

- treatment or screening decisions. *Cochrane Database Syst Rev* 2003; (1):CD004131.
- 17 Shorten A, Shorten B, Keogh J, West S, Morris J. Making choices for childbirth: a randomized controlled trial of a decision-aid for informed birth after caesarean. *Birth* 2005;32:252-61.
  - 18 Fraser W, Maunsell E, Hodnett E, Moutquin J-M. Randomized controlled trial of a prenatal vaginal birth after cesarean section education and support program. *Am J Obstet Gynecol* 1997;176:419-25.
  - 19 Elwyn G, Edwards A, Eccles M, Rovner D. Decision analysis in patient care. *Lancet* 2001;358:571-4.
  - 20 Montgomery AA, Fahey T, Peters TJ. A factorial randomised controlled trial of decision analysis and an information video plus leaflet for newly diagnosed hypertensive patients. *Br J Gen Pract* 2003;53:446-53.
  - 21 Bekker HL, Hewison J, Thornton JG. Applying decision analysis to facilitate informed decision making about prenatal diagnosis for Down syndrome: a randomised controlled trial. *Pren Diagn* 2004;24:265-75.
  - 22 Dowding D, Swanson V, Bland R, Thompson P, Mair C, Morrison A, et al. The development and preliminary evaluation of a decision aid based on decision analysis for two treatment conditions: benign prostatic hyperplasia and hypertension. *Patient Educ Couns* 2004;52:209-15.

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## Equitable utilisation of Indian community based health insurance scheme among its rural membership: cluster randomised controlled trial

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### ABSTRACT

**Objective** To evaluate alternative strategies for improving the uptake of benefits of a community based health insurance scheme by its poorest members.

**Design** Prospective cluster randomised controlled trial.

**Setting** Self Employed Women's Association (SEWA) community based health insurance scheme in rural India. **Participants** 713 claimants at baseline (2003) and 1440 claimants two years later among scheme members in 16 rural sub-districts.

**Interventions** After sales service with supportive supervision, prospective reimbursement, both packages, and neither package, randomised by sub-district.

**Main outcome measures** The primary outcome was socioeconomic status of claimants relative to members living in the same sub-district. Secondary outcomes were enrolment rates in SEWA Insurance, mean socioeconomic status of the insured population relative to the general rural population, and rate of claim submission.

**Results** Between 2003 and 2005, the mean socioeconomic status of SEWA Insurance members (relative to the rural population of Gujarat) increased significantly. Rates of claims also increased significantly, on average by 21.6 per 1000 members ( $P < 0.001$ ). However, differences between the intervention groups and the standard scheme were not significant. No systematic effect of time or interventions on the socioeconomic status of claimants relative to members in the same sub-district was found.

**Conclusions** Neither intervention was sufficient to ensure that the poorer members in each sub-district were able to enjoy the greater share of the scheme benefits. Claim submission increased as a result of interventions that seem to have strengthened awareness of and trust in a community based health insurance scheme.

**Trial registration** Clinical trials NCT00421629.

### INTRODUCTION

Poor people in developing countries are less likely to seek care when sick than those who are better off.<sup>1-3</sup> Community based health insurance can potentially protect people from healthcare costs and ensure equitable pooling of risk between richer and poorer, and sick and healthy, members.<sup>4</sup> The World Health Organization has called for investigation of mechanisms to bring the poor into such schemes.<sup>5</sup>

The scope for equitable redistribution of resources through community based health insurance schemes may be limited. Membership is generally small<sup>6</sup>; schemes cover on average around 10% of target populations.<sup>7</sup> Community based health insurance has tended to exclude the poorest people from membership,<sup>8,9</sup> generally charging a flat premium that is unaffordable.<sup>8</sup> Utilisation of health care by insured members has been found to be higher among households located close to health facilities, probably the better off ones.<sup>8,10</sup> Studies in Rwanda and the Philippines found that utilisation by socioeconomic status was equity neutral among insured people and inequitable among uninsured people.<sup>11,12</sup>

According to WHO, more than 75% of total expenditure on health in India is private.<sup>13</sup> We assessed interventions aimed at improving the distributional impact of a community based health insurance scheme in rural India.

### METHODS

Since 1992, the Self Employed Women's Association (SEWA)—a trade union of more than half a million poor women working in the informal sector and based in the Indian state of Gujarat—has been providing insurance to its members and their families. The insurance is voluntary, combining insurance for assets,

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## Time effect and intervention effect†

Indicators	Change in all groups (2003-5)	Any intervention effect?
Members per 1000 population	-13.8 (-31.8 to 4.2)	No; P=0.899
SES of members (relative to population)	6.9*** (3.0 to 10.8)	No; P=0.915
Claims submission per 1000 members (nine months)	21.6*** (15.4 to 27.8)	No; P=0.236
SES of claimants (relative to members)	-4.1 (-10.1 to 1.9)	No; P=0.810

SES=socioeconomic status.

\*\*\*P<0.001.

†Impacts expressed as absolute changes; point estimates, 95% confidence intervals, and P values derived from mixed effects regression models relating each outcome to intervention group, time, and the interaction of the two, accounting appropriately for clustering within intervention areas and within sub-districts.

life, and hospital admission in a single policy. In 2003, SEWA Insurance had 101 809 members in Gujarat state, two thirds of them (67 584) in rural areas and one third (33 080) in Ahmedabad City. The scheme is run by a team of fulltime staff and local women leaders (aagewans), who link members and scheme administrators.

Surveys in 2003 found that the poorest households in the general population were able to enrol in the scheme.<sup>14</sup> The submission of claims for hospital admission was equitable in Ahmedabad City; however, in rural areas, financially better off members were significantly more likely to submit claims than were the poorest members. Qualitative research revealed that poor people faced barriers to accessing hospitals,<sup>15</sup> as well as barriers to filing an insurance claim.

We developed and tested in a randomised trial the impact of two interventions that aimed to improve the equity of claims in rural areas. These interventions were after sales service and supportive supervision and prospective reimbursement, implemented singly and together. After sales service and supportive supervision involved aagewans making house to house educational visits to SEWA Insurance members after enrolment. Prospective reimbursement allowed members to be reimbursed before discharge from hospital.

To reduce contamination, we randomised the trial at the level of sub-districts, an existing administrative unit. We considered sub-districts for inclusion if they had 500 or more female SEWA Insurance members aged 18 or above in 2003. After exclusions, we selected 16 of the remaining 23 sub-districts with the highest number of female SEWA Insurance members. Within the selected sub-districts, the interventions were to be delivered to all female and male members of SEWA Insurance for 2004 and 2005 for whom address data were available and could be located. We randomly allocated four study sub-districts to each of after sales service and supportive supervision, prospective reimbursement, both, and standard scheme (control). Interventions were launched on 1 August 2004, and continued to the end of 2005.

The primary outcome measure was the socioeconomic status of claimants relative to the membership base in their sub-districts of residence. Just before the beginning of the trial, a representative survey of the

general rural population from which SEWA Insurance draws its members gathered data on markers of socioeconomic status.<sup>16</sup> Based on this data we developed a summary index of socioeconomic status.<sup>16</sup> We ranked the membership base in each sub-district according to socioeconomic status, so that the poorest household ranked zero, the wealthiest 100, and the median household 50. For claimants, we converted values for the index of socioeconomic status into sub-district scores (on the 0-100 scale) by linear interpolation of data for member households in the same sub-district.

Secondary outcomes were rates of enrolment in SEWA Insurance, mean socioeconomic status of the insured population relative to the general rural population, and rate of submission of claims.

### Statistical analysis

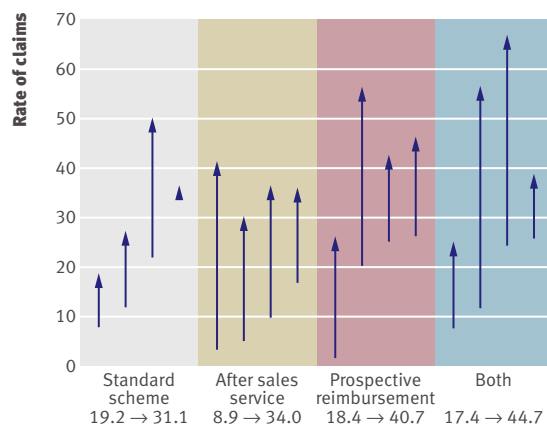
We stratified sub-districts by mean socioeconomic status of claimants (relative to members). Within each of four strata, we randomly assigned sub-districts to an intervention or standard scheme. Neither the participants nor the personnel could be blinded to intervention assignment after randomisation. We used a mixed effects regression model to estimate all coefficients.

### RESULTS

All 16 clusters randomised at baseline were retained at follow-up. At baseline, the four treatment groups were very similar with respect to the primary outcome measure, the mean socioeconomic status of claimants relative to members in the same sub-district. Secondary outcome indicators were quite variable between groups: enrolment rates were 26.7-52.6/1000 general population, socioeconomic status of members relative to the general population was 41.6-51.2 per group, and submission rates for hospital admission claims were 8.9-19.2/1000 members per group.

Rates of coverage of the interventions were high. In after sales service and "both" areas, 96.3% and 97.8% of respondents reported receiving the reminder wall piece. In prospective reimbursement and "both" areas, 82.1% and 85.6% of respondents reported receiving the silver identity card needed for receipt of reimbursement in hospital. After the intervention, respondents in the intervention areas were no more knowledgeable about SEWA Insurance than those in the standard scheme area (see [bmj.com](http://bmj.com)). That is, the interventions did not seem to have any significant impact on knowledge, as assessed by this survey.

The survey of claimants showed that members in different intervention areas differed significantly in terms of how they first notified SEWA Insurance of their claim. In prospective reimbursement and "both" areas, claimants were 25.4-27.0 percentage points more likely than those in the standard scheme areas to have first notified SEWA Insurance of their claim by calling from the hospital before discharge.



Increase in rate of claims between 2003 (tail of arrow) and 2005 (head of arrow) by intervention group and sub-district

Between 2003 and 2005, the mean socioeconomic status of SEWA Insurance members (relative to the rural population of Gujarat) rose significantly, on average by 6.9 on the 100 point scale ( $P < 0.001$ ) (table). No association existed, however, between the interventions and either changes in the enrolment rate or the change in socioeconomic status of members. Rates of claims increased significantly, on average by 21.6 per 1000 members ( $P < 0.001$ ). However, differences between the intervention groups and the standard scheme were not significant. Neither time nor interventions had any systematic effect on the socioeconomic status of claimants relative to members in the same sub-district.

## DISCUSSION

In a community based insurance scheme in rural Gujarat, neither switching from reimbursement to upfront payment nor strengthening contacts between members and administrators was sufficient to ensure that the poorer members in each sub-district were able to enjoy the greater share of the scheme benefits. Instead, the rate of claims increased across the study area. This was in spite of the fact that we achieved high rates of coverage with our interventions.

### Strengths and limitations

Our trial was based on a small number of randomisation units (sub-districts) in each intervention group, but was not underpowered on the primary outcome. The trial does seem to have had disappointingly low power with respect to the secondary outcomes. Large increases in rates of claims occurred in 11/12 intervention sub-districts, compared with only 1/4 standard scheme sub-districts (figure), but these contrasts were not statistically significant (table). Both interventions involved making individual contact with members in their homes, and we believe that this feature of the interventions had a greater impact than elements unique to either specific intervention. Qualitative

interviews revealed that members greatly appreciated the home visits, even though our postintervention survey suggested that the visits did not increase members' knowledge about the scheme's benefits or processes.

An additional limitation of the trial may have been the short period allowed for implementation and then stabilisation of the interventions. When we started to monitor the primary outcome, the interventions had been running for a maximum of eight months.

The cluster randomised design brings both advantages and disadvantages. The study has strong internal validity, and we used qualitative methods both at baseline and during implementation of the interventions to understand the processes at work.<sup>14,15</sup> Relevance to other settings depends on understanding the context of the insurance programme and the factors that influence its operation, including aspects such as physical access to health services that we were not able to cover in the trial.

### Policy implications

The lack of equity impact in our trial may have resulted from a variety of factors. Firstly, the interventions did not tackle barriers such as distance to hospital, transportation costs, and the opportunity costs of hospital admission. Secondly, the interventions were more effective than anticipated among less poor members, suggesting that barriers faced by the poorest people in seeking hospital admission and submitting a claim were just as relevant to the less poor members. Thirdly, although the interventions were designed to meet the specific needs of the poorest members, we had no way of delivering them selectively to these people.

This study feeds into a small but developing literature on whether and how community based health insurance can benefit the poorest people. SEWA insurance has some unusual features, including its base in an organisation of which the prime goals are to organise female workers to achieve work security and self reliance. This contrasts with an alternative approach to community based health insurance, in which a single purpose organisation is formed to provide insurance. The relative merits of different organisational and management approaches to community based health insurance need to be explored further.

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- 1 Gwatkin DR, Rustein S, Johnson K, Pande RP, Wagstaff A. *Socio-economic differences in health, nutrition and population in India*. Washington, DC: World Bank, 2000.
- 2 Wagstaff A. Poverty and health sector inequalities. *Bull World Health Organ* 2002;80:97-105.
- 3 Makinen M, Waters H, Rauch M, Almagambetova N, Bitran R, Gilson L, et al. Inequalities in health care use and expenditures: empirical data from eight developing countries and countries in transition. *Bull World Health Organ* 2000;78:55-65.

**WHAT IS ALREADY KNOWN ON THIS TOPIC**

Community based health insurance is often cited as a means of improving access to health care and financial protection in developing countries

The scope for equitable redistribution of resources by such schemes may be limited by small membership, exclusion of the poorest people, and inequitable utilisation of benefits. No previous study has evaluated strategies for improving the uptake of benefits of a community based health insurance scheme by its poorest members

**WHAT THIS STUDY ADDS**

Neither switching from reimbursement to upfront payment nor strengthening contacts between members and administrators was sufficient to ensure that poorer members were able to enjoy the greater share of the scheme's benefits

- 4 Schieber G, Baeza C, Kress D, Maier M. Financing health systems in the 21st century. In: Jamison DT, Breman JG, Measham AR, Alleyne G, Claeson M, Evans DB, et al, eds. *Disease control priorities in developing countries*. 2nd ed. New York: Oxford University Press, 2006:1401.
- 5 World Health Organization. *The world health report 2000—health systems: improving performance*. Geneva: WHO, 2000.
- 6 International Labour Office (Universitas Programme). *Extending social protection in health through community based health organizations: evidence and challenges*. Geneva: ILO, 2002:79.
- 7 Ekman B. Community-based health insurance in low-income countries: a systematic review of the evidence. *Health Policy Plan* 2004;19:249-70.
- 8 Bennett S, Creese A, Monasch R. *Health insurance schemes for people outside formal sector employment*. Geneva: Division of Analysis, Research and Assessment, World Health Organization, 1998.
- 9 Jakab M, Preker A, Krishnan C, Schneider P, Diop F, Jutting J, et al. Analysis of community financing using household surveys. In: Preker A, Carrin G, eds. *Health financing for poor people: resource mobilization and risk sharing*. Washington, DC: World Bank, 2004:201-30.
- 10 Criel B, Van der Stuyft P, Van Lerberghe W. The Bwamanda hospital insurance scheme: effective for whom? A study of its impact on hospital utilization patterns. *Soc Sci Med* 1999;48:897-911.
- 11 Schneider P, Hanson K. Horizontal equity in utilisation of care and fairness of health financing: a comparison of micro-health insurance and user fees in Rwanda. *Health Econ* 2006;15:19-31.
- 12 Dror DM, Koren R, Steinberg DM. The impact of Filipino micro health-insurance units on income-related equality of access to healthcare. *Health Policy* 2006;77:304-17.
- 13 World Health Organization. *Working together for health: the world health report 2006*. Geneva: WHO, 2006.
- 14 Ranson MK, Sinha T, Chatterjee M, Acharya A, Bhavsar A, Morris SS, et al. Making health insurance work for the poor: learning from the Self-Employed Women's Association's community-based health insurance scheme. *Soc Sci Med* 2006;62:707-20.
- 15 Sinha T, Ranson MK, Chatterjee M, Acharya A, Mills A. Barriers faced by the poor in benefiting from community-based insurance services: lessons learnt from SEWA Insurance, Gujarat. *Health Policy Plan* 2006;21:132-42.
- 16 Henry C, Sharma M, Lapenu C, Zeller M. *Assessing the relative poverty of microfinance clients: a CGAP operational tool*. Washington, DC: International Food Policy Research Institute, 2000.

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## A memorable patient

### *Lost in the process*

Acknowledging her resilience and creativity and how difficult it must have been, I asked if she could describe how the problem had affected her life. Her response—pain, anger, frustration, and tears were her constant companions. “Feeling dumb” at primary school; this worsened throughout high school. To indicate her attendance at school exams, she would sign and hand in blank papers. Hating reading, she easily became frustrated and emotional, often complaining of “being tired” while reading or studying. Her mother assumed she was avoiding homework, and there would be arguments. Memories of the schoolroom were of fear and trepidation. Oral reading was “torture.”

Remembering her distress and anger when people laughed at her inability to spell, she recalled all the tricks she used to disguise her problem—taking paperwork home for family and friends to fill out, or asking staff to complete them. Describing the toughest part of living with dyslexia, she said, “I felt sad when telling my 75 year old mother. She had lived with the guilt and the heartache of being unable to help me: I just felt relieved.” Her mother's words—“I should have known”—still brought pain.

She learnt to read magazines and newspapers. She maintained an 11 year friendship by correspondence, initially writing phonetically. Time passed, spelling and comprehension improved, she made fewer mistakes and wrote longer letters.

While undergoing medical procedures, she had found memories of traumatic school experiences resurfacing, culminating in her visit today. Confronted by her “inadequacies” once again, she felt devastated by her inability to handle the situation and overwhelmed by the lack of “caring” by professionals. She handed me a well worn letter, from which I learnt she had “dyslexia.”

When reading, she sees one word at a time. On completing a line and moving on to the next, she often starts to read the wrong line and then has to go back to find the correct sentence. Letters will occasionally “disappear” at the start of words or sentences, necessitating re-reading the sentence and guessing at what the word might be. She might then add “words that just aren't there.” She explained that most people do not admit to having dyslexia or reading difficulties. People who work in a system see only a process where “time is of the essence.” They don't see the person within that process. In anguish, she cried, “I am not stupid, I can read. There needs to be insight and understanding of the difficulties we face.”

Listening to her story of the emotional impact of dyslexia, I reflected on what had occurred. The assumption that she could read, confusing paperwork, the use of “jargon,” the lack of opportunity to clarify matters, the lack of control over her situation, and the apparent lack of compassion among staff were all an indication that we had failed her. My gut instincts told me something more had been overlooked. Puzzled, I looked up and saw the light reflecting the bright blue of her corrective “Irlen” lenses: her tinted glasses were not a fashion statement, they were necessary for deciphering print.

Her visit provided a powerful message about the lack of awareness we health professionals can display when caught up in “processes.” On reflection, I realise that, to provide the best outcome for our patients, perhaps we need to ask: “What are they not saying?”

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