and rural), plus their husbands living in 11 Districts of Gujarat (N = 1,067,348 individuals)</td>
<td>Organising self-employed women (labourers, vendors, home based entrepreneurs and small producers). Also has a credit and savings programme and an integrated social security programme</td>
</tr>
<tr>
<td>Student’s Health Home (SHH), West Bengal (1952)</td>
<td>Full-time students in West Bengal State, from class 5 to university level (N = 5.6 million students)</td>
<td>Provides comprehensive health care to students through a 70-bed multi-speciality hospital and 32 regional centres</td>
</tr>
<tr>
<td>Voluntary Health Services (VHS), Tamil Nadu (1972)</td>
<td>Total population of the catchment area of 14 mini-health centres (N = 104,247 individuals)</td>
<td>Provides comprehensive health care through a 405-bed hospital and 14 mini health centres</td>
</tr>
</tbody>
</table>

*An Indian district has about 1–2 million people. A block is a sub-district with a population of approximately 100,000.*
them are also involved in health care delivery (Table 1). The population targeted varies from about 10,000 individuals to more than 100,000. A common feature of all these NGOs is their explicit commitment towards the poor. Four NGOs work exclusively with scheduled tribes and castes—the poorest population groups in Indian society. Most of these populations live in rural regions. The average daily wage for men in these regions is approximately US$ 1.

The CHIs were initiated as a response to local community needs. The main objectives in initiating the CHI were to increase access to health care, to protect the financial assets of the household at the time of illness, and also to promote community participation in the management of health care delivery.

3.2. The design

The 10 CHI schemes can be classified broadly into three types (Fig. 1). In the first type the insurer and the provider are the same institution; the ‘provider model’.

The NGOs operate their own facilities for primary and secondary care, collect the premiums from the community themselves and meet the medical expenses from this insurance fund. The health institution thus bears the financial risk of the insurance arrangement. In one of the four situations (ACCORD), the NGO established a link with a formal insurance company in order to share the financial risks.

In the second type, the ‘insurer model’, the NGO is the insurer of the scheme. It collects the premiums from the community and purchases health care from private providers (for-profit or not-for-profit). Patients seek care from these empanelled hospitals and are either reimbursed their bills or enjoy the benefit of a third party payment mechanism.

In the third type, the ‘linked model’, the NGOs act as intermediaries between the community and formal insurance companies. The NGOs collect premiums and pass them on to a formal insurance company, be it a government or private insurer. The patients can then use the services of any health care provider.

Fig. 1. Three types of CHI.
Only Karuna Trust restricts the use to public health care providers. The insurance company reimburses the NGO, which in turn refunds the patients or the provider (Karuna Trust). In three of the four CHI schemes with linkages to insurance companies, the NGOs negotiated an appropriate insurance product for their respective target populations.

3.3. Enrollment to the CHI

All schemes have clearly defined eligibility criteria for enrolment (Table 2). Membership is confined to communities living within certain geographic limits or enrolled with a Community-Based Organisation (CBO). Yet another criterion is age, usually used in the linked model. All the 10 CHI schemes are organised on a voluntary basis. At RAHA, while the families were free to join the CHI, it is mandatory for the students staying at the church run hostels to purchase insurance. At SHH, the enrolment unit is the educational institution: once an institution agreed to join the scheme, then all the students have to pay the premium. While seven of the schemes have an individual unit of enrolment, three of them encourage the family to enrol.

Seven of the 10 CHIs use a community-rated premium system, i.e., system where the premium is identical for all the members, irrespective of their income or health status. JRHIS, Karuna Trust and VHS, however, have income-rated premiums that varied with the family income.

Seven of the 10 CHIs have a specific collection period, which usually coincides with high-income levels in the community and five of the schemes (four of them with linkages to an insurance company) have introduced a waiting period. Only at VHS was there neither a collection nor a waiting period and patients were allowed to join the scheme at the time of illness. The NGO staff collects the premium in half of the cases, while in the remaining five this is organised by the community.

Table 2 also presents data on the size of the premium and on the coverage rates of the 10 CHI schemes. The premiums range from as low as Rs. 4 per person per year (US$ 0.10) to Rs. 159 per person per year (US$ 3.53). On average, the premium for a family of five is equivalent to an adult weekly wage. In most cases, the size of the premium was decided based on affordability. It is only in the linked schemes that premiums were calculated on an actuarial basis. The enrolment rate ranges from 10% to 90% of the target population, with a median between 30% and 40%.

Seven of the CHI schemes have designed specific mechanisms to include the poor. These mechanisms range from direct subsidies of the premium to income-rated premium to providing loans or organising a deposit scheme to facilitate premium payment. At two of the CHIs, the community is allowed to pay the premium in kind.

3.4. Benefit package

In Table 3 the main characteristics of the benefit package are presented. Given our selection process, all CHI schemes studied provide hospitalisation benefits. In nine of the schemes, the NGO also provides primary care. This ranges from very basic health care by village health workers to first line care offered by doctors. It is funded from the insurance funds (in five cases) or from other sources (in four cases). Three of the schemes also provide life and asset insurance. Karuna Trust was the only scheme that also compensated for the loss of wages.

Four of the schemes excluded pre-existing illnesses and three excluded maternity services. In seven of the schemes there is a maximum limit to the benefit package. It is as low as Rs. 1250 (US$ 28) at RAHA and as high as US$ 330 at Navsaran. The average cap is in the range of US$ 50. Any expense above this has to be paid by the patient. The average hospital bill for a normal delivery ranges from US$ 25 to 125 in these regions. Admissions for uncomplicated surgeries (e.g., hernia or acute appendicitis) would cost between US$ 125 and 250.

Six of the CHI schemes have a third party payment mechanism implying that the patient does not have to pay the bill at the time of discharge. Various forms of co-payments, deductibles or systems of fixed indemnity exist in eight of the 10 schemes.

In nine of the CHIs, the providers are private, either not-for-profit or for-profit. Only Karuna Trust relied solely on public health care providers. All the providers charge a fee-for-service method to charge the patients. In most of the cases (8 out of 10), the patient can use the hospital directly. While some of the NGOs negotiated with the providers on financial matters, none had
<table>
<thead>
<tr>
<th>Name of the scheme (type of CHI)</th>
<th>Enrolment criteria</th>
<th>Unit of enrolment</th>
<th>Premium per year (INR(^a))</th>
<th>Coverage (% of target population)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCORD (provider)</td>
<td>All members of the AAMS tribal union and their families</td>
<td>Individual, although family enrolment is encouraged</td>
<td>Rs. 20 per person</td>
<td>4291 (66%)</td>
</tr>
<tr>
<td>RAIF (linked type)</td>
<td>All female members of the micro-finance groups organized by RAIF. Only women between 18 and 58 years are eligible</td>
<td>Individual</td>
<td>Rs. 225 per person</td>
<td>930 (53%)</td>
</tr>
<tr>
<td>KKVS (linked type)</td>
<td>All female members of the micro-finance groups and their families residing at Kadavukoncl Block. Only those in the age groups 1-55 years are eligible</td>
<td>Individual, although family enrolment is encouraged</td>
<td>Rs. 100 per person or Rs. 150 per family</td>
<td>7576 (40%)</td>
</tr>
<tr>
<td>JRBHS (provider type)</td>
<td>All the families residing in the 40 villages where the MGIMUs is involved. Provided that 75% of families in the village are willing to subscribe and they have constructed a latrine or taken part in similar development activities</td>
<td>Family</td>
<td>Minimum Rs. 48 per family in kind</td>
<td>Approx. 27,000 (90%)</td>
</tr>
<tr>
<td>Karuna Trust (linked type)</td>
<td>All residents of T. Narsipet Block</td>
<td>Individual</td>
<td>Rs. 20 per person, Subsidies for the poor</td>
<td>85,292 (unknown)</td>
</tr>
<tr>
<td>Narosanjan Trust (linked type)</td>
<td>All scheduled castes living in Pathan district</td>
<td>Individual</td>
<td>Rs. 159 per person</td>
<td>574 (unknown)</td>
</tr>
<tr>
<td>RAHA (linked type)</td>
<td>All poor families living in the four districts where RAHA is operating</td>
<td>Individual, although family enrolment is encouraged</td>
<td>Rs. 20 per person</td>
<td>53,598 (58%)</td>
</tr>
<tr>
<td>SEWA (linked type)</td>
<td>All female members of the SEWA Union and their spouse within the age groups of 18-58 years</td>
<td>Individual</td>
<td>Rs. 22.50 per person or Rs. 45 for family</td>
<td>102,697 (10%)</td>
</tr>
<tr>
<td>SHH (provider type)</td>
<td>Schools and colleges in West Bengal can enrol students from class 3 to university level. Exceptionally, individual students do enrol if their schools do not</td>
<td>School or college</td>
<td>Rs. 4 per student per year</td>
<td>1,286,125 (23%)</td>
</tr>
<tr>
<td>VHS (provider type)</td>
<td>All the families residing in the catchment area of the programme’s 14 health centres</td>
<td>Family</td>
<td>Rs. 250 per family of five</td>
<td>12,785 (12%)</td>
</tr>
</tbody>
</table>

\(a\) US$ 1 = Rs. 45.56 (24 October 2004)
Table 3
Characteristics of the benefit package

<table>
<thead>
<tr>
<th>Acronym of CHI</th>
<th>Primary care</th>
<th>Secondary care</th>
<th>Maximum limits (US$)</th>
<th>Exclusions</th>
<th>Co-payments at the time of admission</th>
<th>Reimbursement mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCORD</td>
<td>Additional programme from external resources</td>
<td>Insurance cover</td>
<td>33</td>
<td>Yes</td>
<td>No</td>
<td>Third party payment</td>
</tr>
<tr>
<td>BAIFF</td>
<td>Additional programme from external resources</td>
<td>Insurance cover</td>
<td>110</td>
<td>Yes</td>
<td>Yes—deductible if upper limit is exceeded</td>
<td>Insurance company reimburses patient through NGO</td>
</tr>
<tr>
<td>KKVS</td>
<td>Additional programme from external resources</td>
<td>Insurance cover</td>
<td>220</td>
<td>Yes</td>
<td>Yes—co-insurance</td>
<td>KKVS reimburses patients</td>
</tr>
<tr>
<td>JRIIS</td>
<td>Insurance cover</td>
<td>No limit</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Third party payment</td>
</tr>
<tr>
<td>Karuna Trust</td>
<td>Additional programme from external resources</td>
<td>Insurance cover</td>
<td>55</td>
<td>No</td>
<td>Yes—co-insurance</td>
<td>Third party payment</td>
</tr>
<tr>
<td>Newcastle Trust</td>
<td>No</td>
<td>Insurance cover</td>
<td>330</td>
<td>Yes</td>
<td>Yes—deductible if upper limit is exceeded</td>
<td>Insurance company reimburses patient through NGO</td>
</tr>
<tr>
<td>RAHA</td>
<td>Insurance cover</td>
<td>28</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes—deductible if upper limit is exceeded</td>
<td>Third party payment</td>
</tr>
<tr>
<td>SEWA</td>
<td>Additional programme from external resources</td>
<td>Insurance cover</td>
<td>44</td>
<td>Yes</td>
<td>Yes—co-insurance</td>
<td>Insurance company reimburses patient through NGO</td>
</tr>
<tr>
<td>SHH</td>
<td>Insurance cover</td>
<td>No limit</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Third party payment</td>
</tr>
<tr>
<td>VHS</td>
<td>Additional programme from external resources</td>
<td>Insurance cover</td>
<td>No limit</td>
<td>No</td>
<td>No</td>
<td>Third party payment</td>
</tr>
</tbody>
</table>

Feedback on the impact of cost containment in the various CHI schemes is limited, with most of the schemes relying on external funding (ACCORD, VHS, SHH, SEWA, Newcastle Trust). The ACCORD scheme indicates that cost recovery ranges from 10% to 40%, depending on the specific programme. The BAIFF scheme has a higher cost recovery rate at 80%, while the KKVS scheme is at 70%. The JRIIS scheme has a cost recovery rate of 50%, with the remaining schemes having lower rates. The Newcastle Trust scheme has the lowest cost recovery rate at 10%, indicating a high reliance on external funding.

3.5 Management

As highlighted above, a specific feature of all the CHI schemes is that they are all managed by an NGO. When looking at the various management functions, it is clear that the NGO plays a major role in managing the funds. Elsewhere, the NGO is the key player in the management and management of the funds. The NGO is responsible for ensuring financial sustainability of the schemes, managing the finances, and ensuring that the NGOs maintain high standards of quality assurance. The NGOs are also responsible for ensuring that the schemes are able to meet the health care needs of the beneficiaries.

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Table 4
Distribution of management functions in the Indian CHIs

<table>
<thead>
<tr>
<th>Functions</th>
<th>Provider model</th>
<th>Insurer model</th>
<th>Linked model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creating awareness in the community</td>
<td>NGO staff</td>
<td>NGO staff and community</td>
<td>NGO staff and community</td>
</tr>
<tr>
<td>Fixing the premium</td>
<td>NGO staff</td>
<td>NGO and community</td>
<td>NGO and insurance company</td>
</tr>
<tr>
<td>Collection of premium</td>
<td>NGO staff</td>
<td>NGO and community</td>
<td>NGO and community</td>
</tr>
<tr>
<td>Managing the insurance fund</td>
<td>NGO staff</td>
<td>NGO/community</td>
<td>NGO</td>
</tr>
<tr>
<td>Negotiations with providers</td>
<td>Inherent</td>
<td>Nil</td>
<td></td>
</tr>
<tr>
<td>Negotiations with insurance company</td>
<td>Not applicable</td>
<td>Purchasing care from other providers</td>
<td>NGO</td>
</tr>
<tr>
<td>Providing care</td>
<td>NGO</td>
<td>NGO</td>
<td>NGO and insurance company</td>
</tr>
<tr>
<td>Managing claims</td>
<td>NGO</td>
<td>NGO/community</td>
<td>NGO and insurance company</td>
</tr>
<tr>
<td>Managing reimbursement</td>
<td>NGO</td>
<td>NGO/community</td>
<td>NGO and insurance company</td>
</tr>
<tr>
<td>Managing the risk</td>
<td>NGO</td>
<td>NGO</td>
<td>Insurance company</td>
</tr>
<tr>
<td>Monitoring</td>
<td>Financial monitoring by NGO</td>
<td>Financial monitoring by NGO</td>
<td>Minimal monitoring by NGO</td>
</tr>
<tr>
<td>Feedback to the community</td>
<td>NGO</td>
<td>NGO</td>
<td>NGO</td>
</tr>
</tbody>
</table>

NB: The seven CHIs that were not studied were similar to the above 10 in terms of geographical distribution. Four were from Tamil Nadu and one each from Gujarat, Kerala and West Bengal. Three were the insurer model, two each were the direct and linked models. Of the seven, there was a preponderance of urban CHIs (4) as compared to rural. All of them also targeted farmers, self-help groups, workers’ unions and slum inhabitants.

4. Discussion

A limitation of our study is the fact that we only included CHI schemes on which documentation was available. This is likely to be a source of bias since it is expected that only the more successful schemes are in that situation. We nevertheless believe that our investigation gives an indicative view of the expression Community Health Insurance takes in India. In this section, we propose to address the most specific features of the Indian CHI movement and the lessons that can be learnt from them. When appropriate, we will discuss some of the most prominent differences with the outlook of CHI schemes in sub-Saharan Africa.

One of the important features of the Indian CHIs is their use of existing community organisations to piggyback community health insurance schemes. This is the case in almost all the schemes. This strategy helps the CHI leverage the organisational strengths of the community. Thus, creating awareness about health insurance, collecting premium, processing claims and reimbursements and providing a forum for redressal of complaints are much easier with this approach. This has particular significance for extension of health insurance to larger population groups. India has a myriad of organised communities in the informal sector, ranging from trade unions, cooperative societies, associations, etc. These could be the foundations on which health insurance could be introduced into the informal sector.

Indian CHIs differ from African schemes in that in India all schemes have been initiated by local NGOs. Most of the CHIs are nested within broader development programmes, thus providing some level of credibility to the insurance scheme. This trust is a crucial element in the development of the CHI and cannot be neglected. If the government wants to extend health insurance to new areas, they need to seek support from credible local partners, be they NGOs or local governments. Schemes introduced by outsiders without previous track record may not be acceptable to the community.

All the Indian CHIs target the poor. Two of them even exclude more affluent population groups. While this enhances horizontal equity, it also reduces risk sharing by pooling the risk only between the healthy and the sick. Some of the NGOs have tried to overcome this disadvantage by reinsuring with formal insurance companies. This is an effective mechanism for enlarging the risk pool and needs to be used more effectively.

The social proximity of the manager of Indian CHI schemes to the local community has an influence on
the definition of the insurance product. The premium and the benefit package tend to be a mutually acceptable compromise between social demands and technical priorities. It is indeed noteworthy that while most of the insurance packages were specifically designed to cover hospitalisation expenses, the NGOs invariably included primary care as well. This definitely enhances the social acceptability of the insurance arrangement, even if the final product is not financially sustainable. A final point concerning the benefit package is the fact that it is customary in Indian CHI schemes to exclude chronic diseases. Such a measure may have a strong actuarial rationale, but is fundamentally at odds with sound public health. The fact that Indian society is fully entering the era of epidemiological transition, with an increasing prevalence of lifestyle-related diseases, further compounds the situation. The government and the insurance companies need to take into account the public health perspective also while designing relevant health insurance products.

Indian CHIs can broadly be divided into three types or models. The linked model is rather typical of the Indian situation and is rarely found in sub-Saharan Africa. We believe that the existence of health insurers that offer insurance products to poor population groups, via the mediation of non-governmental organisations, constitutes a specific feature of Community Health Insurance in India. There are at least two advantages to the linked model. First, there is the possibility that the more technical management functions can be taken up by professionals instead of having them performed by volunteers as is the case in many African schemes [20]. Second, there is the possibility of enhancing the pooling of resources and thus creating possibilities to share more expensive risks. The other side of the coin is that the involvement of insurance companies in the management of Community Health Insurance may limit the scope for the community to participate in the overall decision-making process.

Most of the providers with whom the CHI schemes establish working relationships are from the private sector, which seems to be a specific feature of the Indian CHI landscape altogether. They are largely unregulated [21] and virtually all charge on a fee-for-service basis. In combination with a health insurance programme, this is a clear recipe for cost escalation [22]. That the purchasing capacity of NGOs is limited further aggravates the situation. This often resulted in cases where the health services provide services of questionable quality [23]. The NGOs definitely require technical support in negotiating, both with the providers and with the insurance companies in developing better packages for their communities and containing the costs.

On the whole, there is scanty evidence of the overall impact of Indian CHIs on health systems’ performance. Most of the schemes have inadequate monitoring and documentation systems. There is some evidence from the ACCORD scheme indicating that the CHI had increased access to hospital care for the insured [24]. Similarly the SEWA scheme appears to have reduced catastrophic health expenditure among the insured [25]. It is clear that much more effort needs to be put in assessing the various dimension of impact of Indian CHIs.

Simple design measures like a larger unit of enrolment, insisting on a referral system, introducing capitation system of payment and generic medicines can improve the performance of the CHIs considerably. With medical costs increasing, coverage of hospitalisation expenses seems to be the most appropriate policy. Government health services apparently do not appear able to cope with the demand making it necessary to work with the private for-profit and not-for-profit sector for the provision of care. There is a major role for the government in rationalising and expanding the public provision of health care. Eventually, the government could also consider the introduction of a provider accreditation system in order to help CHI schemes in their efforts to purchase quality health care.

5. Conclusion

We have attempted in this paper to explore some of the most characteristic features of Community Health Insurance (CHI) in India. Currently CHIs cover small pockets of the population. On the other hand, there is the huge social capital within Indian micro-finance groups (an estimated 8 million members), co-operative movements, farmer’s unions and trade unions. This definitely constitutes an asset. These groups can help people in enrolling members, informing them about health insurance and possibly help in collecting premiums and
managing claims and reimbursements. This is a feasible way to extend CHI to larger population groups [26]. But for this to be successful, the schemes design needs to be rational, premiums need to be affordable as well as adequate to cover the benefit package and where necessary, the government should provide subsidies to bridge the gap.

In a context where more than 80% of health care expenditure is out of pocket and only 3% of the population is covered by any form of insurance, CHI in India definitely does respond to a need, especially for poor households in the informal sector. CHI has the potential to improve people's access to quality health care, to protect households against excessive health expenditure and to shift expenditure from inequitable out-of-pocket spending to more equitable risk pooling arrangements.

Acknowledgements

The authors would like to acknowledge the World Bank, Washington, for funding the fieldwork. We would also like to express our gratitude to the managers, staff and community representatives of the 10 Community Health Insurance (CHI) schemes who shared their experience and valuable time with us. Also to Ms. RuthAnn Fanstone for helping with the data collection at one CHI. This study was possible thanks to a grant from the Institute of Tropical Medicine in Antwerp, Belgium, in the frame of their 5-year agreement (2003–2007) with the Belgian Directorate General of Development Cooperation. Finally we would like to thank Prof. Roger Eekels for his editorial comments.

References


Article 2 - Community health insurance in Gudalur, India, increases access to hospital care.

Community health insurance in Gudalur, India, increases access to hospital care

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Background To reduce the burden of out-of-pocket payments on households in India, the government has introduced community health insurance (CHI) as part of its National Rural Health Mission. Indian CHI schemes have been shown to provide financial protection and have the potential to improve quality of care, but do not seem to improve access. This study examines this dimension of CHI performance and explores conditions under which a CHI scheme can improve access to hospital care for the poor.

Methods We conducted a panel survey at the ACCORD-AMS-ASHWINI (AAA) CHI scheme in India. The AAA CHI scheme protects the poorest sections of society against hospitalization expenses. 297 insured and 248 matched uninsured households were observed by village volunteers on a weekly basis for 12 months. Any patient presenting with a ‘major ailment’ in these households was interviewed using a structured questionnaire. Outcomes measured were utilization of hospital services, cost of treatment and quality of treatment received.

Results The two cohorts were similar regarding demographic, social and economic parameters. More insured than uninsured households expressed trust in the CHI scheme organizers. Both groups had similar levels of minor ailments, but the insured had higher incidence of chronic and major ailments. Insured patients had a hospital admission rate 2.2 times higher than uninsured patients, independent of confounding factors. This higher rate among the insured was also found in children and those with pre-existing conditions. Vulnerable sections of the insured population—children, pregnant women, the poorest—had the highest admission rates. Most admissions, in both cohorts, took place in the ASHWINI hospital. Credible and trustworthy organizers, effective providers, low co-payments, and low indirect costs contributed to this result.

Conclusions A well-designed CHI scheme has the potential to improve access to hospital care, even for vulnerable sections of the community—the poorest, individuals with pre-existing conditions like diabetes and hypertension, and pregnant women.

Keywords Community health insurance, India, utilization, access to care

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KEY MESSAGES

- The community health insurance (CHI) scheme has increased the use of hospital care for the insured compared with the uninsured, independent of confounding factors such as distance, socio-economic status and pre-existing morbidity patterns.
- This increase was consistent even among the poorest, children and pregnant women, highlighting the capacity of CHI schemes to protect the vulnerable.

Background

Out-of-pocket payments by individual households to access curative care in the private sector constitute 72% of the total health expenditure in India (Ministry of Health & Family Welfare 2006). This level of out-of-pocket payment is one of the highest in the world (WHO 2006). Out-of-pocket payments have two consequences: they constitute a formidable barrier to accessing health care, and high medical expenses impoverish households. Surveys show that 5% of Indians do not access health care due to financial reasons (National Sample Survey Organisation 2006). 40% of patients have to borrow or sell assets to meet hospital expenses (Ministry of Health & Family Welfare 2005), and 24% of patients are impoverished due to hospitalization expenses (Peters et al. 2002).

The government of India has recognized this problem and is working on both the supply and the demand sides. On the supply side, it is planning to double the government budgetary allocations for health, from the current 0.9% of GDP to at least 2% (Times of India 2006). It hopes that this will result in better funded and hence better performing government health services. At the same time, it is trying to improve health insurance coverage, so that more Indians are protected against high medical costs. The National Health Policy of 2002 has recommended introducing health insurance (Ministry of Health & Family Welfare 2002). The recently launched National Rural Health Mission has strongly recommended that rural populations be covered by risk-pooling mechanisms, especially by community health insurance (Ministry of Health & Family Welfare 2005).

Community health insurance (CHI) is not a new phenomenon in India. The oldest scheme is more than 50 years old. Currently, there are more than 100 such schemes in India, most of them initiated by non-governmental organizations (NGOs). The main objectives of these schemes are to improve access to health care and to protect households from high medical expenditures (Devadasan 2005). They typically cover between 20 and 40% of their target population; the number of members ranges from 1000 to 100,000. Most of the CHI schemes cover hospitalization services in private or NGO hospitals. Administration responsibilities are shared between the community and the NGO (Devadasan et al. 2006). Many CHI schemes have linked up with formal insurance companies to expand the risk pool and make the scheme more sustainable (Devadasan et al. 2004).

Given the political will of the government it should be possible to expand the CHI movement and cover more people. However, before doing so, it would be wise to ask some basic questions. Do these CHI schemes perform? Do they increase access to health care? Do they protect the households from catastrophic health expenditures? Most importantly, what are the conditions necessary for them to meet the basic health insurance functions (Kutzin 1998)? Answers to these questions will allow governments to create an enabling context for a successful CHI movement.

Data about the ability of CHI schemes to improve access to health care is limited. Internationally, while there is considerable evidence from Africa about CHI and access to care, most of it is based on data collected at the facility level (Criel et al. 1999; Ekman 2004). There is little empirical evidence from community-based research. Baeza, in his review of 258 pre-payment schemes, shows that only 14 out of 24 studies had evidence of increased access to health care. Of these, only one was a methodologically sound study (Baeza et al. 2002). More recent field-based evidence from Rwanda (Schneider and Björk 2004; Senegal (Jütting 2003), and the Philippines (Dror 2005) has indicated that CHI schemes do increase access to primary and secondary health care. In Rwanda, utilization of outpatient services by the insured was three times higher than by the uninsured, though the former had lower incidence of ailments. In Senegal, a household survey showed that the probability of insured members using hospital services increases compared with the uninsured. Pregnant women and the elderly particularly benefit from insurance. Dror, in his study in the Philippines, documented an increase in the utilization of hospital services by the insured in comparison with the uninsured. Further, institutional deliveries were higher among the insured.

The situation is similar in India and the evidence is equivocal (Ranson 2003). While most schemes have data about coverage, very few have information on utilization, on finances, or on other performance indicators. Ranson's study of the Vimoo SEWA (Self Employed Women's Association) programme indicates that there was no difference in the utilization rate of hospital services between the insured and uninsured (Ranson 2004). An institution-based study from India, however, demonstrated an increase in hospital admissions among the insured compared with the uninsured (Devadasan et al. 2004). A report from RAHA, a CHI scheme in east India, suggests that while utilization of ambulatory care was 2-10 times higher among the insured, there was no discernable difference in hospital admission rates between the two categories. A recent study, again from Vimoo SEWA, indicates that even among the insured, the better-off have higher access to health care compared with the poor (Ranson et al. 2006).

We studied whether the ACCORD-AMS-ASHWINI (AAA) CHI scheme increased access to hospital care for the insured population and whether this increase was specifically due to insurance status.
The ACCORD-AMS-ASHWINI community health insurance scheme

This scheme is located in Gudalur, a densely forested and mountainous sub-district in Tamil Nadu, India. There were a total of 215,269 inhabitants in 2001 in Gudalur (Government of Tamil Nadu 2001). Of these, 14,149 were adivasis, or indigenous people. These adivasis were hunters and food gatherers till 50 years ago. Today they are mostly wage labourers and are one of the poorest sections of Indian society, defined by the government of India as vulnerable tribal groups. The adivasis of Gudalur are organized into a union, the Adivasi Munnetra Sangam (AMS), which fights for their rights. As of June 2004, 3138 households in Gudalur were members of the AMS.

The economy in Gudalur is plantation based, with tea being the main crop. In July 2004, there were five NGO hospitals, three government hospitals, two private hospitals and three estate hospitals in the sub-district, six of which were in Gudalur itself. Only ASHWINI hospital provided the four basic specialty services: general medicine, surgery, obstetrics and paediatrics.

The AAA CHI scheme was initiated in 1992 by ACCORD, a local NGO engaged in overall development of the adivasis. The CHI scheme's main objective was to improve access to hospital care for the adivasis living in the Gudalur sub-district (Devadasan et al. 2004). All AMS members were eligible to join the AAA CHI scheme (Figure 1). To join, each member had to pay a premium of Rs 25 (US$0.54) per person per year during a definite collection period. This premium was collected by the ACCORD field staff and the AMS leaders. Insured members, if hospitalized in the ASHWINI hospital, were entitled to care after payment of a small fee of Rs 10 (US$0.22) per admission. Uninsured AMS members had to meet the costs of medicines (US$2–5), while non-adivasis patients had to pay the entire hospital bill (US$13–20). ASHWINI hospital in turn had insured all the AMS members with a formal insurance company through external resources. The company reimbursed ASHWINI for the hospitalization expenses of AMS members, up to a maximum of Rs 2900 (US$54) per insured patient per year. This entire CHI scheme was jointly managed by ACCORD and ASHWINI staff and AMS leaders. Primary care was provided free to all adivasis, irrespective of their insurance status, by ASHWINI health staff at the village and health centre levels.

Methods

The AMS list of members on 1 July 2004 was the sampling frame. The households were sorted according to villages and each of the households was given a unique number. Then the list was divided into two broad groups: insured and uninsured. There were a total of 972 (30%) insured households and 2205 uninsured households. A random number was generated using MS Excel®. This was the first insured household selected. Subsequently, every third household from the above number was selected systematically to form the 'insured' sample. This amounted to 324 households. The research team visited each of these 324 households. Twelve households had migrated to Kerala, leaving 312. Each of these was requested to enrol for the study, of which 305 consented. For each insured household recruited in the study, we then identified an uninsured household with similar characteristics. The six main characteristics that we matched were:

- Type of house—a proxy indicator for economic status
- Availability of land—a proxy indicator for economic status
- Adivasi subgroup—a proxy indicator for social status
- Village—an indicator of distance from the provider
- Family size—a proxy indicator of the age of the family members
- Age of head of household—a proxy indicator of the age of the family members.

We used a snowball technique to identify the uninsured household, asking the selected insured household to identify an uninsured household that had the above six characteristics similar to theirs. When they identify a household, the researcher visited this uninsured household and checked to see if all the six elements matched. If they matched, then the uninsured household was requested to join in the study. If they did not match, this uninsured household was requested to identify another uninsured household with the six specific characteristics. In this way, a total of 263 matched uninsured households were sampled.

In order to document households' demographic and socioeconomic profile, a structured baseline questionnaire was administered by a trained interviewer to those enrolled households who had an adult present at the time of the visit: 297 insured and 248 uninsured households. Each of these insured and uninsured households was then followed on a weekly basis from 1 July 2004 to 30 June 2005 by village volunteers. During their weekly visits, the volunteers recorded the presence or absence of any illness in the past week on a pre-printed questionnaire. While recording, these volunteers also classified the illness as a minor ailment, chronic ailment or major ailment (see definition below). These questionnaires were handed over.

Figure 1 The design of the ACCORD-AMS-ASHWINI community health insurance scheme
to a supervisor at the beginning of each month. The supervisor reviewed them and notified trained interviewers if there was a major ailment in any of the households. An interviewer then administered a third structured questionnaire to the patients presenting with major ailments. The elements investigated were utilization of hospital services, cost of treatment, and perceived quality of care received. All three questionnaires were piloted and modified when necessary.

All illnesses were classified as minor, chronic or major ailments. The last was defined as 'any illness of acute onset that was of more than three days duration and affected activities of daily living, or any illness necessitating an admission of more than 24 hours; or any fatal illness' (Gertler and Gruber 2002). A chronic ailment was defined as any ailment lasting longer than 30 continuous days. A minor ailment was by default any ailment of sudden onset which did not affect the activities of daily living for more than 5 days and lasted less than 30 days. A patient could have different types of ailments at the same time.

An insured member was defined as an AMS member who had paid the premium of Rs 25 (US$0.54) for the period from July 2004 to June 2005. A household with more than 50% of its members insured was considered to be an insured household.

Access to hospital care was measured using a proxy indicator—admission in a hospital for more than 24 hours. Details of the admission were obtained by interviewing the patients with major ailments and were supplemented with information from hospital records.

Double entry of the data was done in MS Access® and the data were analysed using SPSS for Windows version 10. Chi-square ($\chi^2$) tests and the Mann Whitney test were used in stratified analysis to assess the differences in admission between the insured and uninsured as a function of nominal and continuous potential determinants, respectively. Associations were quantified using risk or odds ratios and 95% confidence intervals. To control for confounding we constructed two logistic regression models with (as dependent variables) admission in hospital for all subjects in the study population and admissions for people experiencing major ailments, respectively. Independent variables considered for entry in the models were the factors found significant in the stratified analysis and potential determinants deemed important on a priori grounds. The model was built by Iterative backward elimination and forward selection, and significantly independent risk factors ($P < 0.05$) as well as not significant but confounding variables were retained in the final model.

**Results**

A total of 305 insured and 263 uninsured households, with 1440 and 1229 individuals respectively, enrolled in the study (Table 1). The difference between the number of insured and uninsured households existed because in one area (Devarshala) a majority of the households were insured, and it was not always possible to find matched uninsured households. However, there was no major difference in key characteristics between the matched and unmatched insured households. Of the enrolled households, 297 insured and 248 uninsured households (1409 and 1177 individuals, respectively) were administered the baseline questionnaire at the beginning of the study. The rest were not interviewed because no adult members were present in the household at the time of the visit. In this paper, we only present findings about those households that had baseline information.

These 545 households were followed regularly over 12 months. However, data for 13% of the households was missing for the last month. This was because of a combination of migration ($n = 33$) and misplacement of some forms in three villages ($n = 38$).

Table 1 shows some of the basic characteristics of the insured and uninsured households. There was no statistical difference between the insured and uninsured households for the matched parameters. The mean age, the mean family size, the proportion of females and the proportion of literates were similar in both the insured and uninsured samples. The economic status among the insured and uninsured samples was also similar. The median incomes (95% CI) for the insured and uninsured were US$620 (579, 662) and US$591 (559, 633), respectively. While these appear to be more people of higher income in the insured group, this difference is not statistically significant. Also, it must be seen in a context where more than half of both insured and uninsured families live on less than US$0.50 per capita per day. Even the top quintiles earn less than US$2.0 per capita per day. One interesting but not surprising finding was that the insured had more faith in the organizers of the CHI, i.e. ACCORD, AMS and ASHWANI, than the uninsured.

**Morbidity**

Fifty-seven per cent of insured and 58% of uninsured individuals had at least one episode of minor ailment during the 12 months that they were followed up (Table 2). Insured individuals with minor ailments had a slightly higher number of episodes compared with the uninsured. The median number (95% CI) of episodes of minor ailments per patient were 2 (1.82, 2.18) and (1.89, 2.11) for the insured and uninsured, respectively. In both categories, children, women and the poorest quintiles had a higher incidence. A total of 65 insured patients had chronic ailments. The corresponding figure for uninsured patients was 18, indicating that chronic patients enrolled in the scheme at a higher rate than other patients. As expected, the incidence of chronic ailments was significantly higher in the elderly. There was no relationship between the incidence of chronic ailments and gender or the income of the household.

A total of 191 (14%) insured individuals and 88 (8%) uninsured individuals had ‘major’ ailments. This difference was highly significant. Patients with pre-existing conditions (chronic ailments plus pregnant women) may have contributed to a sizable portion of these serious patients. Detailed analysis of those with major ailments shows that the insured uniformly had a higher incidence of major ailments (Table 3). This difference was statistically significant in children, adults, men, the poorest, the richest and the illiterate. Children aged 6–15 had a higher number of serious illnesses because of an outbreak of chicken pox. The higher incidence of major illnesses among the men was mainly due to injuries incurred at the work place.
Table 1 Characteristics of the sampled households of the ACCORD community health insurance scheme (insured and uninsured), July 2004

<table>
<thead>
<tr>
<th></th>
<th>Insured</th>
<th>Uninsured</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of households enrolled</td>
<td>305 (1440)</td>
<td>263 (1229)</td>
</tr>
<tr>
<td>No. of households with baseline characteristics (individuals)</td>
<td>297 (1409)</td>
<td>248 (1177)</td>
</tr>
<tr>
<td>Mean family size (95% CI)</td>
<td>4.8 (4.6, 5.0)</td>
<td>4.8 (4.6, 5.0)</td>
</tr>
<tr>
<td>Mean age of individualsd (95% CI)</td>
<td>24.7 (23.9, 25.6)</td>
<td>23.9 (23.0, 24.9)</td>
</tr>
<tr>
<td>No. (%) of individuals by age group&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0–5 years</td>
<td>185 (14%)</td>
<td>134 (14%)</td>
</tr>
<tr>
<td>6–15 years</td>
<td>256 (19%)</td>
<td>227 (21%)</td>
</tr>
<tr>
<td>16–45 years</td>
<td>746 (56%)</td>
<td>617 (56%)</td>
</tr>
<tr>
<td>&gt;45 years</td>
<td>161 (11%)</td>
<td>103 (9%)</td>
</tr>
<tr>
<td>No. (%) of individuals by gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>651 (48%)</td>
<td>526 (48%)</td>
</tr>
<tr>
<td>Female</td>
<td>698 (52%)</td>
<td>574 (52%)</td>
</tr>
<tr>
<td>No. (%) of individuals (&gt;6 years) who are illiterate</td>
<td>517 (45%)</td>
<td>447 (48%)</td>
</tr>
<tr>
<td>No. (%) of families by social status&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>167 (56%)</td>
<td>135 (63%)</td>
</tr>
<tr>
<td>Not low</td>
<td>130 (44%)</td>
<td>92 (37%)</td>
</tr>
<tr>
<td>Median annual income (95% CI) in US$</td>
<td>620 (579, 662)</td>
<td>591 (559, 623)</td>
</tr>
<tr>
<td>No. (%) of households by income quintiles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low income (Q1 + Q2)</td>
<td>116 (39%)</td>
<td>101 (41%)</td>
</tr>
<tr>
<td>Middle income (Q3)</td>
<td>52 (18%)</td>
<td>58 (23%)</td>
</tr>
<tr>
<td>High income (Q4 + Q5)</td>
<td>129 (43%)</td>
<td>89 (36%)</td>
</tr>
<tr>
<td>No. (%) of families for whom the travel time to Guddahur is</td>
<td>98%</td>
<td>84%</td>
</tr>
<tr>
<td>≤1 hour</td>
<td>180 (61%)</td>
<td>147 (59%)</td>
</tr>
<tr>
<td>&gt;1 hour</td>
<td>117 (39%)</td>
<td>101 (41%)</td>
</tr>
<tr>
<td>Proportion of households who trust ASHWINI hospital</td>
<td>98%</td>
<td>84%</td>
</tr>
</tbody>
</table>

<sup>a</sup>Age and sex data missing in 61 insured individuals and 76 non-insured individuals.

<sup>b</sup>status of one uninsured family is missing.

Table 2 Morbidity patterns among insured and uninsured sample for the period 1 July 2004 – 30 June 2005

<table>
<thead>
<tr>
<th></th>
<th>Insured</th>
<th>Uninsured</th>
<th>RR/OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incidence rate for minor ailments: episodes per person year (n)</td>
<td>2.1 (296)</td>
<td>1.8 (2092)</td>
<td>1.18</td>
<td>1.07, 1.30</td>
</tr>
<tr>
<td>Proportion of individuals with 1 or more episodes of minor ailments (n)</td>
<td>57% (799)</td>
<td>58% (678)</td>
<td>0.96</td>
<td>0.82, 1.13</td>
</tr>
<tr>
<td>Proportion of individuals with chronic ailments (n)</td>
<td>5% (65)</td>
<td>2% (18)</td>
<td>3.11</td>
<td>1.79, 5.47</td>
</tr>
<tr>
<td>Incidence rate for major ailments: episodes per 100 person years (n)</td>
<td>15.3 (216)</td>
<td>8.4 (99)</td>
<td>1.97</td>
<td>1.52, 2.56</td>
</tr>
<tr>
<td>Proportion of individuals with 1 or more episodes of major ailment (n)</td>
<td>14% (191)</td>
<td>8% (68)</td>
<td>1.94</td>
<td>1.48, 2.55</td>
</tr>
</tbody>
</table>

RR = risk ratio.
OR = odds ratio.
CI = confidence interval.

This also explains why there were many patients without minor ailments but who suddenly developed a major ailment.

Admissions

Among individuals with major ailments, 130 (10%) insured and 42 (4%) uninsured individuals were admitted to hospital (Table 4). The admission rate was more than 2.5 times higher for the insured compared with the uninsured. The proportion of individuals admitted was consistently higher among the insured across all categories. This difference was accentuated among insured children. Surprisingly, the lowest quintile of insured households had the one of the highest admission rates; and this difference was significant (Figure 2). This higher
Table 3 Major ailments by selected characteristics during the period 1 July 2004 – 30 June 2005

<table>
<thead>
<tr>
<th></th>
<th>Insured (n = 1409)</th>
<th>Uninsured (n = 1177)</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of individuals with major ailments by age group (in %)*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-5 years</td>
<td>17% (31)</td>
<td>10% (15)</td>
<td>1.87</td>
<td>0.93, 3.80</td>
</tr>
<tr>
<td>6-15 years</td>
<td>12% (30)</td>
<td>4% (10)</td>
<td>2.88</td>
<td>1.31, 6.47</td>
</tr>
<tr>
<td>16-45 years</td>
<td>14% (107)</td>
<td>9% (53)</td>
<td>1.78</td>
<td>1.24, 2.56</td>
</tr>
<tr>
<td>&gt;45 years</td>
<td>14% (22)</td>
<td>9% (9)</td>
<td>1.65</td>
<td>0.69, 4.07</td>
</tr>
<tr>
<td>Proportion of individuals with major ailments by gender (in %)*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>13% (86)</td>
<td>5% (29)</td>
<td>2.64</td>
<td>1.67, 4.19</td>
</tr>
<tr>
<td>Female</td>
<td>15% (104)</td>
<td>10% (58)</td>
<td>1.54</td>
<td>1.05, 2.21</td>
</tr>
<tr>
<td>Proportion of individuals with major ailments by social status (in %)*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social status – low</td>
<td>15% (116)</td>
<td>9% (65)</td>
<td>1.73</td>
<td>1.24, 2.42</td>
</tr>
<tr>
<td>Social status – not low</td>
<td>12% (74)</td>
<td>9% (22)</td>
<td>2.58</td>
<td>1.54, 4.36</td>
</tr>
<tr>
<td>Proportion of individuals with major ailments by literacy (in %)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illiterate</td>
<td>15% (80)</td>
<td>8% (36)</td>
<td>2.09</td>
<td>1.35, 3.24</td>
</tr>
<tr>
<td>Literate</td>
<td>11% (73)</td>
<td>7% (34)</td>
<td>1.70</td>
<td>1.09, 2.67</td>
</tr>
<tr>
<td>Not applicable</td>
<td>17% (31)</td>
<td>10% (15)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(children &lt;7 years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion of individuals with major ailments by income status (in %)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low income (Q1+Q2)</td>
<td>14% (71)</td>
<td>8% (40)</td>
<td>1.80</td>
<td>1.17, 2.76</td>
</tr>
<tr>
<td>Middle income (Q3)</td>
<td>15% (33)</td>
<td>10% (27)</td>
<td>1.59</td>
<td>0.89, 2.83</td>
</tr>
<tr>
<td>High income (Q4+Q5)</td>
<td>13% (87)</td>
<td>9% (21)</td>
<td>2.84</td>
<td>1.69, 4.79</td>
</tr>
<tr>
<td>Proportion of individuals with major ailments by distance from hospital (in %)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤1 hour</td>
<td>14% (117)</td>
<td>8% (53)</td>
<td>1.94</td>
<td>1.36, 2.77</td>
</tr>
<tr>
<td>&gt;1 hour</td>
<td>13% (74)</td>
<td>7% (35)</td>
<td>1.94</td>
<td>1.25, 3.03</td>
</tr>
<tr>
<td>Proportion of individuals with major ailments by presence of minor ailment (in %)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No minor ailment</td>
<td>12% (75)</td>
<td>4% (20)</td>
<td>3.36</td>
<td>1.97, 5.77</td>
</tr>
<tr>
<td>Minor ailment present</td>
<td>14% (116)</td>
<td>10% (68)</td>
<td>1.52</td>
<td>1.09, 2.12</td>
</tr>
<tr>
<td>Proportion of individuals with major ailments by presence of chronic ailment (in %)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No chronic ailment</td>
<td>12% (164)</td>
<td>7% (61)</td>
<td>1.85</td>
<td>1.39, 2.47</td>
</tr>
<tr>
<td>Chronic ailment present</td>
<td>41% (277)</td>
<td>39% (277)</td>
<td>1.12</td>
<td>0.84, 1.47</td>
</tr>
<tr>
<td>Proportion of individuals with major ailments by presence of pre-existing condition (in %)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No pre-existing condition</td>
<td>11% (147)</td>
<td>6% (75)</td>
<td>1.73</td>
<td>1.04, 2.81</td>
</tr>
<tr>
<td>Pre-existing condition present</td>
<td>100% (44)</td>
<td>100% (13)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

OR = odds ratio.
CI = confidence interval.

*Data about age, gender and social status missing from one insured and one uninsured patient.

Admission rate existed even among those who resided far away from a hospital or who were illiterate. Patients with either no minor ailments or with pre-existing conditions had a higher chance of being hospitalized.

We also reviewed admissions by diagnosis and found that among insured pregnant women, the majority (90%) delivered in a hospital, while among the uninsured, only 45% delivered in a hospital (x² = 8.6; df = 1). More than two-thirds of all patients, both insured and uninsured, were admitted to the ASHWINI hospital.

Table 4 Hospital admission of insured and uninsured individuals during the period 1 July 2004 – 30 June 2005

<table>
<thead>
<tr>
<th></th>
<th>Insured (n = 1409)</th>
<th>Uninsured (n = 1177)</th>
<th>OR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of individuals admitted in a hospital (in %)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-5 years</td>
<td>13% (180)</td>
<td>5.2% (42)</td>
<td>2.72</td>
<td>1.18, 6.24</td>
</tr>
<tr>
<td>6-15 years</td>
<td>5.5% (65)</td>
<td>0.9% (9)</td>
<td>6.51</td>
<td>1.46, 28.95</td>
</tr>
<tr>
<td>16-45 years</td>
<td>10.5% (15)</td>
<td>4.4% (4)</td>
<td>2.55</td>
<td>1.62, 4.01</td>
</tr>
<tr>
<td>&gt;45 years</td>
<td>8.1% (11)</td>
<td>3.9% (4)</td>
<td>2.17</td>
<td>0.69, 6.86</td>
</tr>
<tr>
<td>Proportion admitted by gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>9.0% (120)</td>
<td>3.2% (29)</td>
<td>2.98</td>
<td>1.71, 5.18</td>
</tr>
<tr>
<td>Female</td>
<td>10.0% (140)</td>
<td>4.2% (26)</td>
<td>2.56</td>
<td>1.59, 4.12</td>
</tr>
<tr>
<td>Proportion admitted by social status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social status – low</td>
<td>10.2% (120)</td>
<td>4.3% (29)</td>
<td>2.39</td>
<td>1.55, 3.68</td>
</tr>
<tr>
<td>Social status – not low</td>
<td>8.7% (11)</td>
<td>2.4% (4)</td>
<td>3.94</td>
<td>1.98, 7.84</td>
</tr>
<tr>
<td>Proportion admitted by literacy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illiterate</td>
<td>10.8% (120)</td>
<td>3.6% (29)</td>
<td>3.27</td>
<td>1.85, 5.79</td>
</tr>
<tr>
<td>Literate</td>
<td>6.9% (140)</td>
<td>3.3% (26)</td>
<td>2.16</td>
<td>1.20, 3.88</td>
</tr>
<tr>
<td>Not applicable</td>
<td>12.8% (15)</td>
<td>5.1% (4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(children &lt;7 years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion admitted by income quintiles</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low income (Q1+Q2)</td>
<td>10.9% (120)</td>
<td>3.4% (29)</td>
<td>3.47</td>
<td>1.95, 6.15</td>
</tr>
<tr>
<td>Middle income (Q3)</td>
<td>10.0% (140)</td>
<td>5.1% (26)</td>
<td>2.14</td>
<td>1.07, 4.26</td>
</tr>
<tr>
<td>High income (Q4+Q5)</td>
<td>7.6% (15)</td>
<td>2.8% (4)</td>
<td>2.93</td>
<td>1.34, 5.34</td>
</tr>
<tr>
<td>Proportion admitted by distance to hospital</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤1 hour</td>
<td>9.7% (120)</td>
<td>3.8% (29)</td>
<td>2.75</td>
<td>1.75, 4.33</td>
</tr>
<tr>
<td>&gt;1 hour</td>
<td>8.5% (11)</td>
<td>3.3% (4)</td>
<td>2.73</td>
<td>1.53, 4.87</td>
</tr>
<tr>
<td>Proportion admitted by presence of trust</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>12.0% (120)</td>
<td>3.2% (29)</td>
<td>4.09</td>
<td>0.95, 17.52</td>
</tr>
<tr>
<td>Yes</td>
<td>9.1% (140)</td>
<td>3.7% (26)</td>
<td>2.62</td>
<td>1.79, 3.84</td>
</tr>
<tr>
<td>Proportion admitted by presence of minor ailments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No minor ailments</td>
<td>9.5% (120)</td>
<td>1.8% (29)</td>
<td>5.72</td>
<td>2.80, 11.67</td>
</tr>
<tr>
<td>Minor ailments present</td>
<td>9.0% (140)</td>
<td>4.9% (26)</td>
<td>1.94</td>
<td>1.26, 2.96</td>
</tr>
<tr>
<td>Proportion of individuals admitted by diagnosis of chronic ailments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No chronic ailments</td>
<td>7.5% (120)</td>
<td>3.3% (29)</td>
<td>2.53</td>
<td>1.73, 3.69</td>
</tr>
<tr>
<td>Chronic ailments present</td>
<td>36.9% (140)</td>
<td>22.2% (26)</td>
<td>2.05</td>
<td>0.65, 6.94</td>
</tr>
</tbody>
</table>

OR = odds ratio.
CI = confidence interval.

Admissions may be influenced by the incidence of major ailments. Since this was higher in the insured sample, could this be the reason for the higher admission rates? To nullify this effect, we analysed the proportion of admissions by incidence of major ailments. The proportion of admissions among those with major ailments was still significantly higher.
among the insured (Table 5). While only 44% of uninsured patients with major ailments were admitted, the corresponding figure for the insured was 65%, 1.4 times more. This implies that the probability of admission is nearly 40% more for those with insurance. This probability was higher among children, women, the illiterate, and among the lowest income group in the insured households. Those with pre-existing conditions had the highest probability of being admitted.

Admissions to a hospital have various determinants and these can confound each other. However, logistic regression in both the total sample as well as in those persons who had a major illness episode shows that after controlling for confounding, insurance status was a significant determinant. The insured had a more than two-fold increase in odds of admission compared with the uninsured (Table 6). The other main predictor for admission is the presence of pre-existing conditions or chronic ailments. Interestingly, social status and income were not predictive of hospitalization. We could not demonstrate a modifying effect of any of the considered variables.

Discussion

In this panel survey we followed 545 households over 1 year and documented their morbidity and health seeking behaviour to analyse if there was any difference between households with insurance and those without. We used a panel survey to minimize recall bias, especially since this population was mostly illiterate and would have had difficulty recalling events and expenditure amounts. The sampling was adequate, since the matched parameters were comparable in both categories. There was no difference in the demographic profile of the insured and uninsured households. There was also similarity in the social and economic status between these two groups.

The proportion of individuals with minor ailments was similar in both categories. However, there were more patients with chronic ailments and with major ailments in the insured group. This could indicate an element of adverse selection, wherein less healthy individuals are enrolling at a higher rate than healthy individuals. While adverse selection is usually seen as a negative feature because of its financial implications, from a public health perspective, these are the very people who are at high risk and who need health care and financial protection under an insurance mechanism (Criel 1998). Certain design features, like having the family or the village as the enrolment unit or shifting from a voluntary to a mandatory

| Table 5 Admission for major ailments during the period 1 July 2004 – 30 June 2005 |
|-----------------------------------------------|-----------------|-----------------|--------|--------|
|                                               | Insured (n = 216) | Uninsured (n = 99) | OR    | 95% CI |
| Proportion of patients with major ailments admitted (n) | 65% (140)        | 44% (44)         | 2.30  | 1.42, 3.74 |
| Proportion of patients admitted by age          |                 |                 |       |        |
| 0-5 years                                      | 73.0%           | 42.1%           | 3.71  | 1.16, 11.89 |
| 6-15 years                                     | 43.8%           | 20.0%           | 3.11  | 0.57, 17.02 |
| 16-45 years                                    | 69.6%           | 48.3%           | 2.45  | 1.28, 4.69 |
| >45 years                                      | 60.0%           | 45.3%           | 1.80  | 0.45, 7.25 |
| Proportion of patients admitted by gender      |                 |                 |       |        |
| Male                                           | 64.6%           | 54.3%           | 1.52  | 0.68, 3.39 |
| Female                                         | 65.3%           | 38.5%           | 3.00  | 1.60, 5.63 |
| Proportion of patients admitted by social status|                 |                 |       |        |
| Low status                                     | 62.5%           | 44.4%           | 2.08  | 1.17, 3.72 |
| Not low status                                 | 69.2%           | 42.3%           | 3.07  | 1.23, 7.66 |
| Proportion of patients admitted by literacy status|               |                 |       |        |
| Illiterate                                     | 67.4%           | 43.9%           | 2.64  | 1.24, 5.62 |
| Literate                                       | 57.7%           | 45.7%           | 1.62  | 0.73, 3.61 |
| Not applicable (children <7 years)             | 73.0%           | 42.1%           |       |        |
| Proportion of patients admitted by income levels|                 |                 |       |        |
| Low income (Q1 + Q2)                          | 69.9%           | 37.0%           | 3.96  | 1.45, 8.47 |
| Middle income (Q3)                            | 65.7%           | 46.7%           | 2.19  | 0.80, 5.96 |
| High Income (Q4 + Q5)                         | 60.2%           | 36.5%           | 1.16  | 0.46, 2.91 |
| Proportion of patients admitted by distance    |                 |                 |       |        |
| ≤1 hour                                        | 65.9%           | 45.8%           | 2.29  | 1.22, 4.28 |
| >1 hour                                        | 63.1%           | 42.5%           | 2.31  | 1.07, 4.98 |
| Proportion of patients admitted by presence of trust|           |                 |       |        |
| No                                             | 50.0%           | 50.0%           | 1.00  | 0.14, 7.10 |
| Yes                                            | 65.2%           | 43.7%           | 2.42  | 1.45, 4.03 |
| Proportion of patients admitted by presence of minor ailments| |                 |       |        |
| No minor ailments                              | 75.3%           | 45.8%           | 3.69  | 1.40, 9.24 |
| Minor ailments present                         | 58.0%           | 44.0%           | 1.76  | 0.99, 3.12 |
| Proportion of patients admitted by presence of chronic ailments| |                 |       |        |
| No chronic ailments                            | 60.4%           | 43.2%           | 2.01  | 1.20, 3.37 |
| Chronic ailments present                       | 88.2%           | 54.3%           | 6.23  | 2.19, 16.30 |
| Proportion of patients admitted by presence of pre-existing conditions| |                 |       |        |
| No pre-existing conditions                     | 57.7%           | 43.0%           | 1.81  | 1.07, 3.06 |
| Pre-existing conditions present                | 89.6%           | 53.8%           | 7.37  | 1.76, 30.82 |

OR = odds ratio, CI = confidence interval.
Table 6  Independent risk factors for admissions after controlling for confounding factors in logistic regression analysis

<table>
<thead>
<tr>
<th>Variable</th>
<th>Whole study population</th>
<th>Those with major illness episodes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Odds ratio</td>
<td>95% CI</td>
</tr>
<tr>
<td>Insurance status (yes)</td>
<td>2.31</td>
<td>1.54, 3.47</td>
</tr>
<tr>
<td>Age group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-5 years</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6-15 years</td>
<td>0.31</td>
<td>0.16, 0.61</td>
</tr>
<tr>
<td>16-45 years</td>
<td>0.60</td>
<td>0.38, 0.94</td>
</tr>
<tr>
<td>&gt;45 years</td>
<td>0.36</td>
<td>0.17, 0.76</td>
</tr>
<tr>
<td>Gender (female)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Distance (&gt;1 hour)</td>
<td>0.71</td>
<td>0.48, 1.04</td>
</tr>
<tr>
<td>Presence of minor ailments (yes)</td>
<td>2.10</td>
<td>1.36, 3.24</td>
</tr>
<tr>
<td>Presence of chronic ailments (yes)</td>
<td>6.22</td>
<td>2.90, 13.35</td>
</tr>
<tr>
<td>Presence of pre-existing conditions (yes)</td>
<td>37.61</td>
<td>27.15, 122.26</td>
</tr>
</tbody>
</table>

enrollment, would minimize the financial implications of adverse selection.

Adverse selection may contribute to the higher incidence of major ailments among the insured, but it cannot be the entire reason. This is because the high incidence of major ailments is uniform across gender, age groups and income quintiles. Also there is no corresponding increase in the proportion of patients with minor ailments. Finally, the number of episodes of major ailments per patient is similar in the two groups. The higher number of patients with major ailments could also be explained by the fact that our definition of ‘major ailments’ included patients who have been admitted. Since there appears to be a higher admission rate among the insured, this may have indirectly contributed to a higher rate of patients with ‘major ailments’. A third possible explanation is the fact that we recorded ‘reported’ illnesses. Amartya Sen highlights one of the flaws of measuring ‘reported’ illness, mainly that this depends on the perception of the individual and is open to bias (Sen 2002). The poor and especially those living in a resource-poor environment may have a lower perception of ill health, since there is not much that they can do about it. In this study, the uninsured may be more stoic and prefer to continue working rather than stay at home. This could be the reason why even after removing the patients with chronic ailments, the incidence of major ailments in the insured group remains high. This could indicate that the insured households are not only more risk averse but also tend to consider illness as an adverse event in their lives that needs remedy. The contribution of adverse selection needs to be explored further.

The insured had more than twice the rate of admissions than the uninsured. This is striking and indicates that the insured have much more access to hospital care in comparison with the uninsured. Access to health care has many determinants (Igun 1979; Andersen 1995): distance, financial barriers, acceptability of the provider, social and economic class of the patients, and effectiveness of the care provided. In view of the sampling strategy, many of these important determinants of utilization should not substantially confound the relationship between utilization and insurance status. This is supported by our multivariate analysis which clearly shows that insurance status remains an important factor for hospital admissions, after controlling for confounding factors. This indicates that a well-run CHI programme has the potential to remove some of the barriers to health care and improve access. We say some, because we note that as distance increases, the utilization of hospital services decreases independent of insurance status. Probably for those living further away, the benefit of health insurance is offset by the transportation costs. CHI schemes targeting the poor may need to reimburse travel costs if they want to improve access for those living further away. Access was high for insured children, whose admission rate was nearly twice that of the uninsured. A surprising finding has been the ability of the AAA CHI to especially benefit the poorest sections in an overall indigent population. While improved access has been established in other studies, most of them have concluded that the poorest sections fall through the CHI safety net (Bennett et al., 1998; Ranson et al., 2006). One of the reasons for the AAA scheme’s success here could be the fact that it is an entirely cashless system with very low co-payments. This allows an insured patient to walk in and out of a hospital without worrying about expenses. Cash payments, even if reimbursed later, are definitely a financial barrier. They are also a psychological barrier, since patients often state that they are afraid of the unknown bill when they go to a hospital. This is especially true in the Indian context, where fee for service is the normal payment mode.

Also in the AAA CHI scheme, the patient does not have to fill in various forms and submit numerous certificates. These were real barriers for the poor in the Vimo SEWA scheme (Sinha et al., 2006). Further, the provider of care, the ASHWINI hospital, is credible and effective and enjoyed the trust of the insured. More than 85% of the insured and two-thirds of the uninsured used the services of ASHWINI, though having a choice of other hospitals. Some of the reasons were: “this is our hospital”; “we get good treatment and good medicines in [the ASHWINI] hospital”; “the nurses and doctors treat us well. They speak in our language and explain about the illnesses.” Yet another reason could be the fact that the benefit package was part of a comprehensive health care programme, so there was continuity of care from the village to the hospital. Exclusions were non-existent, so the insured patient was confident of
getting care when approaching the ASHWINI hospital. This is not the case in many other Indian schemes where exclusions introduce an element of uncertainty at the time of illness.

All this was reinforced by the fact that the CHI scheme was organized by trustworthy organizations like ACCORD and AMS who impact other facets of community life. Trust plays an important part in community health insurance, and this has been hinted about by other authors (Criel and Waeltens 2003). This needs to be explored in more detail since it is an important determinant for the performance of a CHI scheme. It implies that public authorities and institutions wanting to introduce health insurance should be credible and trustworthy. This is relevant in the context where governments with little credibility may want to promote CHI schemes. Health insurance could be an excellent platform for initiating a ‘public-private’ partnership, where the government provides the stability and its administrative backup, while the NGO (or any other local organization) contributes its integrity and capability in managing the funds.

While the admission rates for the insured are much higher than the national averages (National Sample Survey Organisation 2006), they are similar to those in neighbouring Kerala (Mohindra et al. 2005). The obvious explanation is the higher incidence of major ailments among the insured. Another possible explanation could be the presence of moral hazard. Demand-side moral hazard could be one of the explanations for this high admission rate, but the high opportunity cost of travel, food and stay at the hospital indicates that this may be unlikely. Supply-side moral hazard could be yet another explanation of the high admission rate, as there is a financial incentive for the ASHWINI hospital to admit insured patients. But, given the extreme poverty among the abadivasi, removing any barrier is a major achievement, especially if it is through a risk-sharing mechanism so that the burden on the individual household is limited. While most CHI schemes are able to achieve horizontal equity or risk solidarity, by charging a flat premium for all, here we see indications that some level of vertical equity or income solidarity was achieved because the richer sections of the risk pool are actually cross-subsidizing the poorer sections.

The context of the AAA CHI scheme should be kept in mind while reviewing the above results. It was developed for a very poor population, and is nested within larger development activities. This, plus the close links that the community has with the various stakeholders, has definitely influenced the output of this CHI scheme. While this may not be totally reproducible in other situations, we can learn important lessons from it.

Conclusions
In this panel survey, we found that insurance status substantially determines utilization of hospital services. Even allowing for some level of adverse selection, there is evidence that the insured, especially children, are able to access hospital services to a larger extent in comparison with the uninsured. This has policy implications, since it informs the government that their move to initiate CHI schemes under the National Rural Health Mission can improve access to care for the poorer sections of society.

However, for CHI schemes to increase access for the poor, certain conditions may need to be met. To begin with, there is a need for effective health care providers who are able to provide quality care. Second, the administration of the scheme needs to be as simple as possible, with a cashless system in place and minimum paperwork for households at all levels. Co-payments and exclusions should be negligible to remove uncertainties at the time of illness. For the scheme to reach out to those living far away, transport costs should be included in the benefit package. And last but not least, the entire scheme should be managed by a credible and trustworthy organization.

Acknowledgements
We would like to thank the more than 100 village volunteers who patiently and with great enthusiasm collected the information, week after week. Without them, this study would not have taken place. We would like to thank Dr Bharat Gadhwani, Mr Easwaran and their team, for travelling the length and breadth of Gudalur, motivating these volunteers and supervising their output. And we would like to thank Ms Malathi and Mr Janardhanan for managing the finances and the data, respectively.

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Endnotes
1. RAHA or Raigarh Ambikapur Health Association is a CHI initiated by a faith-based organization. It provides insurance cover for about 70,000 people in three districts of Chattisgarh, an eastern state in India. The population covered is mainly tribal groups, and both ambulatory as well as hospital care is covered for a small annual premium. The scheme is indirectly subsidized by Misereor, a German donor who had commissioned an evaluation of the RAHA scheme in 2006. The information is from this evaluation report.
2. ACCORD = Community Organisation, Rehabilitation and Development, AMS = Adivasi minnetra sangram, ASHWINI = Association for Health Welfare in the Nimghis.

References


Article 3 - Indian community health insurance schemes provide partial protection against catastrophic health expenditure.

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Indian community health insurance schemes provide partial protection against catastrophic health expenditure
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Abstract

Background: More than 72% of health expenditure in India is financed by individual households at the time of illness through out-of-pocket payments. This is a highly regressive way of financing health care and sometimes leads to impoverishment. Health insurance is recommended as a measure to protect households from such catastrophic health expenditure (CHE). We studied two Indian community health insurance (CHI) schemes, ACCORD and SEWA, to determine whether insured households are protected from CHE.

Methods: ACCORD provides health insurance cover for the indigenous population, living in Gadalur, Tamil Nadu. SEWA provides insurance cover for self-employed women in the state of Gujarat. Both cover hospitalisation expenses, but only up to a maximum limit of US$23 and US$45, respectively.

We reviewed the insurance claims registers in both schemes and identified patients who were hospitalised during the period 01/04/2003 to 31/03/2004. Details of their diagnoses, places and costs of treatment and self-reported annual incomes were obtained. There is no single definition of CHE and none of these have been validated. For this research, we used the following definition, "annual hospital expenditure greater than 10% of annual income," to identify those who experienced CHE.

Results: There were a total of 683 and 3152 hospital admissions at ACCORD and SEWA, respectively. In the absence of the CHI scheme, all of the patients at ACCORD and SEWA would have had to pay OOP for their hospitalisation. With the CHI scheme, 67% and 34% of patients did not have to make any out-of-pocket (OOP) payment for their hospital expenses at ACCORD and SEWA, respectively. Both CHI schemes halved the number of households that would have experienced CHE by covering hospital costs. However, despite this, 4% and 23% of households with admissions still experienced CHE at ACCORD and SEWA, respectively. This was related to the following conditions: low annual income, benefit packages with low maximum limits, exclusion of some conditions from the benefit package, and use of the private sector for admissions.

Conclusion: CHI appears to be effective at halving the incidence of CHE among hospitalised patients. This protection could be further enhanced by improving the design of the CHI schemes, especially by increasing the upper limits of benefit packages, minimising exclusions and controlling costs.
Background
Out-of-pocket payments by individual households are the main source of health care financing in India. National health accounts show that 72% of all health expenditure is made by individual households [1] which is one of the highest proportions in the world [2]. Estimates from consumer expenditure surveys show that an Indian household spends an average of 5% of its total expenditure on health care [3].

Contrary to most other consumption expenses, medical expenditure is largely unpredictable both in timing and quantity. Households, especially in low income countries, cope either by diverting their savings, borrowing, mortgaging or selling assets, or by forgoing treatment [4-10]. Many households are impoverished because of medical expenses. A study covering 5 districts in Rajasthan, India showed that medical expense was one of the three main factors pushing people into poverty [11]. A nationally representative sample survey indicated that an additional 37 million Indians (3.7% of total population) were impoverished in the year 1999 because of health care costs; increasing poverty head counts by 12% [12]. Still other studies show that 17 to 34% of hospitalised Indian patients are impoverished because of medical costs [13]. Such health care expenditures that have an adverse impact on the household are usually termed "catastrophic health expenditures (CHE)".

Health insurance is put forward as a measure to protect against CHE [4,9]. While this is theoretically plausible, there is little empirical evidence from low-income countries to support this hypothesis [14]. While Ranson [15] has demonstrated a reduction in CHE in one community health insurance (CHI) scheme, in this article we explore whether the same effect is observed in another CHI scheme in India. We studied two Indian CHI schemes to investigate whether they reduced the incidence and intensity of CHE. A second objective was to identify some of the determinants of CHE in the Indian context. Our research hypotheses were:

1. CHI schemes protect households from catastrophic health expenditure.

2. The household income, the depth of the benefit package and the cost of health care determine the incidence and intensity of CHE.

Finally, based on our findings, we explore how these schemes' protection against CHE can be enhanced.

This is a comparative study, measuring the effect of two CHI schemes on CHE. For this study, we purposively selected two schemes that had different design features - ACCORD and SEWA (as documented below).

Context
ACCORD, a non-governmental organisation (NGO) in Tamil Nadu, south India, works for the overall development of the indigenous people of the Gadulur sub-district. This population also called 'divadasi' have traditionally been hunters and food gatherers. However, with progressive deforestation over the past few decades, most of them have shifted to wage labour. As per the 2001 census, there were 215,259 inhabitants in Gadulur, of which 14,149 were adivasis [16]. ACCORD collaborates with a community based organisation, the Adivasi Munnetra Sangam (AMS), to fight for adivasi rights. In addition, ACCORD also provides health, education and agricultural services for the adivasis.

ACCORD's health programme (ASHWINI) is a three tier health system, with village health workers, health centres and a 20 bed hospital. Other than the ASHWINI hospital, there are four other NGO hospitals with a total of 75 beds, three government hospital (160 beds) and one private hospital (10 beds) in Gadulur sub district. There are only four specialists in Gadulur, two in the ASHWINI hospital and two in the government hospitals.

Part of the ACCORD health service is financed by a CHI scheme initiated in 1992 [17]. All AMS members and their households are eligible to join the ACCORD CHI scheme (Figure 1). In 2003, each AMS member paid a premium of Rs 25 (US$0.54) per person per year during a definite collection period. This premium was collected by ACCORD and ASHWINI field staff and AMS leaders. Primary care was provided free to all adivasis, irrespective of their insurance status, by health staff at village and health centre levels. Insured members, if hospitalised in the ASHWINI hospital, were entitled to hospital care up to a maximum limit of Rs 1,000 (US$23). Non-insured AMS members had to meet the costs of medicines (between US$2 and US$5), while non-adivasi patients had to pay the entire hospital bill (between US$15 and US$20). This entire CHI scheme was jointly managed by ACCORD and ASHWINI staff and AMS leaders. In turn, ASHWINI reinsured the adivasis with a private health insurance company.

The Self Employed Women's Association (SEWA) is a union of women employed in the informal sector. While its main area of operation is Gujarat, it also has presence in other states of India. Among its diverse activities, it provides an integrated insurance package - including life, asset and medical insurance - on a voluntary basis, for its members and their husbands [18]. In 2003, for an annual premium equivalent to US $3.20, a couple was insured for hospital services up to a maximum of US $45 (Figure 2).
The patients could access care in either the public or the private sector. Patients had to pay the hospital bills and were reimbursed later by SEWA after producing the necessary documents.

In Gujarat, like in most Indian states, there is a network of public and private providers, operating independent of each other. While the government hospitals are based on population norms: a community health centre with 30 beds for 100,000 population, a sub-district hospital with 100 beds for 500,000 population and a district hospital with 200 beds for a million population, the private sector is more diverse and disparate. Most of the private sector hospitals are located at the district level have just 6 – 30 beds and limited facilities [19].

Both CHI schemes, in principle target the poor and vulnerable sections of Indian society. While both are organised by NGOs and insure against hospital expenditure, there were some differences. First, at the ACCORD CHI, all members of the AMS and their family were eligible to enrol. At SEWA, only the woman member and her spouse were eligible to enrol in 2003. Secondly, the ACCORD CHI scheme was a cashless one, so the patient does not have to pay anything as long as the hospital bill was less than US$23. At SEWA, the patient had to pay the bills to the provider and was reimbursed later up to a maximum of US$45. Furthermore, the ACCORD CHI scheme recognised only one provider, the ASHWINI Hospital, which is a not-for-profit institution. Patients enrolled in the SEWA scheme sought care at both private and government hos-
pitals. Lastly, while the ACCORD CHI scheme had minimal exclusions, SEWA usually excluded pre-existing illnesses from reimbursement, especially during the member's first year as a policy-holder. Both schemes were supported by external donors to a certain extent.

Methods
At both ACCORD and SEWA, we reviewed the insurance claims registers and identified all the scheme members who were hospitalized between the period April 2003 to March 2004, and who registered this hospitalization with the scheme. For these patients, we collected details on the age and sex of the patient, diagnosis, total bill amount and amount paid out-of-pocket by the patient. At SEWA, we also documented the amount reimbursed subsequently and the annual household income as reported by the patient from the insurance claim register. At ACCORD, we used the median annual household expenditure obtained from an independent survey (personal communication 2004) to estimate the annual income of the households with patients.

There is still a lot of debate on the definition of CHE. Most authors agree that health expenditure is catastrophic if it forces households to significantly lower their standard of living now or in the future. While some have defined CHE if the total health expenditure is more than 10% of annual income [5, 12, 15], others have defined it if the total health expenditure exceeds 40% of disposable income [4]. For this study we have opted for a modified version of Pradhan's definition of CHE i.e. "if a household expenditure for hospitalisation exceeded 10% of the total annual household income". We used this definition because, according to literature, 10% of total expenditure is considered as an approximate threshold at which the poor household is forced to sacrifice other basic needs, sell productive assets.
or incur debt [20]. Furthermore, this is a simple calculation and does not require details of other expenditure like the expenditure on food.

Using this definition, we calculated the incidence of out-of-pocket (OOP) payments and CHE. To calculate the OOP before insurance, we used the gross hospitalisation expenditure at both ACCORD and SEWA. We then expressed this expenditure as a proportion of the reported annual income. If this was more than 10%, then that household was considered to have experienced CHE. OOP payment after insurance was calculated by subtracting the total hospital expenditure from the amount reimbursed. In the case of ACCORD it was the amount that the patient had to pay at discharge (if the hospital bill exceeded the upper limit). CHE was then calculated by computing this OOP payment (post insurance) as a proportion of the reported annual income. If this was more than 10%, then that household was considered to have experienced CHE. The difference gives us an idea of the effect of the CHI scheme on CHE among these poor households. We compared the medians and used the 95% confidence intervals to analyse any differences between the two schemes. To compare the incidence of CHE by specific characteristics, we used the risk ratio and the 95% confidence interval. As we did not have the individual household income at ACCORD, we limited the analysis of determinants to the SEWA scheme.

Ethical clearance for this study was provided by the ethical board of the Sri Chitra Tirunal Institute of Medical Sciences and Technology, Trivandrum, Kerala, India.

Results

In April 2003, a total of 4,268 individuals out of 12,226 AMS members (35%) enrolled in the ACCORD CHI scheme. In the same period, at SEWA, 101,809 women and men out of about 560,000 SEWA members (~20%) enrolled in the CHI scheme (Table 1). 571 individuals from 476 households were admitted a total of 683 times at ACCORD, while at SEWA the corresponding figures were 3080 individuals from 2989 households leading to 3152 admissions. However, we analysed data from only 2974 households as the rest did not have information about hospitalisation expenses or household incomes. The admission rates at ACCORD and SEWA were 134 and 57 per 1000 insured per year, respectively. Females accounted for 59% and 73% of the admissions at ACCORD and SEWA and the median age of the patients was 21 and 36 years, respectively. The median household income (Q1, Q3) at ACCORD was US$5630 (518, 813) while at SEWA it was US$545 (273, 818).

While all of the admissions at ACCORD were in the designated not-for-profit institution, the ASHIWINI hospital; at SEWA the majority of admissions were in private-for-profit institutions (Table 2). The median hospital bill at ACCORD was US$12, while at SEWA it was US$46. However, because of a combination of low upper limits and exclusions, some of the patients did not benefit from the insurance scheme. This occurred more often in SEWA where 19% of claims were not reimbursed either because their illness was in the list of exclusions or they had crossed the upper limit in an earlier admission. At ACCORD, 74% of all claims were fully covered, while at SEWA only 38% of all claims were fully reimbursed. The rest of the patients were only covered up to the upper limits. This resulted in a reimbursement amount which was significantly lower than the claimed amount at SEWA. This was further compounded by the fact that at SEWA the patients had to mobilise financial resources during the time of illness and were reimbursed later. The median time to reimbursement was six weeks.

In the absence of health insurance, households at both ACCORD and SEWA would have paid out-of-pocket to meet their hospital bills. The median OOP payments would have been US$18 and US$48, respectively (Table 3). However, thanks to the CHI scheme, 67% of insured households at ACCORD and 34% of insured households at SEWA were protected from making OOP payments. The magnitude of OOP payments also reduced significantly. Of all the insured households with admissions at ACCORD, 8% would have experienced catastrophic health expenditure (CHE) in the absence of an insurance scheme. However, because of the CHI scheme, this proportion was reduced to 3.5%. At SEWA, 49% of the households would have been catastrophically affected by the admission costs if they were not insured. The CHI scheme at SEWA has been successful in reducing the incidence of CHE in insured households to 23%. Not only has the incidence of CHE been halved in both the schemes, the magnitude of CHE has also been significantly reduced in both schemes. This is graphically represented in Figure 3, where one can see the shift in both the incidence and intensity after insurance by the SEWA CHI scheme. A sensitivity analysis at SEWA indicated that an increase in the upper limit of reimbursement from US$ 45 to US$ 90 would reduce the incidence of CHE after insurance from 23% to 16%.

There are many causes for the phenomenon of CHE. One important factor is high medical bills. The medical bills in these two schemes were very different, nearly four times higher at SEWA. This difference was further exaggerated when one disaggregates the data by providers. At SEWA, the median bill with a private provider was US$48, while it was only US$28 with a government provider. One possibility for this difference in price between the two
schemes could be different case mixes. However, even though these schemes are more than 1000 km apart and the populations are different, we note that the case mix is relatively uniform in both the schemes; the cases are a mixture of communicable and non-communicable conditions (Table 4). There were more fever cases at SEWA because of the presence of malaria. At ACCORD, pregnancy related conditions were low because this was excluded from the benefit package; while at ACCORD; ocular conditions were always referred to a neighbouring ophthalmic hospital that provided free services for the adivasis. What is striking is that the charges for similar conditions were systematically and significantly more expensive at SEWA. This is most probably because of the reliance on private providers at SEWA. We see from Table 5 that the probability of CHE is high (24%) if the patient has visited a private provider and is nearly two times more than a patient who had visited a government provider.

Our results also indicate that at SEWA low annual household income predisposes a household towards CHE (Table 5). The SEWA CHI scheme reduced the incidence of CHE by more than 50% for all but the richest quartile. Even then, the probability of the lowest quartile experiencing CHE per episode is six times higher than for the richest quartile after insurance. While there was a reduction in the incidence of CHE by more than two times for most disease conditions, patients with diseases of the reproductive system, patients with acute abdominal pain (including acute surgical illnesses) and patients with non-communicable diseases still had a high probability of CHE. Naturally, those whose claims have been rejected have a much higher probability of CHE, the risk at SEWA being three times higher.

Discussion
Protesting households against catastrophic health expenditure is a health policy goal. There is documented evidence to show that health expenditure can impoverish households[4]: make them forego further treatment [5], sell assets [6]: remove children from school [10]: substitute labour [9]: diversify income [21] and even lead to suicide [22]. In India, the two CHI schemes studied were able to halve the number of households that would have faced

### Table 1: Characteristics of hospitalised patients in the two CHI schemes in India (01/04/2003 to 31/03/2004)

<table>
<thead>
<tr>
<th></th>
<th>ACCORD</th>
<th>SEWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of families insured (individuals)</td>
<td>1,028 (4,268)</td>
<td>83,531 (101,809)</td>
</tr>
<tr>
<td>Number of admissions</td>
<td>683</td>
<td>3152</td>
</tr>
<tr>
<td>Number of families with admissions</td>
<td>476</td>
<td>2999</td>
</tr>
<tr>
<td>Admission rates per 1000 individuals</td>
<td>134</td>
<td>37</td>
</tr>
<tr>
<td>Number of female admissions (%)</td>
<td>401 (59%)</td>
<td>2370 (75%)</td>
</tr>
<tr>
<td>Median age of patient (Q1, Q3) in years</td>
<td>21 (6.32)</td>
<td>36 (30, 44)*</td>
</tr>
<tr>
<td>Median annual income (Q1, Q3) in US$</td>
<td>630 (518, 813)</td>
<td>545 (273, 816)</td>
</tr>
</tbody>
</table>

* Age of 24 patients were not available in SEWA

### Table 2: Details of claims in two CHI schemes in India (01/04/2003 to 31/03/2004)

<table>
<thead>
<tr>
<th>Type of provider</th>
<th>ACCORD</th>
<th>SEWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total claims</td>
<td>683</td>
<td>3152</td>
</tr>
<tr>
<td>in government hospitals</td>
<td>-</td>
<td>238 (6%)</td>
</tr>
<tr>
<td>in NGO hospitals</td>
<td>663 (100%)</td>
<td>204 (6%)</td>
</tr>
<tr>
<td>in private-for-profit hospitals</td>
<td>-</td>
<td>270 (86%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Details of claims made</th>
<th>ACCORD</th>
<th>SEWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median claim amount (95% CI) in US$</td>
<td>11.8 (10.9, 12.7)</td>
<td>46.4 (45.2, 47.5)</td>
</tr>
<tr>
<td>Median claim honoured (95% CI) in US$</td>
<td>10.4 (9.5, 11.2)</td>
<td>12.9 (12.7, 13.1)</td>
</tr>
<tr>
<td>Number of claims that were honoured (%)</td>
<td>643 (94%)</td>
<td>2543 (81%)</td>
</tr>
<tr>
<td>Number of claims that were fully honoured (%)</td>
<td>507 (79%)</td>
<td>1706 (47%)</td>
</tr>
<tr>
<td>Number of claims that were partially honoured (%)</td>
<td>136 (21%)</td>
<td>1337 (53%)</td>
</tr>
<tr>
<td>Median delay (Q1, Q3) between discharge and reimbursement in days</td>
<td>-</td>
<td>49 (23, 81)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of illnesses</th>
<th>ACCORD</th>
<th>SEWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute illnesses</td>
<td>401 (59%)*</td>
<td>2344 (74%)</td>
</tr>
<tr>
<td>Pre-existing illnesses</td>
<td>280 (41%)</td>
<td>806 (25%)</td>
</tr>
</tbody>
</table>

* The term "honoured" has different implications in the two schemes. At SEWA it means "reimbursement" while at ACCORD, it implies the amount paid through direct third party payment.

* Details of 2 episodes not available.
CHE. The magnitude of OOP payments was significantly reduced in both the schemes. This is a substantial achievement and indicates that these schemes fulfil a significant insurance function [23].

However, this protection is only partial and some households still experience CHE, especially the poorest ones. The incidence of CHE was nearly six times higher among the poorest quartile than among the richest quartile. This is understandable as the poor have low incomes and so any health expenditure can easily exceed 10% of their incomes. This is more so in a scheme like SEWA, where bills are reimbursed after a month or more. Patients have to mobilise resources to pay the bills. Sometimes this is in the form of short term loans from moneylenders who charge high interest rates. However, it is positive to note that the poorer households also benefited the most from the health insurance mechanism. The risk of CHE reduced by more than 50% after insurance in the poorest two quartiles, while in the richest two quartiles, it was less than 50%. This indicates that such schemes are still poor in their financial protection function.

One of the limitations of our study is that it is facility based. For estimating CHE, one should consider all health expenditure during a full year. However, here we have assessed the household expenses only for hospitalisation; therefore, the real incidence and intensity of CHE is underestimated in our study. However, the high bills associated with hospitalisation generally has a much larger impact than expenses for ambulatory or preventive care that are lower in magnitude and spread over time. So, calculating CHE based on hospitalisation expenses gives us a fair idea of the economic shock experienced by a household. We do however recognise that that for some households, even expenditure on medicines can be catastrophic.

At SEWA, patients who had crossed the upper limit in the first admission may not have submitted a second claim, knowing that they would not be reimbursed. This further compounds our underestimate. As we did not have information on the individual household incomes of the patients at ACCORD, we had to use survey data as a proxy for calculating the CHE. So our calculation of CHE in ACCORD is actually the proportion of the median household income. This naturally would result in an overestimation of the incidence of CHE in the poor, while there would be an overestimation among the better off. This disparity would depend a lot on the variation of the income within the community. But, as most adivasi households at ACCORD are relatively homogenous in their poverty, we feel that this factor should not affect the results significantly.

As mentioned earlier, there is considerable debate on the definition of CHE. While some authors put the threshold at 10% of the annual income, others use the indicator based on disposable income. Which is more valid? Is it relevant to have a uniform threshold, irrespective of the economic status? It may be presumed that in a poor household, even a small proportion spent on health care may be catastrophic. On the other hand, a better-off household may be able to absorb the shock of a higher proportion of its income spent on health care. Hence to put uniform thresholds for all households is somewhat arbitrary and misleading. Similarly can this indicator be equally applied to subsistence farmers? These households have very little cash transaction and hence even a small
expenditure may be catastrophic, especially if it means that they have to sell their future food supply. These and other questions beg answers, which need detailed validation studies. It was not our purpose to validate any of these indicators, but to show that even in the presence of insurance, households do still continue to experience CHE.

The fact that health expenditure continues to lead to CHE despite insurance coverage is a concern and is a consequence of various factors. One reason is the low maximum limit in both schemes. One way of increasing the protective effect of CHI schemes would be to expand the maximum limit of the benefit package to cover common surgical and medical conditions. However, any increase in the benefit package would be associated with a rise in the premium. This may adversely affect enrolment. One possible solution is for government or donors to subsidise the premiums, especially for the poorer households. This would allow the poor to enrol in the scheme as well as protect them from CHE.

It was surprising to see that though SEWA has a higher upper limit, more patients pay OOP and more households experience CHE. One important reason could be the higher bills at SEWA. Another measure to reduce the risk of CHE would thus be to reduce the costs of healthcare. From our data we note that the prices of hospital services for similar conditions were systematically higher at SEWA compared to ACCORD. This could be because of the predominant use of the private sector in SEWA. In India, CHI schemes may be forced to use the private health services if they want to provide their community with choices; but in this case, they would need to introduce certain cost containment measures. One measure could be to pay providers on a case basis, rather than on a fee-for-service basis [24]. This in itself would reduce the danger of unnecessary interventions.
This tendency for health insurance to increase the total health care expenditure of households is described by Bogg et al in their study in China [25]. They show that in two neighbouring districts, one with a CHI scheme covering the population and another with user fees: the former district had higher total health expenditure over time, mainly for curative care and with over prescription of medicines being the rule of the day. A second measure to reduce costs is to insist on the use of generics and standard treatment protocols for common ailments. If this could be combined with other technical tools like medical audits and appropriate evaluation protocols [26], then the quality of the care provided could also be considerably enhanced. Thus, CHI schemes could be used not only to provide financial protection for households but could also improve the quality of the services by acting as a ‘strategic purchaser’ of health care services [27]. The latter would be useful in a situation where the quality of care in the private sector is questionable [28].

Exclusions in a health insurance scheme are detrimental for various reasons. From the patient’s perspective, it adds to the uncertainty at the time of care. From a public health perspective, it does not provide protection for those patients who are the most vulnerable i.e. patients with chronic illness and who require regular medications [29]. Finally, it is in conflict with the principles of social health insurance. This study shows that even poor populations have a significant prevalence of non-communicable diseases and that exclusion of these conditions can have an economic impact. Patients whose claims have been rejected because of exclusions have a higher probability of CHI. This has policy implications and designers of CHI schemes need to ensure that exclusions are minimised and that people are covered for a comprehensive range of illnesses.

**Conclusion**

CHE is a major cause of impoverishment and patients need to be protected from it [29]. Some of the documented determinants of CHE are poverty, household size, high medical costs, incidence of illness, payment mechanisms, low benefit packages and presence of ‘smokers or drinkers’ in the household [4,30-33]. We show here that the incidence of CHE is also related to the type of provider: private-for-profit providers considerably increase the probability of CHE. We have documented some of the illnesses that can lead to CHE, namely surgical ailments and admissions for non-communicable diseases.

Indian CHI schemes are able to protect their members against CHE, but only to a limited level. However, this protection can be further enhanced if some design changes are incorporated. To begin with, the upper limit of the benefit package needs to be raised. To keep the premiums affordable, donors or the government would need to directly subsidise the premium, especially for the poorer sections of society. Exclusions need to be minimised to protect vulnerable populations. And finally, scheme managers need to negotiate costs with providers from the start [34] to ensure that costs are contained. Such measures could considerably reduce the incidence and magnitude of CHE and protect households from iatrogenic poverty [29].

NE: Subsequent to our study, SEWA has made significant changes in its design, including expansion of eligibility to include all members of the family and piloting of a third
Table 5: Incidence of catastrophic health expenditure per episode at SEWA by specific characteristics

<table>
<thead>
<tr>
<th>Provider</th>
<th>Number of cases (%)</th>
<th>Number of cases with CHE (%) before insurance</th>
<th>Number of cases with CHE (%) after insurance</th>
<th>Probability of experiencing CHE before insurance (95% CI)</th>
<th>Probability of experiencing CHE after insurance (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private</td>
<td>1771 (86%)</td>
<td>1359 (99%)</td>
<td>643 (90%)</td>
<td>49% (47.51)</td>
<td>24% (22.23)</td>
</tr>
<tr>
<td>NGO</td>
<td>394 (6%)</td>
<td>74 (5%)</td>
<td>41 (6%)</td>
<td>35% (30.43)</td>
<td>20% (15.24)</td>
</tr>
<tr>
<td>Government</td>
<td>925 (8%)</td>
<td>84 (6%)</td>
<td>36 (4%)</td>
<td>35% (27.42)</td>
<td>13% (9.18)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Annual household income</th>
<th>Number of cases (%)</th>
<th>Number of cases with CHE (%) before insurance</th>
<th>Number of cases with CHE (%) after insurance</th>
<th>Probability of experiencing CHE before insurance (95% CI)</th>
<th>Probability of experiencing CHE after insurance (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1</td>
<td>212 (31%)</td>
<td>95 (56%)</td>
<td>39 (57%)</td>
<td>91% (89.79)</td>
<td>43% (35.46)</td>
</tr>
<tr>
<td>Q2</td>
<td>561 (19%)</td>
<td>146 (23%)</td>
<td>62 (110)</td>
<td>62% (57.66)</td>
<td>26% (22.30)</td>
</tr>
<tr>
<td>Q3</td>
<td>869 (29%)</td>
<td>234 (26%)</td>
<td>112 (13%)</td>
<td>27% (24.30)</td>
<td>13% (11.15)</td>
</tr>
<tr>
<td>Q4</td>
<td>616 (21%)</td>
<td>70 (30%)</td>
<td>41 (55%)</td>
<td>11% (9.14)</td>
<td>7% (5.9)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Number of cases (%)</th>
<th>Number of cases with CHE (%) before insurance</th>
<th>Number of cases with CHE (%) after insurance</th>
<th>Probability of experiencing CHE before insurance (95% CI)</th>
<th>Probability of experiencing CHE after insurance (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever</td>
<td>745 (24%)</td>
<td>165 (53%)</td>
<td>126 (18%)</td>
<td>49% (45.53)</td>
<td>17% (14.26)</td>
</tr>
<tr>
<td>Injuries</td>
<td>405 (13%)</td>
<td>142 (30%)</td>
<td>70 (13%)</td>
<td>35% (30.43)</td>
<td>17% (13.21)</td>
</tr>
<tr>
<td>Diarrhoeal diseases</td>
<td>333 (11%)</td>
<td>123 (36%)</td>
<td>35 (55%)</td>
<td>32% (25.42)</td>
<td>11% (7.19)</td>
</tr>
<tr>
<td>Respiratory tract infections</td>
<td>306 (10%)</td>
<td>157 (50%)</td>
<td>36 (94%)</td>
<td>51% (45.57)</td>
<td>22% (17.27)</td>
</tr>
<tr>
<td>Non-communicable diseases</td>
<td>264 (8%)</td>
<td>139 (50%)</td>
<td>78 (11%)</td>
<td>51% (46.59)</td>
<td>30% (24.33)</td>
</tr>
<tr>
<td>Acute abdominal conditions (incl. appendicitis)</td>
<td>174 (6%)</td>
<td>100 (57%)</td>
<td>62 (95%)</td>
<td>57% (50.65)</td>
<td>36% (29.47)</td>
</tr>
<tr>
<td>Diseases of the reproductive system (incl. hysterectomies)</td>
<td>134 (6%)</td>
<td>117 (86%)</td>
<td>87 (62%)</td>
<td>66% (51.67)</td>
<td>45% (36.22)</td>
</tr>
<tr>
<td>Diseases of the urinary system</td>
<td>142 (5%)</td>
<td>74 (53%)</td>
<td>31 (45%)</td>
<td>52% (45.11)</td>
<td>22% (15.30)</td>
</tr>
<tr>
<td>Ocular conditions</td>
<td>113 (4%)</td>
<td>44 (38%)</td>
<td>20 (35%)</td>
<td>39% (30.49)</td>
<td>18% (14.24)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exclusions</th>
<th>Number of cases (%)</th>
<th>Number of cases with CHE (%) before insurance</th>
<th>Number of cases with CHE (%) after insurance</th>
<th>Probability of experiencing CHE before insurance (95% CI)</th>
<th>Probability of experiencing CHE after insurance (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Claim rejected</td>
<td>608 (19%)</td>
<td>306 (50%)</td>
<td>306 (43%)</td>
<td>50% (46.54)</td>
<td>50% (46.54)</td>
</tr>
<tr>
<td>Claim accepted</td>
<td>1544 (81%)</td>
<td>405 (57%)</td>
<td>405 (57%)</td>
<td>47% (45.49)</td>
<td>47% (45.49)</td>
</tr>
</tbody>
</table>

95% CI = 95% confidence interval

party payment mechanism. ACCORD has increased its upper limit from IHS 23 to IHS 65.

**Abbreviations**

ACCORD Action for Community Organisation, Rehabilitation and Development

AMS Adiwasia Mumtaza Sangam

ASHWINI Association for Health Welfare in the Nilgiris

SEWA Self Employed Women’s Association

NGO Non-governmental organisation

CHE Catastrophic health expenditure

CHI Community health insurance

OOP Out-of-pocket

SCTIMST Sree Chitra Tirunal Institute for Medical Sciences and Technology

**Competing interests**

This is certify that Dr. N. Devadasan, was the founder of the ACCORD CHI. He is however, not directly involved with the project anymore and is currently a visiting faculty at SCTIMST and pursuing a PhD with the ITM, Antwerp.

Dr. PK Ranson was involved with SEWA while pursuing his PhD and post doctoral research.

Dr. Wim van Damme, Dr Bart Criel and Dr Patrick Van der Stuyft have not been associated either with ACCORD or with SEWA.

The authors declare no financial competing interest.

**Authors’ contributions**

ND conceptualised the study and participated in it by collecting the data at ACCORD, analysing and interpreting the data and drafting the manuscript. WVD conceptualised the study, assisted in interpretation of the data and revised the manuscript critically. KR participated in the study by collecting the data at SEWA and revised the manuscript critically. BC assisted in interpretation of the data.
and revised the manuscript critically for substantial intellectual content. PVDs conceptualised the study and assisted in interpretation of the data and revised the manuscript critically for substantial intellectual content.

All the authors confirm that they had access to all the data, have read and approved the final manuscript.

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Article 4 - The effect of community health insurance schemes on patient satisfaction – evidence from India.

The effect of community health insurance schemes on patient satisfaction – evidence from India

An observational study

N. Devadasan*,
Bart Criel,
Wim Van Damme,
Pierre Lefevre,
S. Manoharan,
Patrick Van der Stuyft
Abstract

Objectives: Quality of care is an important determinant for utilizing health services. In India, studies indicate that the quality of care in most health services is poor. The government recognizes this and has been working both on the supply and demand side. In particular, it is promoting community health insurance (CHI) schemes, so that patients can access quality services. This observational study measures the level of satisfaction among insured and uninsured patients in two CHI schemes in India.

Methods: We measured patient satisfaction, which is an outcome of good quality care. We selected two CHI schemes, ACCORD and DHAN, and interviewed randomly selected insured and uninsured households. That household where a patient was admitted to a hospital was interviewed in depth about the health seeking behaviour, the cost of treatment and the satisfaction levels.

Results: We found that at both ACCORD and DHAN, there was no significant difference in the levels of satisfaction between the insured and uninsured patients. The main reasons for satisfaction were the availability of doctors and medicines and the recovery by the patient.

Conclusions: Our hypothesis that insured hospitalised patients would have significantly higher levels of satisfaction compared to uninsured hospitalised patients has been rejected. If CHI schemes want to improve the quality of care for their clients, so that they adhere to the scheme, the scheme managers need to negotiate actively for better quality of care with empanelled providers.

Introduction

Quality of care is one of many important determinants of health service utilization. Various studies show that health services’ utilisation is sensitive to the perception of quality by the users. While many articles concentrate on the technical aspects, studies are increasingly looking at quality from the patient’s perspective.

The quality of healthcare in India in both the private and public health sector is unsatisfactory. Studies cite the problems of non-availability of staff and medicines as well as the rude behaviour of the staff. Studies in the private sector have shown that practitioners tend
to prescribe unnecessary and even harmful medicines. Recent policy documents also acknowledge the lack of quality in the Indian health services. One of the recommended strategies is to introduce demand-side financing, specifically community health insurance (CHI).

There are three possible mechanisms whereby CHI can improve the quality of care.

- One of the mechanisms is when the organiser of the CHI scheme strategically purchases health care from the provider. “Strategic purchasing is present when there is a continuous search for the best health services to purchase, the best providers to purchase from and the best payment methods and contracting arrangements.” Strategic purchasing includes, among other facets, a mandate to set quality standards of care. This could include the following activities: gate keeping, contracting out with specific providers, maintaining a provider profile and monitoring the quality and financial performance, conducting utilisation reviews, quality assurance, introducing generic medicines and implementing standard treatment protocols. To summarise, the organiser of the scheme can negotiate with the provider for ‘better quality of care’ because they control the funds and are ultimately responsible for paying the provider.

- Yet another mechanism is by empowering the community. In any health insurance scheme, there is an element of ‘service guarantee’ i.e. once the insured pays the premium, the insurer has to guarantee the promised services. This can then give the insured patient the authority to ‘demand’ the services from the provider. Thus, ideally the insured patient can access the care that is required.

- A third mechanism is from the provider side. Especially in the Indian milieu where the private practitioners compete with each other for patients, providers would be happy to empanel themselves
with a CHI scheme and have a captive community of patients who would use their services. This would ensure that they receive a steady income over time. They would thus be willing to improve their standard of care, to ensure that they remain empanelled with the CHI scheme. Thus insured patients should hypothetically receive better quality of care from these providers.

However, there is very little evidence that this relationship between CHI schemes and improved quality of care actually takes place.\textsuperscript{31,138} Ranson showed that some insured women at SEWA were exposed to ‘dangerous’ hospital conditions while undergoing hysterectomy.\textsuperscript{51} A study in China also documented that insured patients under the New Comprehensive Medical Scheme were exposed to over prescribing compared to uninsured patients.\textsuperscript{132} This suggests that community health insurance could potentially lead to patients using facilities that provide poor quality care.

This paper is part of a larger study on the performance of Indian CHI schemes. In this article, we study the effect of CHI on quality of care using patient satisfaction as a proxy. Patient satisfaction is an important but little studied aspect of quality of care in the Indian context. Satisfaction is defined as the “overall level of contentment with a service experience.”\textsuperscript{121} We studied two CHI schemes between 2004 and 2005, one with a single provider and the other with multiple empanelled providers. Our objective was to see whether insured patients have higher satisfaction levels as compared to the uninsured patients. Also we explored the reasons for this satisfaction / dissatisfaction. The underlying hypothesis was that insured patients would be more satisfied as they receive ‘better quality of care’.

\textbf{Methods}

In this section, we first describe the two CHI schemes where the study was undertaken, then formulate the patient satisfaction framework that we used for the study. Finally we provide the details on how the study participants were sampled, how the data was collected and analysed.
ACCORD – ASHWINI – AMS CHI scheme

ACCORD, a non-governmental organisation (NGO) in Tamil Nadu, south India, works for the overall development of the indigenous people of Gudalur sub-district. This population also called ‘adivasis’ has traditionally been a hunter - gatherer society. As per the 2001 Census, there were 14,149 adivasis in Gudalur. ACCORD collaborates with a community-based organisation, the Adivasi Munnetra Sangam (AMS), to fight for adivasi rights. In addition, ACCORD provides health, education and agricultural services for the adivasis.

ACCORD’s health programme (ASHWINI) is a three-tier health system, with village health workers, health centres and a 20-bed hospital. Other than the ASHWINI hospital, there are four NGO hospitals with a total of 75 beds - three government hospitals (160 beds) and one private hospital (10 beds) in Gudalur sub district.

Part of the ACCORD health service is financed by a CHI scheme initiated in 1992. All AMS members and their households are eligible to join the ACCORD CHI scheme (Figure 1). In 2004, each AMS member paid a premium of Rs. 25 (US$0.57) per person per year during a definite annual collection period. This premium was collected by ACCORD and ASHWINI field staff and AMS leaders. Primary care was provided free to all adivasis, irrespective of their insurance status, by health staff at village and health centre levels. Insured members, if hospitalised in the ASHWINI hospital (after a waiting period of one month), were entitled to hospital care up to a maximum limit of Rs. 1,000 (US$ 23). Insured members hospitalised elsewhere did not receive any reimbursement of costs. Uninsured AMS members had to pay the cost of medicines when treated at the ASHWINI hospital.

The DHAN – KKVS CHI scheme

Development for Humane Action (DHAN) is a professional development organisation that was started in 1997. Its main objective is to bring motivated youth to the development sector. DHAN manages various programmes, the main one being community banking through women-led self-help groups.
These village-level groups are federated into ‘Kalanjiams’ at the sub-district level. In 2004, there were 46 such Kalanjiams providing credit to 262,903 women in 5,054 villages.

One such federation is the Kadamalai Kalanjiam Vattara Sangam (KKVS). In 2004, it was a federation of 5391 women members spread over 65 villages in the Kadamalai sub-district of Theni district, Tamil Nadu state. The KKVS was unique among all the federations as it had piloted a CHI scheme for its members. All women members and their families (between the ages of 0 and 55 years) were eligible to enrol for this CHI scheme. To enrol, they had to pay an annual subscription fee of Rs. 100 (US$2.3) per individual or Rs. 150 (US$ 3.2) per family. This fee was collected by the women’s groups every April and handed over to the KKVS insurance committee.

Enrolled individuals could, after a waiting period of one month, access hospital care in any of the eight empanelled hospitals at Kadamalai or Theni, provided that they were referred by the KKVS primary centre. The patient was expected to pay the bills and submit relevant documents to the insurance committee (Figure 2). After scrutiny and if found valid, 75% of the claim was reimbursed, up to a maximum of Rs. 10,000 (US$ 228).

**Patient satisfaction framework**

Quality is a very complex dimension of healthcare. The late Donabedian, a leading expert on quality, states explicitly that several definitions are possible, depending on where one is located in the health system. For the provider, quality may be synonymous with technical competence, while for the user, good quality would include availability of medicines and attitude of the provider. On the other hand, for the policy maker, quality may be tantamount to efficiency.  

Campbell has constructed a framework to demonstrate the links between various elements of quality of care (Figure 3). In this framework, patient satisfaction is shown as an outcome of good quality care. Satisfaction is determined by service quality, customer expectations, subjective disconfirmation and emotions experienced during service delivery. While this is true for the corporate sector, in the
health sector, patient satisfaction is determined more by the service quality and the experiences at the time of contact with the provider. Thus patient satisfaction gives an important insight into the quality of care provided by the health services.

There are many frameworks to assess patient satisfaction. These include ‘Expectation Fulfilment model’ by Linder Pelz; ‘Cognition – Affect model’ by Oliver; ‘Zone of Tolerance model’ by Parasuraman et al. However, all of these are developed and used in high income countries where the context is very different. The only one that has been tested in a low income country was the framework developed by Andaleeb and validated in Bangladesh. The authors use six variables with various measures for each variable. Using this framework as a basis, we identified the measures through a mixture of literature review and focus group discussions (FGD) with the local stakeholders. Some of the indicators, e.g. “warmly received, waiting time, examination, etc.” were mentioned in the literature. Additionally, we conducted a series of FGDs with staff and community representatives to document their perception of ‘good quality’ care. Based on these findings, a comprehensive list of 19 measures was developed. This was put into the framework (Table 1). Each indicator was measured using a dichotomous scale through a structured questionnaire. Other than the questions on the afore-mentioned indicators, patients were also asked open-ended questions as to why they were (or were not) satisfied with the care received.

Selection of study participants

Household surveys were conducted both at ACCORD and KKVS to measure the satisfaction level of insured and uninsured patients. At ACCORD, we conducted a panel survey among both insured and uninsured households (Figure 4). On July 1, 2004, there was a total of 972 (30%) insured and 2,205 uninsured households on the AMS membership list. A systematic random sample of 324 households was selected from the list of insured AMS members. A trained research team visited each of these 324 households to enrol them in the study. Of these, 12 had migrated and seven
households refused to enrol (Figure 4). Thus we were left with a sample of 305 insured households who agreed to participate in the study. For each of the insured households enrolled, the team subsequently identified a matching uninsured household using a snowball technique\(^2\). The households were matched on the basis of family size, age of the head of household, socio-economic status of the household, and distance from the ASHWINI hospital.

At DHAN-KKVS, we used stratified random sampling to select the households. There were a total of 5,391 women who were members of the KKVS self help groups in March 2005. Of these, 2,359 women and their families had enrolled in the KKVS CHI scheme for the period April 2004 – March 2005. Insured and uninsured members were then stratified according to geographic clusters and the proportion of insured and uninsured in each cluster was identified. Then 500 insured and 500 uninsured families were randomly sampled with probability proportional to the number of insured members in each cluster.

**Data collection**

Focus group discussions were conducted both at ACCORD (7) and DHAN-KKVS (3) to elicit the indicators for patient satisfaction as perceived by the respective communities. At ACCORD, a total of 37 men and 31 women participated in the FGDs while at KKVS; there were 29 women who participated. The main questions asked were; a) Where do you normally go for hospitalisation? b) Why do you go there? c) What do you understand by better care? The FGDs were taped and then subsequently transcribed and translated into English by one of the authors. Other than the community members, we also conducted one FGD each among the field and nursing staff of these two organisations. Here the main objective was to
understand their perception of why patients seek care in particular facilities.

At **ACCORD**, all the sampled households were administered a structured baseline questionnaire (Form 0) by a trained interviewer at the beginning of the study to document the demographic and socio-economic profile of the sampled households (Figure 5). Each of these insured and uninsured households was visited on a weekly basis from July 1, 2004 to June 30, 2005 by village volunteers. During their visits, the volunteers recorded the presence or absence of any illness in the past week on a pre-printed questionnaire (Form 1). These questionnaires were handed over to a supervisor at the beginning of each month. The supervisor reviewed the submitted questionnaires and notified trained interviewers if there was a major ailment in any of the households. This interviewer then administered a third structured questionnaire (Form 2) to the patients who were hospitalised. The main elements investigated were: the utilisation of hospital services; cost of treatment; and the satisfaction levels if admitted in a hospital. An insured member was defined as an AMS member who had paid the premium of Rs. 25 (US$0.54) for the period from July 2004 to June 2005.

At **DHAN-KKVS**, each of these 1,000 members was approached by trained interviewers and administered a structured questionnaire. We documented their socio-economic profile, their morbidity within the last one year, their health-seeking behaviour, the satisfaction levels when hospitalised and finally, the health expenditure on this event.

**Analysis**

The quantitative data were entered in MS Access and analysed, using SPSS for Windows version10. We calculated 95% confidence intervals around the medians and proportions to indicate the precision of our estimates. Non-parametric tests and $X^2$ tests were used to assess whether the differences between the insured and the uninsured were statistically significant. The FGD data and the open-ended questions were analysed manually.

In both schemes, informed consent was obtained from the head of each households.
enrolled. Interviewees were assured that refusal to participate would have no consequence whatsoever. Confidentiality was maintained by including a unique identification number in the database for each interviewee. Ethical clearance was obtained from the Ethics board of SCTIMST – Trivandrum, India. 

Results

We first present the findings of ACCORD, and then of KKVS

ACCORD

At ACCORD, a total of 305 insured and 263 uninsured households, with 1,444 and 1,225 individuals respectively, enrolled in the study. However, only 545 households had a baseline survey. These 545 households were followed regularly over 12 months. Table 2 shows some of the basic characteristics of the insured and uninsured households. Matched parameters corresponded in both insured and uninsured households.

A total of 183 insured and 77 uninsured individuals had sought treatment at a formal health facility (Table 3). The demographic, social and economic parameters of both groups of patients were similar.

At ACCORD, 82% of the insured patients were generally satisfied with the care received, while the corresponding figure for uninsured patients was 73% (Table 4). While the insured had a higher level of satisfaction, this difference was not significant. Satisfaction was similar across socio-economic and demographic variables. It appears that age, gender, literacy and economic status did not determine satisfaction levels. The reasons for satisfaction were similar in both insured and uninsured. Both insured and uninsured were very happy with the infrastructure (84% and 78% respectively). The service orientation of the doctors and nurses were slightly less satisfactory, but the difference between the insured and uninsured patients was not significant. However, only half the patients (both insured and uninsured) were content with the processes by which they received care. Almost all insured and uninsured felt better at the end of the treatment (Table 4). The only advantage that the insured had was a shorter

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3 One of the authors (ND) was a PhD scholar at this institute at the time of the study.
waiting time compared to the uninsured patients ($X^2 = 5.11; p=0.01$).

The open-ended questions clearly showed that, for both the insured and uninsured adivasis in Gudalur, the main reasons for satisfaction were that they “received good treatment / good medicines” (32% of responses) and “felt better / healed / cured” (28% of responses by insured and 24% of responses by uninsured). Patient # 9141701 said, “When I went there the doctor gave me good treatment, day and night they took care of me and they gave good medicine.”

The main reason for dissatisfaction was the poor outcome of the therapy. Usually the patient had expired or continued to have symptoms in spite of treatment. At ACCORD, patient # 3092402 stated, “After taking medicine for two days then I felt better. Again I got that illness back, hence we were not satisfied.” Of all the patients at ACCORD, 80% of insured and 66% of uninsured went to the NGO facility. Only 12% and 24% of insured and uninsured respectively used the private facility. When we disaggregate the feeling of dissatisfaction by the type of provider, one notices that the main source for dissatisfaction is when an uninsured patient goes to a private provider. Those who went to a private provider were less likely to receive medicines, to be treated courteously by the staff, to have satisfactory facilities, to have visitors call on them, to feel cared for or to receive affordable treatment. The NGO institutions consistently provided services that satisfied the patients.

Focus group discussion with the staff at ASHWINI indicated that they did not differentiate between the insured and uninsured. While they were aware of the insurance status, all patients received similar treatment. However, some uninsured people disagreed, stating that sometimes, the nurses in the hospital would reproach them for ‘being uninsured’. Hence they were uncomfortable coming to the NGO hospital. Some of the staff also considered the insured patients as a nuisance. They felt that these ‘freeloaders’ should be kept in check lest they demand unnecessary services. While the AMS had ‘requested’ the ASHWINI hospital to ensure a 24-hour service for adivasis and had
managed to limit the non-adivasi admissions to emergencies, neither it nor ACCORD had not entered into a formal contract with the ASHWINI hospital regarding the provision of care.

**KKVS**

At KKVS, while a total of 1,000 families were sampled, only 808 were available. The rest had migrated to urban areas at the time of the survey mostly for employment purposes. While 473 families (94%) of the insured families were available, only 335 (67%) of the uninsured families were available for the study. The median family size in both insured and uninsured categories was similar and both insured and uninsured families belonged to similar economic strata (Table 2). However, the insured individuals tend to be older and less literate compared to the uninsured. There were more women in the insured families as compared to the uninsured.

Sixty six insured and 57 uninsured patients sought care with formal health services during the year 2004–2005. While both insured and uninsured patients had similar socio-economic status, it is important to note that in both categories the older, more literate and wealthier people used the health services (Table 3).

At KKVS, 95% of insured and only 79% of uninsured patients were satisfied with the care received (Table 4). This difference was statistically significant ($X^2 = 7.653, p = 0.003$).

One of the reasons for satisfaction among the insured was that the staff did not shout at them ($X^2 = 3.782, p = 0.026$). Also the insured were seen faster compared to the uninsured patients ($X^2 = 4.137, p = 0.02$). And finally, less number of insured patients had to pay informal fees compared to the uninsured ($X^2 = 4.017, p = 0.022$). While more uninsured found the treatment costly, the medicines less effective and did not have faith in the doctor; the differences were not very significant. The main reasons for satisfaction, as per the open-ended questions, were: “*I felt better / healed / cured*” (56% among insured and 69% among uninsured) followed by “*received good treatment / good medicines*” (18% among insured and 15% among uninsured). A typical
response was given by Patient # 874.3 – “Since we went to this hospital I was healed soon. They looked after us well”.

Unlike at ACCORD, most of the patients at DHAN-KKVS used either the private or public facility. Sixty two percent of the insured used the private sector, while the corresponding figure for the uninsured was 44% ($X^2 = 5.748, p = 0.008$). Forty nine percent of the uninsured also used the government facility. Patients used the private sector probably due to two reasons, one was the reduction in the financial barrier and the other was the perception that the private sector provided better quality of care. This should be translated into higher satisfaction levels by patients using the private sector. However, we see that while 92% of those patients who used the private sector were satisfied, 84% of the patients who used the government sector were also satisfied. This difference was not statistically significant.

We disaggregated the above three reasons for increased satisfaction by the type of provider and found that in the private sector, the insured have a lower probability of being shouted at ($X^2 = 4.665, p = 0.01$). However, this relationship does not hold true for either the waiting period or informal fees.

At KKVS, 50% of the insured patients had visited more than two health facilities before getting cured, while among the uninsured, the figure was 44%. However, more uninsured preferred to use the tertiary level compared to the insured; 32% (95% CI: 20, 45) and 9% (95% CI: 3, 19) respectively.

Discussion with the KKVS staff showed that they empanelled the hospitals at the beginning of the scheme. A DHAN staff member empanelled the providers based on their capacity to provide medical and surgical care. He then negotiated with the hospitals on two counts: (i) to reduce the fees for insured patients; and (ii) to provide the documents (discharge summary, prescriptions, laboratory results and bills) to the patients as soon as possible. However, there was no formal contract towards this end. The patients felt that the doctors charged higher fees if the patient was insured. This affected the patient directly, as the patient had to pay a co-payment of 25% of the
total bill. Hence the patients usually hid their insurance status till the time of the discharge.

**Discussion**

Our study shows that while both at ACCORD and DHAN-KKVS the insured patients had higher satisfaction levels compared to the uninsured patients, this difference was not statistically significant at ACCORD. The main reason for satisfaction was the outcome of the treatment. Patients who were cured or healed had a higher probability of being satisfied. At neither ACCORD nor DHAN-KKVS, was there any strategic purchasing on the part of the organiser.

While the insured and uninsured households matched at ACCORD, there was a larger number of insured at KKVS. This was because the original members’ list had not been updated recently. The indicators used for measuring patient satisfaction were drawn from literature and fine tuned through focus group discussions with patients. However, we could not validate this by independently observing whether the patient actually received the quality that they perceived. For example, if a patient was examined, we considered it to be a measure of good quality. Yet the examination may have been superficial. Similarly, if medicines were given, we registered the care to be of good quality. But, the medication prescribed may have been inappropriate. This is a drawback in this study. Yet another limitation is that we used a dichotomous scale for measuring the satisfaction levels. We may have received a more qualified response by using a wider scale. The insured are usually risk averse and hence enrol into the insurance programme. This self selection may have some influence on their perceptions of satisfaction. Unfortunately, we could not measure this and its effect on the results. We also feel that this would be negligible, given the fact that there was no significant difference in the observable determinants of utilisation between insured and uninsured. Finally, the insured may have had more interactions with the health services, and hence, less expectations. Thus their threshold of satisfaction would have been less, compared to the uninsured. However, as we did not measure
the expectations a priori, we are not able to comment on this.

Interviews with 372 hospitalised patients at two different locations, more than 1,000 km apart; show that there was very little difference in the satisfaction levels of insured and uninsured patients. Our hypothesis was that the insurance scheme would have negotiated for better quality of care for its members and so the insured would have received better quality of care and thereby would be more satisfied. Another assumption was that the insured patient is more aware of her rights and would have demanded for better services. This could have been in the form of shorter waiting times, cashless services, better behaviour by the staff members and availability of medicines. However, our findings show that the satisfaction levels among both insured and uninsured patients are similar in both the schemes. There was no statistically significant difference between the insured and uninsured in most of the five variables of patient satisfaction. In the next sections we explore the possible reasons for this phenomenon.

A) A major reason could be the large social gap between the provider and the patient in the above contexts. This would have prevented the patient from ‘demanding’ better quality of care on her own. We noticed that more than 10% of insured in both ACCORD and KKVS had to wait a long time, were not examined by the doctor, or did not receive medicines. Though they were insured and had a right to the above, they did not ‘demand’ them. This could be compounded by the fact that the staff may resent the patients’ expressing their wishes. Insured patients were labelled by some staff as “nuisance” and “free loaders” who would demand ‘unnecessary services’.

B) Related to this is the fact that there was very little or no strategic purchasing of healthcare by the insurers on behalf of the insured. Strategic purchasing is defined as the process by which pooled contributions are used to pay providers to deliver a set of specified health
interventions that are most efficient in reaching health system goals.\textsuperscript{71} However, we find this uniformly lacking in both the CHI schemes. At DHAN-KKVS, the insurance coordinator negotiated for lower fees and for appropriate documentation. But there was no effort to use the leverage of pooled funds to obtain certain privileges for the insured patients. In neither of the schemes was there any explicit negotiation process or formal documents to indicate that strategic purchasing had taken place. This is probably due to the fact that neither KKVS nor AMS had the technical capacity to parley with the providers. This is a major weakness of most CHI schemes, not just in India but also internationally.\textsuperscript{34,144} Also it was not explicitly part of the objectives of the two schemes.\textsuperscript{145} So, a third party needs to step in to ensure adequate services for the insured patients. One possible solution is to have a technically competent third party negotiate on behalf of the community. This could be a government representative, or a not-for-profit but competent body. A good example of this is at SEWA, which has introduced a preferred provider scheme, empanelling providers and encouraging the insured patients to use them. Thus, they were able to direct insured patients to hospitals with acceptable quality in terms of facilities, staff and equipment.\textsuperscript{146} But, we need to go beyond just structural criteria and negotiate for patient centred processes of care as well positive outcomes of treatment.

C) A third reason could be that the healthcare providers offered similar good quality care to patients, irrespective of their insurance status. Thus, from a system perspective, one could say that the CHI scheme has been effective in improving the quality of care for all. While in terms of equity, this may seem reasonable, for the members of the insurance scheme it may be a disincentive. They may not perceive any
difference between themselves and their uninsured neighbour while seeking care.

D) Our study shows that there was a high level of satisfaction regarding the care received both among the insured and uninsured patients. This is surprising as reportedly the quality of care in the Indian health services is low. Peter Berman in 1998 stated clearly that the quality of care in both public and primary health services was low.\(^\text{147}\) In a community-based study, Madhukar Pai found that 45% of women who had delivered in Madras had undergone a Caesarean section.\(^\text{136}\) Bhatia showed that while in some aspects the quality of care was better in the private sector, there was a tendency of over prescribing.\(^\text{148}\) Mala Ramanathan et al. observed that government doctors conducted 48 laparoscopic surgeries in two hours, did not counsel the patients and neglected aseptic measures.\(^\text{149}\) Finally, David Peters et al. comment on the lack of standards to ensure quality.\(^\text{150}\) It is surprising that in the face of such empirical evidence of poor quality, patients are satisfied with the care received. This could be because of low expectations. Indeed perception of quality is dependent on various factors, an important one being the expectations of the patient.\(^\text{151}\) We studied some of the poorer sections of society who are normally used to receiving second-rate services in all spheres of life. This could explain the high levels of satisfaction, though technically they may have received poor quality care. This is corroborated by the fact that even though an insured patient waited for more than 60 minutes, she found this acceptable (patient # 67.4 at KKVS). Yet another reason for a possible lower level of satisfaction among the insured could be the issue of adverse selection. CHI schemes are usually voluntary schemes and they attract patients who have pre-existing ailments or have severe forms of ailments. These patients have frequent
interactions with the health services and so may have lesser expectations.

Satisfaction levels did not depend on gender, age, literacy or income status. This is in line with Sitzia’s review of studies on patient satisfaction. He shows that the socio-demographic characteristics are at best a minor predictor of satisfaction. The main reasons for dissatisfaction were associated with poor outcomes of treatment, indicating that this is one of the valued expectations from a consultation. The insured patients at KKVS tended to use the private sector more than the uninsured. This is probably due to a combination of reduced financial barriers and a perception that private sector provides better care. However, we find that levels of dissatisfaction are higher among those patients who visited the private sector, both at ACCORD and KKVS.

One of the reasons for choosing two different CHI schemes was to see whether the design of the scheme had any effect on satisfaction levels. While we are unable to look at statistical significance or associations, we note that patients at KKVS were more satisfied with the care received in four of the five dimensions as compared to those at ACCORD. Could this be due to the fact that the patients at KKVS had more choice of providers? On the other hand, patients at ACCORD were limited to only one provider and may have felt restricted.

Meeting patients’ expectations is an important step towards providing continuous high quality healthcare. It has the potential to make patients adhere to the care provided and return for follow up. This is all the more important in a CHI scheme, where dissatisfied patients may refuse to renew their membership in the next year. Worse, they may dissuade others from joining the scheme; thereby affecting the overall viability of the scheme. Hence it is imperative that CHI scheme managers ensure that the insured receive a high quality of care and are satisfied with the services. It is up to the organiser of the schemes to do the needful, negotiate with the providers and ensure that the interests of the patients are protected. This, along with other measures, like affordable premium, acceptable benefit package, easy administrative procedures and trust in the
organisation would go a long way in ensuring the success of CHI schemes.\textsuperscript{153} It is not enough to improve access to care; the care received should be of good quality; especially in India, where poor quality care is the rule. CHI schemes should make this objective explicit and create the necessary conditions to ensure that it is achieved.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall satisfaction</td>
<td>The medicines were effective</td>
</tr>
<tr>
<td></td>
<td>I was satisfied with the care</td>
</tr>
<tr>
<td></td>
<td>I feel better now</td>
</tr>
<tr>
<td></td>
<td>I felt cared for</td>
</tr>
<tr>
<td>Doctor’s service orientation</td>
<td>Had faith in the doctor</td>
</tr>
<tr>
<td></td>
<td>The doctor listened to my problems</td>
</tr>
<tr>
<td></td>
<td>The doctor examined me</td>
</tr>
<tr>
<td></td>
<td>The doctor explained to me about my condition</td>
</tr>
<tr>
<td></td>
<td>I received discharge instructions</td>
</tr>
<tr>
<td>Nurse’s service orientation</td>
<td>I was received warmly</td>
</tr>
<tr>
<td></td>
<td>I was not shouted at</td>
</tr>
<tr>
<td></td>
<td>I was not afraid</td>
</tr>
<tr>
<td></td>
<td>The staff was courteous</td>
</tr>
<tr>
<td>Tangibles (hospital and staff)</td>
<td>Received medicines</td>
</tr>
<tr>
<td></td>
<td>Amenities were available</td>
</tr>
<tr>
<td>Processes</td>
<td>The waiting time was not long</td>
</tr>
<tr>
<td></td>
<td>Visitors were allowed to see me</td>
</tr>
<tr>
<td></td>
<td>Did not have to pay tips</td>
</tr>
<tr>
<td></td>
<td>Treatment was not costly</td>
</tr>
</tbody>
</table>
Table II: Characteristics of the sampled households at ACCORD and KKVS in 2004 - 2005

<table>
<thead>
<tr>
<th></th>
<th>ACCORD Insured</th>
<th>ACCORD Uninsured</th>
<th>KKVS Insured</th>
<th>KKVS Uninsured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of households sampled</td>
<td>305</td>
<td>263</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>Number of households with baseline characteristics (individuals)</td>
<td>297 (1413)</td>
<td>248 (1173)</td>
<td>473 (1469)</td>
<td>335 (1517)</td>
</tr>
<tr>
<td>Median family size (95% CI)</td>
<td>5.0 (4.8, 5.2)</td>
<td>5.0 (4.8, 5.2)</td>
<td>4.0 (3.8, 4.1)</td>
<td>4.0 (3.8, 4.2)</td>
</tr>
<tr>
<td>Median age of individuals (95% CI)</td>
<td>23.0 (21.9, 24.1)</td>
<td>22.0 (20.9, 23.1)</td>
<td>28.0 (27, 29)</td>
<td>25.0 (24, 26)</td>
</tr>
<tr>
<td>Proportion of females (95% CI)</td>
<td>52 (49, 54)</td>
<td>52 (49, 55)</td>
<td>53 (51, 56)</td>
<td>45 (43, 48)</td>
</tr>
<tr>
<td>Proportion of individuals (&gt; 6 years) who are literate (95% CI)</td>
<td>54 (51, 57)</td>
<td>52 (49, 55)</td>
<td>65 (63, 68)</td>
<td>77 (75, 80)</td>
</tr>
<tr>
<td>Median annual income / expenditure in US$ (95% CI)</td>
<td>620 (579, 662)</td>
<td>591 (559, 623)</td>
<td>613 (569, 657)</td>
<td>632 (579, 684)</td>
</tr>
</tbody>
</table>
Table III: Details of patients with major ailments who sought care with formal health services at ACCORD and KKVS in 2004 – 2005.

<table>
<thead>
<tr>
<th></th>
<th>ACCORD Insured</th>
<th>ACCORD Uninsured</th>
<th>KKVS Insured</th>
<th>KKVS Uninsured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of episodes of illness that were treated at a formal health facility (patients)</td>
<td>202 (183)</td>
<td>86 (77)</td>
<td>66 (66)</td>
<td>57 (57)</td>
</tr>
<tr>
<td>Median age in years (95% CI)</td>
<td>24 (22, 25)*</td>
<td>25 (22, 30)</td>
<td>37 (35, 40)</td>
<td>31 (24, 45)</td>
</tr>
<tr>
<td>% of women (95% CI)</td>
<td>55% (48, 62)*</td>
<td>65% (54, 75)</td>
<td>50% (38, 62)</td>
<td>51% (38, 63)</td>
</tr>
<tr>
<td>% literate (95% CI) #</td>
<td>48% (40, 56)</td>
<td>50% (38, 62)</td>
<td>66% (54, 76)</td>
<td>73% (59, 83)@</td>
</tr>
<tr>
<td>Median income / expenditure in US$. (95% CI)</td>
<td>605 (537, 709)</td>
<td>561 (482, 602)</td>
<td>776 (705, 915)</td>
<td>740 (531, 836)</td>
</tr>
</tbody>
</table>

* Missing data - 3
# Calculated on patients >= 6 years.
@ Missing data - 5
### Table IV: Proportion of patients who were satisfied with care received, at ACCORD and KKVS and the reasons therein (95% CI)

<table>
<thead>
<tr>
<th>MEASURES</th>
<th>ACCORD</th>
<th></th>
<th>KKVS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Insured</td>
<td>Uninsured</td>
<td>Insured</td>
<td>Uninsured</td>
</tr>
<tr>
<td></td>
<td>(n = 202)</td>
<td>(n = 86)</td>
<td>(n = 66)</td>
<td>(n = 57)</td>
</tr>
<tr>
<td>I was satisfied with the care received</td>
<td>92% (88, 95)</td>
<td>87% (89, 94)</td>
<td>95% (90, 100)*</td>
<td>79% (68, 89)#</td>
</tr>
<tr>
<td>The medicines were effective</td>
<td>89% (84, 93)</td>
<td>85% (77, 92)</td>
<td>100% (94, 100)α</td>
<td>91% (83, 98)*</td>
</tr>
<tr>
<td>I felt cared for</td>
<td>88% (84, 92)</td>
<td>81% (73, 90)</td>
<td>98% (95, 101)α</td>
<td>89% (80, 97)α</td>
</tr>
<tr>
<td>I felt better</td>
<td>98% (96, 100)α</td>
<td>98% (94, 101)</td>
<td>94% (88, 100)</td>
<td>93% (86, 100)#</td>
</tr>
<tr>
<td>Overall satisfaction: proportion of all positive responses</td>
<td>82% (76, 87)</td>
<td>73% (64, 83)</td>
<td>89% (81, 97)</td>
<td>80% (69, 91)</td>
</tr>
<tr>
<td>I have faith in the doctor</td>
<td>88% (83, 92)</td>
<td>85% (77, 92)</td>
<td>98% (95, 101)α</td>
<td>91% (83, 98)*</td>
</tr>
<tr>
<td>Doctor explained about my illness</td>
<td>77% (71, 83)</td>
<td>73% (64, 83)</td>
<td>98% (95, 101)ε</td>
<td>94% (88, 100)*</td>
</tr>
<tr>
<td>I received instructions at discharge</td>
<td>80% (75, 86)</td>
<td>78% (69, 87)</td>
<td>97% (92, 101)ε</td>
<td>96% (91, 101)*</td>
</tr>
<tr>
<td>Doctor listened to my problems</td>
<td>84% (79, 89)</td>
<td>79% (70, 88)</td>
<td>98% (95, 101)α</td>
<td>100% (94, 100)*</td>
</tr>
<tr>
<td>Doctor examined me</td>
<td>88% (83, 92)</td>
<td>85% (77, 92)</td>
<td>100% (94, 100)α</td>
<td>98% (95, 102)*</td>
</tr>
<tr>
<td>Doctors’ service orientation: proportion of all positive responses</td>
<td>65% (58, 71)</td>
<td>60% (50, 70)</td>
<td>91% (83, 98)</td>
<td>85% (76, 95)</td>
</tr>
<tr>
<td>Staff did not shout at me</td>
<td>96% (93, 98)</td>
<td>95% (91, 100)</td>
<td>84% (75, 93)α</td>
<td>69% (57, 81)*</td>
</tr>
<tr>
<td>I was received warmly</td>
<td>88% (84, 92)</td>
<td>90% (83, 96)</td>
<td>98% (95, 101)α</td>
<td>95% (89, 101)*</td>
</tr>
<tr>
<td>Staff were courteous</td>
<td>86% (81, 90)</td>
<td>81% (73, 90)</td>
<td>97% (92, 101)α</td>
<td>96% (91, 101)*</td>
</tr>
<tr>
<td>I was not afraid</td>
<td>91% (87, 95)</td>
<td>92% (86, 98)</td>
<td>73% (62, 84)α</td>
<td>65% (53, 78)*</td>
</tr>
<tr>
<td>Nurses’ service orientation: proportion of all positive responses</td>
<td>73% (67, 79)</td>
<td>74% (65, 84)</td>
<td>63% (51, 75)</td>
<td>44% (31, 57)</td>
</tr>
<tr>
<td>I was satisfied with the amenities</td>
<td>86% (81, 90)</td>
<td>78% (69, 87)</td>
<td>94% (88, 100)α</td>
<td>100% (94, 100)*</td>
</tr>
<tr>
<td>I received medicines at the</td>
<td>88% (83, 92)</td>
<td>87% (80, 94)</td>
<td>94% (87, 100)ε</td>
<td>98% (95, 102)*</td>
</tr>
</tbody>
</table>
Tangibles: proportion of all positive responses

<table>
<thead>
<tr>
<th></th>
<th>84% (79, 89)</th>
<th>78% (69, 87)</th>
<th>86% (77, 94)</th>
<th>98% (95, 102)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waiting period was not long</td>
<td>94% (90, 97)</td>
<td>85% (77, 93)</td>
<td>78% (68, 88)</td>
<td>60% (47, 74)</td>
</tr>
<tr>
<td>The treatment was not costly</td>
<td>87% (82, 92)</td>
<td>92% (86, 98)</td>
<td>32% (21, 44)</td>
<td>20% (10, 31)</td>
</tr>
<tr>
<td>Visitors were allowed to see me</td>
<td>68% (62, 75)</td>
<td>62% (51, 72)</td>
<td>87% (79, 95)</td>
<td>89% (81, 97)</td>
</tr>
<tr>
<td>I did not pay informal fees</td>
<td>98% (96, 100)</td>
<td>97% (93, 100)</td>
<td>87% (79, 95)</td>
<td>72% (60, 84)</td>
</tr>
</tbody>
</table>

Processes: proportion of all positive responses

<table>
<thead>
<tr>
<th></th>
<th>53% (46, 60)</th>
<th>48% (37, 58)</th>
<th>16% (7, 25)</th>
<th>9% (2, 17)</th>
</tr>
</thead>
</table>

# - 1 non responder
α - 3 non responders
ε - 4 non responder

β - 19 non responders
δ - 9 non responders

Confidence interval calculated from the following website
http://www.dimensionresearch.com/resources/calculators/conf_prop.html
Figure 1: The ACCORD – ASHWINI – AMS community health insurance scheme in 2004.

* Reimbursement of hospitalisation expenses, upto a maximum of US$ 23
Figure 2: The KKVS community health scheme in 2005

Women members of the KKVS micro finance groups and their families

Annual premium
(US$ 2.3 per individual or US$ 3.2 per family)

KKVS insurance committee

Providers

Reimbursement*

Care

Fees

Claim

* Upto a maximum limit of US$ 228
Figure 3: Framework on quality of care

Figure 4: A schematic representation of the sampling method used at ACCORD, Gudalur

AMS MEMBERSHIP LIST
n = 3177

INSURED FAMILIES
n = 972

SYSTEMATIC RANDOM SAMPLING

UNINSURED FAMILIES
n = 2205

MATCHING FOR VILLAGE, TRIBE, TYPE OF HOUSE, FAMILY SIZE, AGE OF HEAD OF HOUSEHOLD.

SAMPLED FAMILIES
n = 324

MISSING
n = 12

REFUSED
n = 7

SNOWBALL

STUDIED
n = 305

STUDIED
n = 263

BASELINE S-E DATA

FOLLOWED UP FOR ONE YEAR
n = 568

HOSPITALISED PATIENTS (n = 255)

QUALITY OF CARE

OTHERS (n = 2283)
Figure 5: Interview schedules at ACCORD for the 568 households

305 insured & 263 uninsured families

Visited by Village Volunteer ever week to check whether anybody in the family is sick

Yes

No

Major ailment?

Yes

No

Form 0
For baseline SE status

Form 1
Minor ailments

Form 2
Major Ailments*

Details about health seeking behaviour, cost of treatment and the perceived quality of care received.
**Abbreviations**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCORD</td>
<td>Action for community organisation, rehabilitation and development</td>
</tr>
<tr>
<td>AMS</td>
<td>Adivasi Munnetra Sangam</td>
</tr>
<tr>
<td>ASHWINI</td>
<td>Association for health welfare in the Nilgiris</td>
</tr>
<tr>
<td>CHI</td>
<td>Community health insurance</td>
</tr>
<tr>
<td>CI</td>
<td>Confidence intervals</td>
</tr>
<tr>
<td>DHAN</td>
<td>Development for Humane Action</td>
</tr>
<tr>
<td>FGD</td>
<td>Focus group discussion</td>
</tr>
<tr>
<td>KKVS</td>
<td>Kadamalai Kalanjiam Vattara Sangam</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-governmental organisation</td>
</tr>
<tr>
<td>SEWA</td>
<td>Self employed women’s association</td>
</tr>
</tbody>
</table>
Acknowledgements

We would like to thank the more than hundred village volunteers who patiently and with great enthusiasm collected the information, week after week after week. Without them, this study would not have taken place. We would like to thank Dr Bharat Gadhvi, Mr. Easwaran and their team, for travelling the length and breadth of Gudalur, motivating these volunteers and supervising their outputs. And we would like to thank Ms. Malathi and Mr. Janardhanan for managing the finances and the data respectively. We would also like to thank Ms. Deepa for supervising the project at DHAN. And finally to all the DHAN staff who supported us in this research.

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And finally we would like to thank the anonymous reviewers for their invaluable comments that have enriched this paper.


8. Das J, Hammer J. Location, Location, Location: Residence, Wealth, And The Quality Of Medical Care In Delhi, India. *Health affairs* 2007; 3:338-351.


Chapter 5. General discussion

5.1 Summary of the main findings

The initial overview of CHI schemes in India provided some insights into their design and operations. In all instances, NGOs introduced the scheme through existing and credible community groups. These CHI schemes could be divided into three types: the provider type, the insurer type, and the linked type. Enrolment was on a voluntary basis, and the unit of enrolment was usually the individual. Enrolment ranged from 1,000 to 100,000, and most members belonged to the poorer sections of Indian society. Premiums were affordable, and the principal risk covered was hospital expenses. However, many conditions, like chronic ailments and pre-existing diseases, were excluded from the coverage. Providers were mostly private for-profit hospitals. The role of the community in managing the schemes was limited to collecting premiums. The NGO was the main organiser but was weak in the technological and managerial aspects of CHI implementation. This meant that many of the schemes had some weak design features. For example, the enrolment unit was the individual, thereby encouraging adverse selection, and there was no referral system to prevent demand-side moral hazard. Also, providers were paid on a fee-for-service basis, so the schemes were exposed to supply-side moral hazard. Management information systems were also poor, so there was inadequate information to indicate how well these schemes performed.

To explore the issue of performance further, we studied three CHI schemes in detail. At ACCORD, a panel survey revealed that the insured individuals utilised the hospital 2.5 times more than the uninsured individuals did. Insured children, pregnant women, the poorest poor, and the illiterate had consistently higher admission rates compared to the uninsured. Multivariate regression controlled for several confounding factors confirmed the finding that insurance was an independent factor determining hospital admission. The hospitalisation rate among the insured was 2.2 times higher than that among the uninsured. One of the reasons for this could be the design element of the CHI,
which ensured cashless benefits for a comprehensive range of conditions with minimal administrative burden on the patient. This, together with a credible and effective provider, removed significant financial and social barriers to health care for one of the poorest sections of Indian society. Thus, this achievement indicates that CHI can be an effective tool for improving access to care, even among the poorest, provided that it is designed and implemented properly.

With the knowledge that access to hospital care increased among the insured, we sought to determine whether they received better quality of care, resulting in increased patient satisfaction. Therefore, we studied the satisfaction levels of hospitalised patients. At both ACCORD and KKVS, the levels of satisfaction were higher among the insured compared to the uninsured. However, this difference was not statistically significant at ACCORD. The main reason for high levels of satisfaction (in both the insured and the uninsured) was the positive outcome of treatment. The similarities in the satisfaction levels between the insured and uninsured may be explained by the following reasons. First, the organisers failed to strategically purchase care. They were not able to arrange for better services for the insured (e.g., cashless services, separate queues, better treatment by staff, or availability of medicines at the time of hospitalisation). Second, there was a wide social gap between the patients and the providers, so the former may not have been in a position to demand better services. Finally, the expectations of these patients may have also been low. One possible explanation for increased satisfaction among patients insured by KKVS may be that they had a choice of providers. In ACCORD, patients were restricted to a single provider.

Patients may have access to better-quality health care because of CHI, but are they protected from CHE? A total of 67% of patients insured by ACCORD and 34% of patients insured by SEWA did not have to make OOP payments because of their insurance. Similarly, the incidence of CHE was halved due to insurance in these two schemes. However, some patients still incurred CHE, mainly because of
the low upper limits on the benefit package, exclusions of certain conditions, and the use of private-sector health care providers. Additional determinants of CHE were low economic status and ailments that required surgery. For CHI schemes to be more protective, they need to have higher upper limits, more comprehensive benefit packages with minimal exclusions and the capacity to strategically purchase care from providers. They also need to subsidise premiums so that the poor can enrol.

In the course of our study, we identified three issues that must be studied further. One was the definition of CHE. Currently, researchers use arbitrary thresholds to define CHE, but they need to be validated. Is the threshold of 10% of annual income appropriate for all income levels, and are there any other measures that we can use? The second issue concerns the relationship between technical quality of care and perceived patient satisfaction. Given the low expectations of poor patients, can a high satisfaction level be equated with high-quality care? What is the relationship between these two constructs? The effect of CHI on the entire health system must also be investigated. Does CHI increase costs, does it improve the quality of care, even for the uninsured, and what is its effect on equity?

5.2 Strengths and limitations of the research
This study was one of few that systematically evaluated the insurance functions of CHI schemes in India. Most previous studies merely described the structure and processes of CHI schemes. Ranson’s studies of SEWA were the only exception. Earlier studies on access and utilisation used cross-sectional household surveys. This study was one of the first to use a panel survey to measure the incidence of hospitalisations over a period of one year. This method gave a more accurate picture of utilisation and health expenditure compared to previous studies.
We studied three different schemes to account for the three different types of CHI in India. This choice was helpful in understanding the effects of scheme design on access and financial protection.

As one of the first studies of its kind, our results have helped to influence health insurance policies in India. This influence is reflected in the improvements in the design of health insurance products for the poor, the insurance regulator’s recognition of the existence of CHI and the government’s incorporation of CHI into its programmes.

Nevertheless, some flaws in the study must be mentioned. The 10 CHI schemes studied were selected purposively from a pool of 17 CHI schemes. One could argue that this is not a representative sample. However, because we covered more than 50% of the sample, we feel that this sample captures the essence of CHI schemes in India. While collecting data, we found that the registers at KKVS were not updated, so some of the uninsured families were not available when we visited their villages. This may have adversely affected the power of the study. We defined ‘major ailments’ as those requiring hospitalisation, and this circular definition could have been partially responsible for the higher incidence of major ailments among the insured at ACCORD. Finally, we measured perceived quality of care only on a dichotomous scale. Had we used a scale with more options, we may have captured a more nuanced response.

5.3 Lessons for India and the world
An important lesson to be gleaned from our research is that the poor are insurable. In the present study, poor people were risk averse and were willing to contribute premiums to protect themselves from the consequences of adverse health events. The fact that, today, there are more than 100 such schemes in India, each covering an average of 10,000 individuals, indicates the demand for social protection in health.
Compared to Africa, where the size per scheme ranged from 100 to 1000 members, Indian CHI schemes had much larger enrolments per scheme. One of the reasons for this difference was the strategy of building CHI schemes on existing community-based organisations (e.g., unions, micro-credit groups and farmers’ associations). This helped the CHI organisers to leverage existing social capital to provide social health protection. Large enrolments were further enhanced because credible local NGOs organised each scheme. Indeed, trust plays a pivotal role in CHI schemes.\textsuperscript{160}

Yet another reason for Indian CHI schemes’ high enrolments was their affordable premiums. Premiums were usually fixed based on the average household income of the local community. In 2003, the premiums were in the range of US$5 per family per year. Although a “willingness to pay” study showed that people were willing to pay a higher premium (US$14),\textsuperscript{161} our study did not corroborate this finding. However, the side effect of the low and affordable premium was a narrow benefit package with exclusions that did not provide comprehensive coverage against adverse health events.

Studies, mainly from Africa, have shown that CHI has increased utilisation of healthcare by the insured. The Bwamanda study demonstrated an increase in access to hospital care for the insured.\textsuperscript{30} Jutting’s study in Senegal\textsuperscript{162} revealed an increase in utilisation of care at the health centre for the insured. Sauerborn showed that a CHI scheme in Burkina Faso increased access to ambulatory care at the health centre, but not at the hospital.\textsuperscript{163} Smith also showed that pregnant women who enrolled in a CHI scheme that covered maternity benefits had a higher probability of delivering in an institution.\textsuperscript{164} Dror’s study demonstrated increased utilisation of hospital care by the insured in the Philippines.\textsuperscript{165} However, in India, Ranson’s study of Vimo SEWA found no increase in utilisation of hospital care.
among the insured. Additionally, many researchers stress that CHI is not effective for the poorest poor. However, our study revealed that CHI was able to increase access to hospital care, even for the poorest. The reason for this counter-intuitive finding is probably because ACCORD subsidised the premium by half and used a cashless system of reimbursing the hospital. This, together with a minimal administrative burden, meant that patients could seek care at the hospital with negligible barriers. This is a crucial lesson for those Indian CHI schemes that use a reimbursement mechanism to process claims. In such schemes, patients are expected to pay the bills at the time of discharge and then produce a series of documents for reimbursement. Sinha showed that both of these requirements reduced access to required care at SEWA.

Although most of the CHI schemes in Africa (and even Asia) follow either the provider or the insurer model, in India, we observed the emergence of a “linked” model, where the risk-taker is an insurance company. This is advantageous in that there is wider pooling of risks among both the healthy and ill, as well as the rich and poor. Also, fixing the premium is based on actuarial calculations rather than ad hoc estimates, making the scheme more sustainable. However, there is a danger that the premium may then become unaffordable.

5.4 The way forward
A combination of government and market failure in India has resulted in health care being financed predominantly through OOP payments. Most experts recommend shifting from this mechanism to a more equitable prepayment mode. Prepayment mechanisms can be divided into two broad categories: tax-based and insurance-based financing systems.

Because India already has a tax-based financing system, it is logical to strengthen this system by increasing its budgetary allocation from the current 1% of the GDP. The government of India has
promised to do so, but despite its good intentions, the results have not been very positive. The National Rural Health Mission (NRHM) started by infusing extra funds into the public health system. The ministry set an ambitious target of doubling the existing budgetary allocation over a period of eight years. However, midway into the programme, we find that the allocation has increased by only 10% from pre-2005 amounts. Worse, the public health system has not been able to absorb even this meagre 10%. Financial statements from the first few years of the programme indicate considerable underutilisation of funds allocated to the states that ranges from 20% to 80%. Finally, a study by the National Council for Applied Economic Research (NCAER) clearly showed that the government spends 30% of its budget on the richest decile of the population, while the poorest 30% receive only 10% of the government funds. Thus, infusion of funds without either structural changes in allocation or a pro-poor vision would result in more of these funds reaching the better off and the poor remaining under-served. While increasing government budgetary allocation is required, it is unlikely to provide immediate results. To improve access to required health care and to prevent families from indebtedness and impoverishment (especially in the short- to medium-term), it is necessary to consider health insurance as an option.

Health insurance in India is still very nascent. Currently, it covers less than 15% of the population. So how can one introduce health insurance to cover a billion people? One answer is to break down the population into smaller, manageable risk pools. For example, social health insurance already covers some of the formal sector. This existing system can be expanded to cover more of the formal sector.

The Indian government recently decided to cover the poorest through the Rashtriya Swasthya Bima Yojana (RSBY). Since April 2008, 80 million of the targeted 360 million individuals have been insured, and the government hopes to cover the entire target population by 2013. Thus, the poorest in India will at least be protected against hospitalisation
expenses. However, they will still have to pay for ambulatory care or if their hospital bills exceed US$600. Also, RSBY does not cover all poor households because some do not have the necessary documents to enrol in the scheme. Thus, they have the potential to slip through the RSBY safety net.

Covering both ends of the Indian population would still leave a sizable number uncovered by any health security measure. The near-poor and low-income groups would still have to rely on OOP payments to meet their health care needs. These groups include the self-employed, subsistence farmers, domestic workers, and taxi drivers, among many others. This vulnerable section of the population could benefit from CHI schemes in the interim period. Most of this section of the informal sector could be reached through existing organisations (e.g., unions, associations, or caste-based societies). As the Yeshasvini scheme has shown, it is possible to reach out to large numbers of people (in this case, more than 2 million) in a short period if one builds the CHI on existing social capital.

To summarise, in the Indian health system, CHI can provide health security for the near-poor and low-income groups, as well as for those poor who fall through the RSBY net. It can also potentially increase the depth of coverage by covering ambulatory care for the poor and near poor. Thus it has a role in helping India move towards universal health coverage. However, before we promote CHI as a measure to protect the informal sector from health expenses, it is imperative that we strengthen the existing design and operations of these schemes to make our recommendations more effective.

5.5 Strengthening CHI in India

Much work is necessary for CHI to emerge as an effective solution to India’s health care financing needs. The following section highlights the steps necessary to strengthen CHI schemes in India and make them a viable health-financing option (Figure 5-1).
5.5.1 Improving the design of the CHI schemes

Although CHI does appear to work in India, the design contains some inherent flaws. For the schemes to become more acceptable to the community and become more effective and efficient, the following changes are necessary:

- **The benefit package must be as comprehensive as possible.** While coverage of hospitalisation expenses is essential, there is also a demand for coverage of ambulatory care. In remote, rural settings, transportation costs and loss of wages may also need to be compensated to improve access. Most CHI schemes linked with insurance companies have multiple exclusions. For example, such schemes usually exclude reimbursement for the treatment of pre-existing ailments like hernia, diabetes, and cataracts. This only confuses the patient and reduces the credibility of the scheme. Also, the upper limit of coverage must be high enough to minimise OOP expenditures. A scheme where the insured patient pays large co-payments is counterintuitive and defeats the very purpose of health insurance. However, it is necessary to maintain a balance between technical needs, community demands, affordable
premiums and administrative complexities to finalise the benefit package. As stated above, in the interest of keeping the package as comprehensive as possible, it may be necessary to introduce premium subsidies to make the CHI scheme affordable and sustainable.

- **The administration must be as simple as possible**, especially at the time of enrolment and at the time of utilisation. Cumbersome forms and procedures to access services results in further barriers to health care access for a household that is already vulnerable due to illness.\(^\text{169}\)

Hence, it is important that the CHI schemes strive to introduce third-party payments (or cashless payments). This will enable the patient to seek care at the hospital without having to worry about the bill or the means to pay it. This was one of the reasons why the insured at ACCORD had better access to care.\(^\text{154}\)

- **CHI schemes need to manage risk effectively**. To minimise adverse selection, they need to enrol families and not individuals, fix a definite collection period and have a waiting period. Very few CHI schemes have a functional referral system. Although this may not be necessary in some cases, in others, it would be a useful tool to minimise demand-side moral hazard. Such a gate keeper would also help to reduce the costs of the scheme because minor ailments that need a primary care physician will be addressed at the appropriate level.

### 5.5.2 Empowering the community

However, in the rush to improve the technical strength of the CHI schemes, one should not forget the important social dimension. The need for the community to understand the technical issues involved in CHI, the space for members of the community to express their views and, finally, the decision making by the community must also be considered. The scheme should be “for the people as well as by the people”.\(^\text{160}\)
Most CHI schemes in India are managed by NGOs. The role of the community is usually restricted to collecting premiums, creating some awareness of the scheme and using the services. A few schemes, like SEWA, Uplift and KKVS, use the community for screening claims and reimbursements. However, if these schemes are truly to become CHI schemes, the community should own and govern them. Many of the “political” functions of the scheme must be handed over to the community, but the schemes should not burden the community with unnecessary tasks that impede the success of the scheme. We suggest that the community should be more involved in designing or re-designing the scheme, in defining the benefit package and in monitoring the scheme. It also should establish a grievance redressal mechanism to help the NGO sort out problems in the scheme.

It is necessary to separate the political function of a CHI scheme from its managerial function. The community should be the main actor in the former, while the latter may be shared by the NGO, the community and other stakeholders. This division of oversight responsibilities will empower the community to make informed decisions and add a transformative dimension to CHI.

5.5.3 Engaging the providers
One of the weakest elements of the Indian CHI schemes has been its poor ability to control undesirable provider behaviour. This weakness has resulted in various adverse effects, ranging from poor quality care to higher costs and no special benefits for the insured. If this issue is not addressed, the potential for further cost escalation leading to the scheme becoming unsustainable is a distinct reality. Private providers will attempt to maximise their income through unnecessary and costly interventions. Similarly, third-party payment mechanisms will provide very few checks and balances. To prevent this, CHI schemes must negotiate with the providers for the following:

- First and foremost, current provider payment mechanisms must be changed. Indian providers use a fee-for-service (FFS) payment mechanism. This has the natural drawback of incentivising unnecessary procedures and prescriptions. The CHI scheme should replace FFS
payment mechanisms with a case-based payment mechanism. This would immediately put a cap on the bills submitted by the providers and give the scheme manager more control over the scheme’s finances. It would also reduce the administrative burden because the scheme administration would not have to inspect each and every bill. It would also curtail supply-side moral hazard because there would be little incentive for the provider to supply unnecessary treatment. However, the NGO must ensure that the providers do not compromise on quality by under-providing care.

- The second issue to be negotiated is special facilities for the insured patients. The NGO can insist that insured and referred patients see a doctor immediately. All medications and diagnostics should be paid for by the hospital so that insured patients do not have to pay these expenses at any point during their hospital stay. Insured patients should also be assured of better treatment by the staff of the hospital, be informed about their diagnosis and treatment whenever possible, and experience continuity of care between referral levels.

- In the Indian context, there is a considerable social gap between the provider and the community. The NGO organiser can play the role of the intermediary between these two crucial stakeholders by advocating for community requirements with providers. This will make the CHI scheme responsive to the needs of the community.

Providers may be either public or private, but it is imperative that the organiser purchase care strategically. This requirement is important for reducing the cost of healthcare and to provide better services for the insured. This, in turn, will enhance patient satisfaction, provide better value for money and have a positive impact on future enrolment and renewal.\textsuperscript{146}
All of these actions require certain technical skills, which most NGOs lack. Thus, it is essential that CHI managers receive the necessary support.

5.5.4 **Technological and managerial support**

An effective and efficient CHI scheme requires competent support in the domains of:

- **Social mobilisation** – the ability to communicate with the community, explain health insurance, motivate households to enrol/renew and provide them with relevant and regular feedback.

- **Negotiation** – the ability to negotiate with providers and insurance companies. The NGO must understand elements of the health system, health services and healthcare. This will help it to negotiate for patient-centred and affordable services. Similarly, the agency may need to negotiate with insurance companies for a suitable product at an affordable premium.

- **Efficient management** – the capacity to establish management systems and administer claims and reimbursements. This requirement includes the ability to ensure the flow of funds from the community to the organiser and then to the provider with minimal disruption.

- **Monitoring** - the schemes must closely monitor various parameters to prevent bankruptcy, fraud, moral hazard and cost escalation. This requires that the agency understand finances, the intricacies of medical treatment and possible fraudulent practices.

Most NGOs do not have all of these skills. Thus, one option is to build the capacity of each of the NGOs. However, given the rapidly enlarging pool of CHI schemes, this may not be feasible. An alternate solution is to develop regional CHI resource centres that provide technical support to the loc

There are two such bodies in India. One is CLASS (Community-Led Association for Social Security), led by existing practitioners of CHI schemes. It provides technical support to new or existing CHI
schemes on various fronts, ranging from actuarial calculations to developing monitoring systems. The other organisation is the Institute of Public Health, Bangalore, which helps NGOs design CHI schemes. It also helps them with training and negotiations.

5.5.5 Financial viability
Given their small size, CHI schemes have the inherent drawback of financial instability. This problem can effectively be addressed in several ways. One option is through re-insurance mechanisms. Indian CHI schemes have the unique opportunity to re-insure themselves by using the services of private insurance companies, especially because these companies are legally obliged by the Insurance Regulatory and Development Authority (IRDA) to insure people from the rural and social sector. Re-insurance could take two forms. One option is the linked model, where the NGO insures the community with an insurance company. This transfers the entire risk to the company, and the CHI manager need not worry about claims ratios and viability. The second option is for the NGO to continue managing the risk but purchase a ‘re-insurance cover’ if the claims ratio exceeds 100%. This would protect the CHI fund from bankruptcy while giving the organisers the freedom to manage the scheme with flexibility and financial solvency. However, both options require compromises. The main loss for the scheme is the flexibility of the product. Insurance companies usually offer standard products that may not suit local needs. In addition, the cost of the product will increase as the company includes its administrative costs and profits in the premium. Finally, the scheme manager must have the skills to negotiate for an effective and affordable product.

The above strategy helps to improve financial viability but does not help the scheme negotiate with providers or insurance companies. To achieve this goal, the scheme must reach a critical mass either through enrolment drives within the current target group or by covering new populations. Shifting to a new target population may be difficult unless the new community trusts the NGO. A third option is for individual CHI schemes to federate into a single entity. Thus, schemes operating in a region or a
city could come together, share resources and provide a single product for the local community. This would both increase the viability of such a scheme and help the scheme’s management to negotiate with insurance companies and providers for better services and products. Such a federation could also reduce administrative costs and employ technical personnel (e.g., a doctor to provide better managerial support).

Many of the aforementioned measures would strengthen a CHI scheme and help to enhance the momentum of the CHI movement. The latter is possible only if there is support from the government.

5.5.6 Supportive policy

Today, CHI has become a part of the lexicon of Indian policy makers. In fact, they have even called a government-based social assistance programme a “Rajiv Aarogyasri Community Health Insurance Scheme” [http://www.aarogyasri.org/ASRI/index.jsp, accessed on 09/07/2010]. Whereas the National Health Policy in 2002 only mentions the need to introduce health insurance as another method of financing healthcare, the NRHM specifically mentions the need to introduce, support and implement CHI schemes. The Ministry of Health has indicated its willingness to provide subsidies to NGOs and government bodies to implement CHI schemes. The IRDA has introduced a regulation specifically for micro-insurance to protect people from unscrupulous CHI operators. Thus, CHI has been accepted by the government as a legitimate form of financing healthcare, especially for the poor.

To further strengthen the CHI movement, the government can help by:

- Subsidising premiums, especially for the poor who have fallen through the RSBY safety net;
- Insist that private health insurance companies adhere to the Rural & Social Sector regulation under the Insurance Act;
• Provide appropriate training programmes for key CHI actors so that they can manage the scheme more effectively and efficiently; and

• Negotiate with private providers for a price list for common conditions that can then be applied across a region. Fixing the price will help CHI schemes protect their communities from price escalation.

5.6 Conclusions
India, like many low- and middle-income countries, is experiencing dramatic medical expense inflation. Patients and households are becoming indebted and impoverished due to scanty financial protection. While, in the long-term, better funding and strengthening of health services is the answer to this problem, in the short- to medium-term, protection of a large number of people is needed. It is no longer acceptable for 6% of patients to forgo necessary care or for 63 million to fall below the poverty line every year due to medical causes.

Health insurance in India is still nascent. Although social health insurance for civil servants and industrial workers has existed for more than 50 years, private health insurance was only introduced in 1986. However, these initial offerings did not meet the needs of all, especially those in the informal sector and those who are poor. NGOs working with this section of the community realised that medical expenses were a significant source of leakage for household incomes and introduced various programmes, including CHI, as measures to improve access to healthcare and protect households.

Today, there are more than 100 such schemes of various forms and types. While a significant body of literature describes these schemes, there was little evidence on their performance to indicate whether they increase access to quality care or if they actually protect households from CHE. Our research shows that CHI schemes are able to increase access to hospital care and provide partial financial protection. To optimise the performance of the CHI schemes in India, we recommend that the
community be more empowered, design faults be rectified, resource centres provide the necessary technological and managerial skills and, finally, that the government provide financial and policy support to truly encourage “1000 flowers to bloom”. However, caution is necessary: the IRDA should regulate CHI schemes to protect the community from unscrupulous promoters, commercial exploiters and poorly designed schemes. CHI is not the answer to all of India’s health problems, but it is one of many essential steps that must be taken in the short- to medium-term if India wants to achieve universal coverage soon.
Appendix 1: Iatrogenic Poverty - Editorial. Tropical Medicine and International Health.

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Editorial: Iatrogenic poverty

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Poverty and ill health are intertwined. It is a well-documented fact that poverty leads to ill-health. In every society, morbidity and mortality are higher among the poor (Wagssta 2002). Determinants of lower health status include nutrition, environment, education, lifestyle and access to health care. Less is known about how illness itself can lead to poverty in developing countries. There are two major pathways. The first is through the death or disability of a household income earner. This reduces future income generation and may jeopardize household consumption. After a household has depleted its wealth it may have less capacity to invest in the education of their children. This transmits poverty to the next generation.

The second is through the treatment itself, or more exactly its cost. The chain of events is as follows: when someone falls ill, the household faces several different costs (opportunity cost of care giving, transportation, treatment), and to cope with them, it follows diverse strategies. Sometimes the costs are limited, and the household is able to buffer them by making a short-term adjustment (such as consuming precautionary saving, calling on assistance from informal support networks, temporarily reducing its consumption of other goods). Yet, sometimes, the costs are at, or increase to, a level where these coping mechanisms are not sufficient anymore. The household then adopts the riskier strategies of selling or mortgaging its productive assets (Ensor & Bich San 1996; Bloom & Lucas 2000; Meessen & Criel 2003). Some households recover from the financial shock, but others do not (Wilkes et al. 1997). The next time when they have to deal with an illness, a crop failure or another problem, they may be tipped into poverty. Chambers (1983) has called this process a poverty ratchet.

Iatrogenic poverty

Poor people are well aware of that cycle. Surveys have found that they identify sickness as one of their greatest worries (Milimo et al. 2002). Economists and experts in poverty analysis have raised the issue. The WHO, the World Bank and the ILO are trying to put it higher on the agenda by referring to it as catastrophic health care expenditure. But the issue is still little recognized by the political, scientific and, most of all, the medical communities. Doctors are trained to assess the outcome of their interventions in terms of health status, it is high time to consider them in terms of welfare.

Let us have a look at the world outside the health sector. What has been the major change for humanity these last two decades? The average reader of this journal might identify globalization. But for 1.7 billion people, the major change has another name: transition. The transition from a planned economy to a market economy has concerned China, most of South East Asia, Eastern Europe and the Republics of the former Soviet Union. What has this transition meant for the citizens of these countries? Economic growth in some countries, but also a reshaping of the pattern of entitlements (Sen 1981). While education, jobs, income and welfare services used to be taken for granted, today they are determined by a combination of market forces and political commitment to provide benefits. One can find a job and earn an income according to one’s skills and the demand in the labour market. Access to education and health care are no longer universal, but are influenced by the ability to pay.

Most governments fail to fund their health sector adequately because of limited budgets, excessive faith in market forces or other priorities. Consequently, many public health care facilities are run down or they generate revenue by charging patients. At the same time, rural households in many countries have a new opportunity to mortgage or sell their land and other productive assets. ‘Marketization’ is indeed ubiquitous. Today, more than ever, the Cambodian or Chinese farmer is able to match his ability to pay for health care with his willingness to pay. Credit and land markets, i.e. usurious...
moneymakers and resourceful neighbouring farmers, are there to 'help'.

Is this problem limited to transitional countries? Certainly not. The problem is also important in Asian countries with less dramatic changes, such as India or Indonesia (Gerler & Gruber 2002). Many years ago Chambers (1983) suggested that the development of modern hospitals was a major source of difficulties for the rural poor, who have been made to choose between letting a sick parent die without care on the one hand and impoverishment because of high health care costs on the other (G. Bloom personal communication). The AIDS epidemic has made these choices even more agonizing.

The whole problem cannot be explained by the rising liquidity of household assets alone. Willingness to pay is also increasing. Because of economic growth, epidemiological transition, the ageing of the population and access to information, there is an emerging demand in low- and middle-income countries for treatments similar to those delivered in rich countries. Many are ready to try out anything for their loved ones.

The supply side follows demand: medical progress – mainly drugs and imaging technology – penetrates liberalizing markets easily. In a country like China, the health staff are understandably eager to increase their income and keep themselves in line with the other dynamic sectors of the economy. They face few regulatory constraints. This unique convergence of factors is creating a real business in health care. Health is one of the fast growing sectors in transition economies. For example, since 1996, the annual growth rate of health expenditure in China has been more than 13%, significantly exceeding the already fast-growing economic growth rate (Zhao 2002).

Is this impressive growth justified by needs? Only partly. A major feature of the health care market is asymmetry of information: as far as diagnosis and treatments are concerned, the patient is at the mercy of his agent, the health worker. Many health workers get their knowledge from the people who sell them drugs. To control the risk of provider-induced consumption, a full toolbox of institutions has been developed over the ages, ranging from market regulation to what we can club together under the term 'professionalism'. Many Asian countries in transition lack these set of mechanisms. Traditionally, providers were only accountable to the state which had a ubiquitous presence (as an owner, supplier, employer, manager and payer). With transition, the grip of these mechanisms is loosening. Unprotected by checks and balances, the patients are today at the mercy of health workers who, for historical reasons, often have very limited medical knowledge. This fuels a vicious circle: distress caused by disease, the quest for treatment – often through a succession of ineffective therapies, consumption of savings, indebtedness, sale of productive assets and eventually poverty. The disease does not have to be a complex one; dengue in Cambodia can be enough (Van Leemput & Van Damme 2002). There, health care costs are reported today as the single most important reason for households to fall into poverty (Kassie 2000). China’s policy-makers also acknowledge that illness of a family member has become one of the most important causes of household poverty (Zhang 2002). Poverty induced by medicine – 'iatrogenic' poverty?

**The search for solutions**

The main recommendation for protecting people against the high cost of illness is social insurance (Kawabata et al. 2002). Disease is a lottery and households can insure their welfare by pooling their risks and resources. Everyone shares the cost of the unlucky ones who fall ill. The benefits are obvious: people can insure against health care expenditure (social health insurance) and also the loss of income because of death or invalidity (widow, orphan and disablement benefits). Several generations of citizens of the advanced market economies have enjoyed the blessings of social security. In some low- and middle-income countries, statutory social health insurance exists but often only for a minority of the population: those working in the formal sector. Hence, there is a growing interest in voluntary health insurance schemes targeting households that live on agriculture or make a living in the informal sector (Criel & Kegels 1997; Bennett al. 1998; Carrin 2002; Ranson 2002).

Yet, we must not be lured into complacency. It will probably take years, if not decades, for these voluntary health insurance schemes to consolidate and go to scale (Meessen et al. 2002a). Moreover, if they are not well-designed, for instance in terms of provider payment modalities, they will contribute to rapid cost escalation. Other strategies are needed to keep costs under control.

A lot can be done with some basic measures to eliminate the worst prescription practices. Some forms of rationing by defining of packages of basic services is also unavoidable. A full array of measures exists to change the behaviour of providers. It has to do with empowering actors (e.g. patients, through health care education, formulation of patient rights and the emergence of family medicine), with new institutional arrangements (e.g. registration, accreditation, professional bodies, and enforcement of rules against inappropriate behaviour), and also with the internalization of new norms by practitioners (medical ethics). Once we recognize the harm that bad medical practice does, the need for health sector reforms becomes apparent.
Is the combination of ambitious social health insurance programmes and reforms of health care provision sufficient to address the problems of health care-induced poverty? We do not think so. Health insurance is an option for those able to pay the insurance premiums, but what about the poor?

There is a need for a straightforward transfer of resources to the poor. European history has shown that even the affluent can gain from such income redistribution (de Swaan 1998). If social security is the option for the majority, the poor need a targeted transfer – social assistance (Norton et al. 2001). The creation of effective safety nets is not simple in terms of institutional arrangements. It entails addressing the following challenges: funding the transfer of resources, identifying the eligible beneficiaries and delivering services that answer the specific needs (Devereux 2002).

Recently, several countries have launched innovative safety net strategies that do not rely on fee waivers for the poor. Although many countries have introduced such waivers, these have not worked very well in most cases (Willis & Leighton 1995; Ensor et al. 1996; Stierle et al. 1999). This is not surprising, as health facilities have little incentive to treat poor patients free of charge. By doing so, they would indeed jeopardize their own financial viability. If one really wants to give the poor access to expensive health care and protect them from falling deeper into destitution, funds must be ear marked for such purposes. Innovative safety nets such as those currently being developed in Cambodia and China provide a promising alternative (Meessen et al. 2002b; Zhang 2002). In Cambodia, Health Equity Funds for purchasing hospital care for the poor are entrusted to a local social welfare NGO. China has assigned responsibility for its Medical Assistance Schemes to the Ministry of Civil Affairs. These are new initiatives and they have many problems to solve, but they deserve attention from the scientific and donor community.

Fighting iatrogenic poverty calls for more than just establishing some kind of social health insurance. It should be strongly emphasized that the solution lies to a large extent within the health sector; however, a wide coalition is necessary to tackle the issue. Other government departments, such as Ministries of Social Affairs, must be involved. Civil societies have a role to play. Programmes of social assistance will require a massive support by the donors and the national governments. Eventually, the scientific community has to urgently provide other actors with a better understanding of the exact relationship between illness and poverty in a given situation.

The Millenium Development Goals are ambitious. Because of the growing 'marketization' of national economies and of the health sector in particular, it is increasingly important that the poverty dimension is integrated into health policies and in the medical practice. In 1975, Ivan Illich put iatrogenic disease on the profession's agenda (Wright 2003). Now shortly after his death, it is time to recognize a new form of iatrogenic suffering: poverty induced by doctors. This is not only a matter of human rights, but also of public health. When someone falls ill it may bankrupt an entire household and expose its members to an increased risk of further ill-health. Poor medical practice and the lack of financial protection increases the negative impact of ill-health. This is a real vicious circle. We need to do something about it.

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Community Health Insurance in Developing Countries

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Scope and Origin of an Evolving Approach

Community Health Insurance (CHI) is an exciting yet elusive concept. Indeed, the term CHI covers a wide variety of health insurance schemes, each in its distinctive setting and each designed for different population groups. In theory, there are five characteristics that CHI schemes all share:

- solidarity, where risk sharing is as inclusive as possible and membership premiums are independent of individual health risks;
- community-based social dynamics, where the schemes are organized by and for individuals who share common characteristics (geographical, occupational, ethnic, religious, gender, etc.);
- participatory decision making and management;
- nonprofit character;
- voluntary participation.

In practice, however, all CHI schemes apply all of these principles to a greater or lesser extent. Schemes set up by health-care providers, for example, might not permit the full development of participatory decision making and management. A trade union might decide to make subscription to a CHI scheme compulsory for its affiliates, thus not upholding the principle of voluntary participation.

In the English-language literature, the term CHI is the phrase used to describe all such schemes. Less common is the descriptor mutual health organization, although its French equivalent Mutuelle de Santé is widely employed in francophone Africa. In West Africa especially, the social and political dimensions of CHI come to the forefront and scheme management relies considerably on community participation. On the other hand in East Africa, where provider-driven schemes are encountered more frequently, the financial dimensions of CHI attract more attention. This latter approach to CHI is reflected in the use of the term health micro insurance, a phrase endorsed over recent years by the International Labour Organization (ILO). The ILO denomination is, however, less specific than CHI, as it does not refer to participatory decision making or to the independence of premium calculation from individual health risks. CHI is concentrated in, but not limited to, the informal labor sector. Resource-pooling initiatives taken by workers' organizations in the formal sector, in search of better access to health care, are also included. CHI is not necessarily an informal business either. The insurance may be purchased from an existing insurance company, as is often the case in India.

The wide variety of CHI models has led to various attempts at classification (Bennett et al., 1998). Until now, CHI has been classified by ownership, management, membership, and risk coverage:

- Classification by ownership refers to the initiator of a CHI scheme rather than to strict legal ownership. Essentially, such a scheme can be initiated and run by a group of people with similar health-care needs (community-based) or by a health-care provider (provider-driven). By extension, a community-based scheme can also be owned by representative organizations within a community, for example, a nongovernmental organization (NGO) or a trade union. Provider-driven schemes can further be categorized according to the character of the provider. Common examples include faith-based providers wishing to improve access to their health-care facilities, other private providers wanting to improve income flow, or governmental institutions attempting to implement CHI at the district level.
- Classification by management differentiates between schemes on the basis of organization and control and is thus somewhat more specific. A CHI scheme can either be managed by elected representatives of the membership, by an NGO with existing connections to
the scheme, or by a health-care provider, or the management may be contracted out to a third party such as a professional insurer.

- Classification by membership can provide useful additional information. Membership of a CHI scheme may be defined on a geographical basis (for example, people living in the same village or district, or using the same health facility), on the grounds of occupation, ethnicity, religion or gender, or on membership in another organization.

- Classification by risk coverage distinguishes between CHI schemes covering infrequent but costly events (such as hospital admissions) and those covering common low-cost events (e.g., first-line consultations). Such a distinction assumes a direct relation between high-cost events and high risk, whereas others have reported that frequent low-cost events can also lead to catastrophic health expenditure (Segall et al., 2000). In addition, classification by risk coverage is becoming obsolete since more and more CHI schemes set out to cover both high-cost and low-cost events, and—in some cases— even indirect costs.

It is essential to consider CHI within the framework of health insurance as a whole and to highlight both the common features and the distinctions that exist across commercial, community, and social health insurance schemes (see Table 1). All three types of schemes, being risk-sharing arrangements, accomplish risk reduction by pooling pre-paid premiums in a fund earmarked for the health-care expenses of their affiliates. What differentiates them is a series of characteristics based on their different rationale, resulting in a narrower or broader insurance spectrum:

- Commercial health insurance generally operates in a private-for-profit environment. Premiums are a function of the expected cost of health care and set on the basis of individual risk assessment of the client. Clients with high health risks pay more, while those with low health risks pay less. Solidarity and cross-subsidy play no role. Subscription is usually voluntary.

- CHI— as already described in this section— thrives on community solidarity and has a social purpose in a private nonprofit environment. Premiums are generally fixed according to the risk faced by the average scheme member, i.e., a system of community rating, independent of individual income. Thus there is an element of cross-subsidy from the healthier to the less healthy but not from richer to poorer affiliates, except where the very poor are exempted from premium payments. Subscription is usually voluntary.

- Social health insurance (SHI) pursues nationwide risk sharing from a public rights-based perspective and in a nonprofit environment. Premiums are generally proportional to income, independent of the individual risk, and paid principally by employees and their employers through legislation and financial levies. SHI implies both cross-subsidy from the healthy to those with poor health, and from the rich to the poor, provided that affiliation is mandatory and universal.

In the European countries where it originated, social health insurance (the so-called Bismarck model, referring to the German chancellor Otto von Bismarck who introduced the first national compulsory health insurance scheme in 1884) delivers almost universal coverage, thus maximizing the benefits of solidarity. Non-European high-income countries such as Japan and the Republic of Korea followed a similar path. Other European countries attained the same goal by providing tax-financed health care (the so-called Beveridge model, referring to the British academician William Beveridge whose 1942 Report to the Parliament on Social Insurance and Allied Services was an essential part of the National Health Service’s establishment in 1948). The financing models on which both systems are based are far from incompatible and blends of both models are the rule rather than the exception. The fact that Bismarck included state subsidies in the first SHI scheme is often overlooked. Recent history shows that SHI systems in the world increasingly rely on revenue from general taxation, partly in response to the explosion of health-care costs that occurred in the late twentieth century and the need to subsidize or pay for the contributions of vulnerable groups such as the unemployed and low-income pensioners. With health insurance

| Table 1 | Types of health insurance |
| --- | --- | --- |
| Commercial health insurance | Community health insurance | Social health insurance |
| Private for-profit rationale | Private nonprofit rationale | Public nonprofit rationale |
| Premium is a function of individual risk | Premium is a function of average risk | Premium is a function of individual income |
| Limited cross-subsidy from the healthier to the less healthy | Cross-subsidy from the healthier to the less healthy | Cross-subsidy from the healthier to the less healthy |
| No cross-subsidy from the wealthier to the less wealthy | Limited cross-subsidy from the wealthier to the less wealthy | Cross-subsidy from the wealthier to the less wealthy |
| Individual or corporate client | Member of a community | Citizen of a state |
| Usually voluntary affiliation | Usually voluntary affiliation | Mandatory affiliation |
defined as effective health-care risk protection, a national pool of tax contributions to pay individual health-care expenses can be seen as the consummate manifestation of the health insurance function. From this perspective, a British citizen is equally as well insured as his German counterpart, albeit without a formal insurance arrangement (Kutzin, 1998). Clearly, the successes of both the Bismarck and the Beveridge models are related to a particular context: Combinations of civic voice, political stability, government stewardship, and administrative competence that most developing countries can only covet (Criel and Van Dormael, 1999). Only a few low- and middle-income countries share these characteristics and were able to approximate universal coverage. Historic examples are Costa Rica (by and large following the SHI path) and Cuba (using state revenues). In most developing countries, neither of the two models succeeded. Most developing countries’ social health insurance systems remained at best highly fragmented (of which core exemplars can be found in Latin America) or restricted to civil servants (typical of Africa). The case of Africa is illuminating: In the 1960s and 1970s, neither SHI nor free health care at the point of use brought the desired welfare state any closer. In fact, both SHI and the free care concept were inherited from colonial powers and lacked the underpinnings of autonomous sociopolitical development (Criel, 1998). During the 1970s, the African public health systems deteriorated in parallel with the deepening economic crisis. From the 1980s on, the introduction of user fees further impeded access to care, in Africa as elsewhere. In many cases, it was the emergence of widespread problems with exclusion from effective health care that prompted the development of CHI in the late 1980s and early 1990s.

Community Health Insurance in Africa

CHI in Africa must be seen in the context of large majorities within the population trapped in poverty and excluded from formal social security systems. The African CHI movement was started out of a concern to either improve access to health care for a greater proportion of the population or to ensure a stable source of income for health-care provision or both. The first initiatives were developed under the direction of expatriate development aid workers who were most familiar with the history and operation of Europe’s SHI systems. A well-known example is the provider-driven Bwamanda district hospital scheme in the Democratic Republic of Congo that commenced in 1986 with Belgian support. Also in 1986, the first community-based schemes emerged with the inauguration of the Mutuelle Pharmaceutique de Tounouma in Burkina Faso. Over time, different models and blends developed, first in West and Central Africa, followed later by East Africa.

Community Health Insurance in West Africa

From the early 1990s on, the West African CHI movement enjoyed increasing external support—often from organizations that had a strong attachment to the European SHI model. These organizations, such as the International Department of the Belgian Christian Mutualities, organized training sessions for scheme managers, designed technical manuals, and helped create and develop local support organizations. Gradually, governments and donors became interested in the potential of CHI to increase access to health care in adverse conditions. The movement gained strength and in 1998 several African countries, international partners, and local actors met in Abidjan to create the network La Concertation entre les acteurs du développement des mutuelles de santé en Afrique, currently known and referred to as La Concertation. This network supports and monitors the development of CHI schemes, mainly in francophone West Africa.

The rise in CHIs in this region has led to a sixfold overall increase in the number of schemes between 1997 and 2003, as documented by La Concertation in 2004. Table 2 provides an overview count of the almost 600 CHI initiatives registered in 2003 in francophone West Africa. Forerunner Senegal ranks first in terms of number of schemes. A closer look at country level discloses not only different speeds of implementation, but also variations in the mode of implementation.

In Mali, the CHI movement benefited from the start of the Technical Union of Community Health Insurance Schemes, the Union Technique de la Mutualité Malienne (UTM). This federation offers urban communities a standard package (called assurance maladie volontaire) and rural communities a tailor-made CHI suited to local needs. The Union also acts as an interface between the movement and the government. Initially the UTM targeted organized formal urban workers, but now has extended its reach to include both the informal sector and the rural communities.

In Senegal, CHI schemes extended their remit in the opposite direction, expanding gradually from rural villages to urban and periurban settings and from the informal to the formal sector. New initiatives continue to emerge. Today formal workers are adopting the CHI concept as a welcome complement to bureaucratic social security arrangements with limited coverage. The Senegalese government supports the CHI concept and has provided a legal framework and a strategic plan for CHI development.

Guinea presents yet another particularity: A research project (the PRIMA project: Projet de Recherche sur le Partage du Risque Maladie) set out the stakes back in 1996. More recently the implementation of MURIGA (Mutuelles pour les Risques liés à la Grossesse et à l’Accouchement, i.e., CHI schemes for the management of
pregnancy and birth-related risks, which differs from the classical CHI concept by focusing on a narrower target group), provides a possible entry point for yet additional risk sharing among populations.

Burkina Faso worked toward extending of CHI schemes through the medium of the health-care providers themselves, but today community-run CHI schemes are increasingly common. Approximately 40 CHI schemes, representing 20,000 beneficiaries, receive technical support and training from the Réseau d'appui aux mutuelles de santé. The Burkinese government endorses this third-party organization to enhance the negotiation capacity of the demand side, and eventually to contribute to a better-quality health-care supply.

Benin focused on the involvement of locally elected leaders Cameroon, Niger, and Mauritania became involved only recently in CHI, but are fortunate in being able to rely on strong social and religious networks.

The bulk of West African CHI schemes have less than 1000 members within each scheme, in fact the majority of schemes only count a few hundred members. Moreover, most of them remain firmly linked to a single social setting, such as a village, a neighborhood, or a professional body. These features lead to high transaction costs and limited risk pooling with insufficient and unsustainable coverage of expensive risks, such as surgical interventions or prolonged medical treatment (HIV/AIDS being the most prominent example, but also hypertension, diabetes, etc.). Currently however, West African CHI managers show an increasing interest in creating unions, federations, and networks, in order to increase efficiency and common voice (Waælenss and Criel, 2007).

More than 60% of the West African CHI schemes handle activities in addition to health insurance, especially in Cameroon, Guinea, and Burkina Faso. The provision of microcredits (small loans for poor families) or health care is most likely to be associated with health insurance. This relation runs in both directions: 33% of the micro-credit schemes report health insurance as an associated activity.

In English-speaking West Africa, the case of Ghana is of particular interest. By 2002, 46 CHI schemes were active, but covered only a fraction of the population. In 2003, the government passed a Health Insurance Act, which significantly changed health financing across the entire country. The aim was to replace out-of-pocket payments (called cash and carry in Ghana) with health insurance, which would meet up to 20% of total health expenditure, while the remaining 80% would be underwritten by the government. This, it was intended, would facilitate less restrictive and more sustainable national health-care financing. In fact, the Health Insurance Act paved the way for scaling up CHI, as a basis for social health insurance in the long run. The act envisaged that every district would set up a district-based CHI scheme, the establishment of a National Health Insurance Council (NHIC, known as the Council) and the creation of a National Health Insurance Fund (NHIF, known as the Fund). The Council accredits and regulates both district-based and other CHI schemes, as well as commercial health insurance schemes. It also manages the Fund, whose main function is to subsidize district-based CHI schemes. The Fund is financed by a combination of earmarked levy proportional to income, a transfer from formal sector social security contributions, general taxation, and donations. By the end of 2005, 83 out of 138 districts boasted a CHI scheme. Most of these schemes provided coverage for between 20% and 40% of their target community. Enrollment at national level has reached 14.4% and is still rising.

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Table 2  Number of CHI schemes in francophone West Africa

<table>
<thead>
<tr>
<th></th>
<th>1997</th>
<th>2000</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Functional schemes</td>
<td>Functional schemes</td>
<td>Functional schemes</td>
</tr>
<tr>
<td>Benin</td>
<td>11</td>
<td>23</td>
<td>42</td>
</tr>
<tr>
<td>Burkina</td>
<td>6</td>
<td>26</td>
<td>35</td>
</tr>
<tr>
<td>Faso</td>
<td>Cameroon</td>
<td>18</td>
<td>20</td>
</tr>
<tr>
<td>Chad</td>
<td>3</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Guinea</td>
<td>6</td>
<td>27</td>
<td>55</td>
</tr>
<tr>
<td>Ivory Coast</td>
<td>0</td>
<td>29</td>
<td>36</td>
</tr>
<tr>
<td>Mali</td>
<td>7</td>
<td>22</td>
<td>51</td>
</tr>
<tr>
<td>Mauritania</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Niger</td>
<td>6</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>Senegal</td>
<td>19</td>
<td>29</td>
<td>79</td>
</tr>
<tr>
<td>Togo</td>
<td>0</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>76</td>
<td>199</td>
<td>348</td>
</tr>
</tbody>
</table>

While implementation continues, some strengths and weaknesses can already be identified. Among the strengths, both cross-subsidies and tax allocations are seen as potentially effective innovations. Among the weaknesses, highly deficient health provision in deprived areas is recognized as an impediment to progress. In between, the combination of relatively low and differential individual contributions with a wide benefit package (first-line and referral care, but no antiretrovirals) is seen as attractive by some but as barely sustainable by others.

Community Health Insurance in East and Central Africa

In East Africa, CHI has recently been enjoying increased attention. In this part of Africa, both health-care providers and governments tend to play a prominent role in the launch and management of CHI schemes.

In Uganda for example, roughly a dozen CHI schemes are in existence. These were created in the late 1990s with the help of British bilateral aid. Nonprofit church-affiliated hospitals manage the majority of these schemes. Only recently, the community-based model -- of the type that is common in West Africa -- was introduced with support from the Centre International de Développement et de Recherche (CIDR), a French NGO with long-standing experience in West Africa. The importance of CHI is on the wane in Uganda, at least in the public sector where user fees were abolished in 2001. However, it is still a significant force in the private-nonprofit sector, which makes up half of all district hospitals in rural Uganda.

In Kenya, CHI was introduced in 1999-2000 as a result of the first Community Based Health Financing (CBHF) conference held in Uganda in 1998. These pioneering efforts were largely arranged by religious organizations. By 2005, Kenya boasted 32 schemes in various stages of development.

In Tanzania, user fees have progressively replaced financing from general taxation since 1993. As a result, a diversity of insurance configurations has emerged. The compulsory National Health Insurance Scheme (NHIS), which is restricted to civil servants and their families, covers only 3% of the population. A similarly compulsory National Social Security Fund (NSSF) was established for the remaining parts of the formal employment sector. Voluntary health insurance initiatives address the vast informal sector. Since 2002, these initiatives have received technical support from the Tanzania Network of Community Health Funds (TNCHF). There are approximately a dozen provider-driven CHI schemes, most of them based on church-related facilities, together with a few community-based schemes. Alongside these CHI schemes run district-based community health funds (CHF). While the 2001 CHF act made the creation of a

Community Health Insurance in Asia

CHI in Asia began as part of a political process in the middle of the twentieth century. In China, the first medical cooperatives saw the light of day in a few communist-controlled rural areas as far back as the 1940s. This modest initiative eventually led to the nationwide implementation of the Rural Cooperative Medical System (RCMS) in the 1960s, which by the 1970s covered 90% of China's rural population. However, the RCMS collapsed following the market-oriented reforms of the
early 1980s and by 2006 had not really recovered. In the Indian subcontinent, the Students Health Home was the first CHI scheme to be recorded, set up by the communist movement in West Bengal back in 1952. It was not until the late 1990s, however, that a crossover between the microfinance movement (which originated mainly as microcredit, but now encompasses a variety of products including microcredit, microlending, and microinsurance) and CHI initiatives led to a spurt of CHI schemes in both Bangladesh and India. Except for China and the Indian subcontinent, CHI in Asia — as in Africa — is a relatively recent introduction.

**Community Health Insurance in China**

The early Medical Cooperatives in the Shanxi, Gansu, and Ningxia provinces were established as a mechanism to help defray the cost of medical treatment and drugs. Initially set up as mutual prepayment funds, they subsisted on the peasants’ voluntary contributions in the form of both cash and in-kind payments, as well as initial drug stocks provided by the ruling communist local governments. These initiatives proliferated and gained financial strength during the 1950s, when the communist state organized the agricultural workers into farmer cooperatives and consequently were able to introduce welfare funds at the community level. As an integral part of the collective system for agricultural production and social services, the Rural Cooperative Medical System became a nationwide structure of prepayment schemes for healthcare financing during the 1960s. Most villages funded their Cooperative Medical Scheme from three separate (funds): household health insurance premiums, the collective welfare fund, and state subsidies. Depending on the plan’s benefit structure and the village’s economic status, the household premium was usually fixed at between 0.5% and 2% of a peasant family’s annual income. The welfare fund was a state-defined portion of the village’s collective income from agricultural production. Subsidies from upper-level tiers of governments were typically earmarked to compensate health workers and purchase medical equipment. In 1965, the state explicitly encouraged the entire rural sector to adopt the Cooperative Medical Scheme as the mode of financing and organizing health-care services. The resulting community financing and organization model is believed by many to have contributed significantly to the achievements of the Chinese primary care of that era. Between 1949 and 1973, the infant mortality rate was reduced from about 200 per 1000 to 47 per 1000 live births and life expectancy increased from 35 to roughly 65 years. From the late 1960s until 1979, when the process of collectivization began to be reversed, the RCMS covered 90% of China’s rural residents.

Due to market-oriented reforms, both the communal administrative structure that employed the health workers and the collective welfare funds (that once counted for 30–90% of the schemes’ funding) disappeared. By 1984, population coverage had dropped to less than 5%. Between 1981 and 1993, the contribution made by the RCMS to national health expenditure fell from 20% to 2%. Despite several government-driven attempts to re-establish the RCMS in the second half of the 1990s, by the end of the century 90% of China’s rural residents were uninsured (Carlin et al., 1999). Still, the Rural Cooperative Medical System never disappeared entirely from the political agenda. In 2002, the Asian Development Bank made an appeal for its reinstatement, at least in central China’s middle-income regions, a plea contingent on renewed and committed government support (Liu et al., 2002). In 2003, China created a new RCMS, based on voluntary participation, co-funded by the local and central government, and managed on county level. Still expanding, the new RCMS covered 641 out of some 2000 counties by mid-2005 and is projected to cover the whole of rural China by 2008.

**Community Health Insurance in the Indian Subcontinent**

CHI in the Indian subcontinent emerged (though rarely as a stand-alone phenomenon) as an effort to improve access to health care and to protect households from catastrophic medical expenditure. Of the 49 Indian, Nepalese, and Bangladeshi health-related schemes listed in the International Labour Organization inventories (ILO 2003a, 2005b, 2005), all but three piggybacked onto existing organizations drawn from a spectrum that ranged from health-care providers to microfinance institutions, but consisted mainly of broad-spectrum development organizations. Typically, the resulting schemes took the form of NGOs and were able to build on a foundation of trust and financial capability. Most schemes are of relatively recent origin. Out of the 49 schemes mentioned, 30 were started after 1995 and so coincided with the shift of interest by the microfinance sector from microcredits to microinsurance.

The fact that most CHI schemes are NGO-owned still leaves room for organizational diversity. Where the NGO is also the health-care provider — as is more frequently the case in Nepal and Bangladesh than in India — the provider usually runs the scheme. Where the NGO has no health-care functions, it may act as an insurer for the community and purchase care from independent providers. In a third option, which became increasingly popular in India, the NGO purchases insurance — not care — from a formal insurance company. In this so-called partner-agent or linked model, augmented pooling can lead to wider risk sharing (Devadasan et al., 2005). This gain may be
overshadowed by several drawbacks. Where the premium and the benefit package is based on actuarial calculations, the premium may be prohibitive or the benefit package too limited. The resulting insurance product cannot be tailored to meet local conditions, while the patient still has to pay up front and reimbursement is often cumbersome. However, this model is still evolving: NGOs are improving their negotiating capacity and insurance companies are continuously adapting their products.

Across the whole Indian subcontinent, CHI focuses on the poorer sections of society. Small farmers, landless laborers, women’s groups, self-employed vendors, in fact all communities within the informal sector. Enrollment ranges from a few thousand to several hundred thousand. Most of the Nepalese and Bangladeshi schemes focus on first-line health care, whereas in India the main benefit on offer is reimbursement of hospital costs. In all three countries – and particularly in Nepal and Bangladesh – there are considerable co-payments required. In most schemes, the providers operate either in the private not-for-profit or the private-for-profit sector, seldom in the public sector. Fee-for-service payment is ubiquitous and so is overprescribing. In this scenario, the need for provider regulation is obvious if cost escalation is to be kept under control. Though most of the operating NGOs lack technical expertise and a health-systems perspective, many of them have evolved mechanisms to manage risks (see Table 3). The lack of technical expertise led to the inception of microinsurance training centers in India – six by 2006 – encouraged by donors and the insurance industry.

**Community Health Insurance in Indonesia, the Philippines, and Cambodia**

CHI in Indonesia is mainly of historical interest. From the 1970s onward, the Indonesian government promoted the Dana Sehat (Health Fund) community schemes as an alternative form of health-care financing (Thabranj et al., 2003). The main motive for this top-down approach was to compensate on a nationwide scale for decreased access to care in low-income groups due to increased user fees. Despite renewed efforts to promote CHI, by 1998 only 19% of the Indonesian households were members of health funds. The lack of success associated with the Dana Sehat approach can be seen as a quintessential example of inappropriate scaling up, targeting, and implementation. Indeed, the concept was based on the embryonic experience of small NGO schemes during the late 1960s. The targeting of poor households in order to raise health-care finance proved misguided against a background where 80% of the household income is spent on food. Limited fund collection led to limited benefit packages, which in turn discouraged individuals from participation. Dropout rates from the first to the second year ranged from 60% to 90%. The Dana Sehat approach has now been almost completely replaced by a social assistance scheme (SSN), which enables the authenticated poor to access some basic and reproductive health services through a health benefits card.

CHI in the Philippines began life as an effort to improve access to health care among the poor. Many schemes are offshoots of community-based health programs initiated in the 1980s; most of them are cooperative-driven and are plagued by low enrollment (Yap, 2003). In addition, several local government-promoted schemes were set up in the 1990s. At the same time, CHI schemes (alongside health maintenance organizations) were activated by NGOs with external assistance. The Social Health Insurance Networking and Empowerment project (SHINE) anticipated an ongoing attempt to link and to frame these disparate efforts within the central Philippine health insurance corporation (PhilHealth), installed by law in 1995 and whose mission is to ensure universal coverage by 2010.

In contrast, CHI in Cambodia is still at the embryonic stage. The SKY scheme (Khmer acronym for health for our families) was only started in 1998. SKY was introduced by the French NGO GRET (Groupe de Recherche et d’Echanges Technologiques), based on an impact study among clients of a large microfinance program run by the same organization since 1991 (McCord, 2001). Initially offering only a limited-benefit package, the scheme had to

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<tr>
<th>Risk</th>
<th>Methods used to mitigate risk</th>
<th>Methods not used to mitigate risk</th>
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<tbody>
<tr>
<td>Adverse selection</td>
<td>Definite collection period</td>
<td>Household as enrollment unit</td>
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<td>Definite waiting period</td>
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<td>Exclusion of pre-existing diseases</td>
<td>Referral system</td>
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<td>Patient-induced moral hazard¹</td>
<td>Co-payments</td>
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<td>Provider-induced moral hazard</td>
<td>Fixed salary for providers</td>
<td>Case-based instead of fee-for-service billing</td>
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<td>Fraud</td>
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<td>ID cards for the insured</td>
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¹ The patient-induced moral hazard is a form of moral hazard that arises when the patient or the provider induces behavior that is intended to increase the probability of treatment. It is often associated with fraud.

Table 3 Risk management in Indian CHI schemes
overcome high dropout rates and was redesigned several times. In its current form, it offers both insurance for first-line care and hospital care after referral, and uses a vast array of risk-management strategies (see Table 4).

Membership has increased significantly since 2004, approaching 8% of its target population. Being the sole example within Cambodia and with still modest coverage, SKY is widely considered by CHI planners to be a case of special interest. Indeed, the scheme exhibits some features that, nowadays, are viewed as promising options in the field of CHI: It has achieved external financing for its administrative costs and has begun to link its activities with existing targeted social assistance programs (the so-called health equity funds). While administrative cost subsidies are believed to deserve the consideration of international policy makers, it is the latter linkage of health care and social assistance programs that ensures that care reaches those too poor to insure and to that the efficiency of the targeted funds is increased.

Community Health Insurance in Latin America

CHI in Latin America is a marginal phenomenon, especially when compared to the venerable record of social health insurance and the recent expansion of commercial health insurance on the continent, despite the presence of mutual aid societies, which have existed since the nineteenth century. In the context of a highly egalitarian society, segmented social protection systems and elitist private premiums, exclusion is common practice, also in health. It is the preoccupation with the excluded that gave rise to new CHI initiatives, without, however, really taking off.

Within a small number of case studies analyzed by the International Labour Organization, all such initiatives led to improved access to health care among their target populations, but only a minority were judged to be financially sustainable in the absence of external funding. Even so, most still exist and new schemes are being established.

In the light of a growing regional commitment to universal social protection (ECLAC, 2006), it is pertinent to question if and how the scattered Latin American CHI efforts can contribute to this broader development goal.

Roundup of Current and Future Challenges

The growing interest in CHI should not divert the attention from the shortcomings and obstacles that have been reported by many observers. These include a lack of trust among potential members, limited operational capacity – certainly when managed on a voluntary basis – and the weak purchasing power of most schemes (Carrin et al., 2005). Above all, the perceived poor quality of the health care on offer deters people from investing scarce household resources in health insurance (Waclwens and Criel, 2004). Paradoxically, this key obstacle to enrollment is precisely one of the providers’ deficiencies that CHI could in some degree counteract.

The advantages and disadvantages of CHI have been the subject of comments by observers representing a range of perspectives. The possible contributions of CHI to equitable health-care access, to health sector financing, to provider responsiveness, and to quality of care. Additionally, CHI can be regarded as a conduit for other developmental objectives aside from health. The increased social control and transparency observed in the presence of a well-implemented CHI scheme may boost sustainable development and democratization at community level. Eventually, CHI may contribute to poverty reduction (Waclwens et al., 2005). These are challenging issues indeed; the bottom line, however, is that our current knowledge remains insufficient to draw definite conclusions. While there is little doubt by now that a CHI scheme can improve access to health care for its members, the evidence on the broader impact of CHI in developing countries is still scanty. For the time being, research into CHI tends to concentrate on the technical and

| Table 4 Risk management in the Cambodian SKY scheme |

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<td>Capitation payment for hospital care</td>
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<td>Internal assessment of hospital care</td>
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<td>Fraud</td>
<td>ID passbooks, including the insured’s medical history</td>
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managerial aspects. A more comprehensive evaluation of CHI schemes spanning the full breadth of their socio-political, cultural, and economic contexts is needed to assess the performance and potential of CHI.

Equally, guidelines for the implementation of CHI focus on the technical and managerial aspects are needed. Yet, introducing CHI generates complex dynamics: it changes the relationship between patients and healthcare providers, influences the roles of the actors within the health system and the interactions between them, and may introduce new actors hitherto excluded from the decision-making process. Clearly, CHI staff need more than just technical and managerial training and support.

The time has come for research on CHI and implementation of CHI schemes to go hand in hand. Performance of CHI can only benefit from better information, which, in turn, will only be generated by action-oriented research taking into account the broader picture. Essential investigation into the contextual factors that determine the successful development of CHI still has its place. Beyond this, a series of questions remains unanswered:

- How can a better-organized demand side, in effect an insurance scheme, contribute to better quality of care?
- Which mix of interventions, on both the demand and supply sides of the healthcare equation, can bring about improvements to the quality of health services?
- What are the broader social and political consequences of CHI?
- How can CHI be scaled up and integrated in a nationwide social protection system for health?
- How can CHI be linked to social assistance for the very poor?
- How can subsidies — whatever their source, be they domestically or externally funded — enhance the development and performance of CHI without damaging the internal dynamics?

CHI is too complex a subject for cavalier treatment. Hence the need to approach the issue from a medium-term perspective, resisting the temptation for quick gains. At best, CHI is one step on the road to sustainable universal coverage, and this needs time to develop properly.

See also: Comparative Health Systems; Ethics of Health Promotion; Health Inequalities: Resource Allocation; International Perspectives on Resource Allocation; South Asia, Health Systems of; Universal Coverage in Developing Countries, Transition to.

Citations


Further Reading


Relevant Websites


http://www.concertation.org/ – La concertation entre les acteurs du développement des mutuelles de santé en Afrique.

http://www.microinsurancecenter.org/ – microinsurance Center, independent institution promoting the partnership model.


Community-Based Nutrition Programs

K Tontisirin, Institute of Nutrition, Mahidol University, Salaya, Nakhon Pathom, Thailand

L Bhattacharjee, National Food Policy Capacity Strengthening Programme, Food and Agriculture Organization of the United Nations, Bangladesh

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