Expanding health insurance coverage in vulnerable groups: a systematic review of options

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Vulnerable groups are often not covered by health insurance schemes. Strategies to extend coverage in these groups will help to address inequity. We used the existing literature to summarize the options for expanding health insurance coverage, describe which countries have tried these strategies, and identify and describe evaluation studies.

We included any report of a policy or strategy to expand health insurance coverage and any evaluation and economic modelling studies. Vulnerable populations were defined as children, the elderly, women, low-income individuals, rural population, racial or ethnic minorities, immigrants, and those with disability or chronic diseases. Forty-five databases were searched for relevant documents. The authors applied inclusion criteria, and extracted data using pre-coded forms, on contents of health insurance schemes or programmes, and used the framework approach to establish categories.

Of the 21 528 articles screened, 86 documents were finally included. Descriptions about the USA dominated (72), with only five from Africa, six from Asia and two from South America. We identified six main categories: (1) changing eligibility criteria of health insurance; (2) increasing public awareness; (3) making the premium more affordable; (4) innovative enrolment strategies; (5) improving health care delivery; and (6) improving management and organization of the insurance schemes. All six categories were found in the literature about schemes in the USA, and schemes often included components from each category. Strategies in developing countries were much more limited in their scope. Evaluation studies numbered 25, of which the majority were of time series design. All studies found that the expansion strategies were effective, as assessed by the author(s).

In countries expanding coverage, the categories identified from the literature can help policy makers consider their options, implement strategies where it is common sense to do so and establish appropriate implementation monitoring.

Keywords Health insurance, coverage, expansion, vulnerable groups
KEY MESSAGES

- Health insurance coverage is limited in low- and middle-income countries (LMICs) and strategies for expanding coverage are needed.
- A wide range of strategies for expanding health insurance coverage are available, especially in the USA for vulnerable groups.
- LMICs can learn from the existing experience in how the coverage of health insurance can be expanded.

Background

Governments providing basic health care to the whole population need finance to do this. The World Health Organization recommends prepayment financing mechanisms including social health insurance, to protect against financial risk and to improve access to health care (WHO 2005). In low- and middle-income countries (LMICs), health insurance schemes often cover only a small proportion of the population (Carrin and James 2005; Hsiao and Shaw 2007). For example, in India, social health insurance covers formal sector employees, accounting for only 3% of the total population (Devadasan et al. 2006). Though community-based health insurance schemes are widely promoted in many countries in Africa, Asia and Latin America, most of them have limited coverage (Arhin-Tenkorang 2001; De Allegri et al. 2006b). Yet the people least likely to be covered are those with high health care requirements and needing financial protection (Gilson et al. 2000; Habtom and Ruys 2007; Hsiao and Shaw 2007).

As there is considerable debate about how best to expand coverage to low-income groups, we considered how best this can be informed by reliable research and summaries of research. We first sought evidence from existing systematic reviews. A review by Lagarde (2006) identified one controlled before-and-after study from Rwanda of community health insurance, and no evaluations of social health insurance. A second review of community health insurance with broader inclusion criteria suggested that these schemes to date had small effects on a limited section of the population but what might work where was not apparent (Ekman 2004).

As there seemed such a dearth of reliable evidence about whether schemes worked from systematic reviews, we took a step back from the ‘benefits and harms’ paradigm. We considered what questions policy makers, tasked with expanding health insurance coverage, might have that could be informed by the existing literature and evaluation studies. We identified two simple questions.

1. What are the options for expanding health insurance coverage to the vulnerable population derived from the global literature and where have they been tried?
2. What evaluation studies have been done and what did they show?

We then reviewed the literature using standard methods to address these questions and this is what we report here. We judged that this information could: (a) help policy makers consider all options, and allow a discussion of the relevance and feasibility of these strategies for implementation in particular contexts; and (b) provide policy makers with an option to move forward with strategies where it was common sense to implement them, and then monitor the implementation; or, where there was sufficient uncertainty as to whether they would be effective, to implement through a more formal experimental or quasi-experimental approach, such as randomized trials, controlled before-and-after studies or interrupted time-series analysis.

We also debated about whether to use studies from high-income countries, in particular the USA, where the context is so different. However, we considered that understanding policies tried in the USA may be helpful for LMICs to generate ideas and avoid similar mistakes being made, and made the review global.

Methods

Criteria for inclusion of studies

Location

This review was confined to regions where health insurance programmes were established, and where the government or other agencies were modifying programmes to expand coverage of vulnerable groups.

Policies

Any report of a policy or strategy to expand insurance coverage was included, including overviews of policies across several countries. We excluded opinions, discussion papers and policy documents that did not refer to actual implementation of expansion strategies in specific countries.

Target groups

Vulnerable groups were defined as children, the elderly, women, low-income individuals, rural populations, racial or ethnic minorities, immigrants, and population with disability or chronic diseases.

Study designs

We included reviews, policy descriptive articles, observational studies, experimental studies or economic modelling studies. We excluded opinion pieces, letters, news, commentaries, editorials, bibliographies, meeting abstracts and background literature written in the introduction to specific projects.

Language

We included articles written in English or Chinese. Articles identified in English databases written in another language but with an English abstract were screened and included if they met the inclusion criteria.
Screening

In an initial pilot programme, we randomly selected 5% of searched results, which were independently assessed by two of the authors and then each discussed to ensure the same approach was being used. Subsequently each paper identified was screened by title and abstract, and then all the literature included through titles and abstracts was searched. The retrieved full texts were screened and the final included items were identified. The process of screening was done and recorded in the EPPI Reviewer (EPPI-Centre 2008).

Data extraction

Data extraction was done by five authors. Initially, we took 5% of the results from the screening process. All these were double extracted making use of the coding form designed in the protocol. The differences in data extraction and problems in the coding form were identified and discussed by all reviewers and subject experts. Then the coding form was adjusted and improved. We used EPPI Reviewer for screening and data extraction. Relevant information was extracted from included documents. We describe the characteristics of study methods, which include data sources, time period of data, sample size and analytical methods, but not methodology quality.

Data analysis

The data analysis was guided by our review protocol. We adapted the framework approach used in the analysis of qualitative literature. As we read all articles, we grouped strategies into their corresponding categories from our initial framework. Strategies that were not grouped into the originally defined categories were described in detail and grouped into a temporary choice ‘Others’. Once the coding was completed, all reviewers and subject experts discussed the contents of all the strategies and adjusted the categories based on the exact strategies found. All strategies were finally grouped into six main categories. Within each category, in an iterative process, we developed a more detailed framework, informed by the literature we had identified, comparable to ‘sub-themes’ in qualitative analysis. The literature fell into either descriptive articles of the policy or strategy (for objective 1), or articles that included some measure of implementation success such as change in coverage (objectives 1 and 2). For the latter we also briefly summarized the evaluation design.

Results

Selection of the articles

Figure 1 shows the study selection process, with over 21,528 articles screened. Finally, 86 documents met the inclusion criteria and were included in this review (Figure 1). During this process, we obtained the full text of 654 articles. However, there were 79 marked for retrieval that, despite our best efforts, were not available: 36 were published articles in journals that we could not access in the UK or in China by any method, and the remainder were unpublished without clear reference to the source or location. Of the 79, most described US programmes (67, 85%), with only 11 documents (13.7%) from developing countries.

Of the 86 included documents, 61 studies were descriptive articles and 25 were evaluation studies. Descriptive articles from the USA dominated (72), with a smaller number from LMICs: Africa (5), Asia (6) and South America (2). Target populations of strategies from the included documents were children, women, elderly, low-income populations, rural population, and individuals with disability or chronic diseases.

1. What are the strategy options and where have they been tried?

We identified six main strategies, from our iterative process described in the methods above, each with subcategories. Table 1 summarizes the strategies and distribution of reviewed documents. Note that some schemes may have more than one document evaluating them. Below we provide an explanation of each, with some examples from the literature.
Table 1 Main and detailed strategies for expanding coverage of health insurance schemes

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<td>5. Improving health care delivery</td>
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<td>5a. Improving health care package</td>
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<td>5c. Improving quality of services</td>
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<td>6. Improving the management and organization</td>
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<tr>
<td>6a. Improving information system</td>
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</table>

Strategy 1. Modifying the eligibility criteria

This strategy included legislation or regulations to make uninsured populations eligible for health insurance schemes. This was the most commonly reported strategy from the USA, but only reported in two LMICs. There appeared to be two main categories.

(a) Increasing the income threshold for entering health insurance. In order to enrol poor or low-income populations, many strategies described changing the income level for joining insurance schemes to increase accessibility to low-income groups. For example, in the USA, in California’s poverty expansion programmes for Medicaid, infants are eligible for Medicaid if their parents’ income is up to 200% of the Federal Poverty Line (FPL), children under 6 years old are eligible if it is up to 133%, for children 6–15 up to 100%, and for children 15 and older up to 83% of the FPL (Aizer 2002). In June 1998, the scheme expanded eligibility for public health insurance up to 250% of the FPL through its SCHIP for children under 19 years old (Aizer 2002).

(b) Expanding the categories of eligible population groups. Another approach is to change employee categories eligible for insurance. For example, in the USA, legal immigrants who have resided in the USA for more than 5 years are eligible for Medicaid and SCHIP on the same basis as US citizens; refugees and other humanitarian immigrants—except for parolees and domestic violence victims who are seeking legal status—are eligible for Medicaid and SCHIP regardless of their length of residence in the USA; and immigrants, both legal and undocumented, who meet all of the Medicaid eligibility requirements, except for the immigrant eligibility restrictions, can receive Emergency Medicaid if they need treatment for a medical emergency (Fremstad and Cox 2004).

Strategy 2. Increasing awareness of schemes and their benefits

Governments, or insurance schemes, took steps to make people aware of the health insurance schemes and their eligibility through the media or other channels. This was commonly reported (25 documents, three in LMICs), with two main categories.

(a) Mass media campaigns. In many countries, health insurance schemes are advertised to the potential eligible population via television, radio, print advertisement, internet or promotional hotlines. Some insurers even employ marketing experts or partner with other organizations to organize marketing campaigns. In California in the USA, for example, an advertising campaign via television, radio and print advertisements in 48 of California’s 58 counties was implemented in both English and Spanish (Aizer 2002).

(b) Mass media at targeted locations. The SCHIPs in the USA sometimes implemented campaigns in venues where parents and children tend to congregate, including public benefit programmes, early childhood centres, schools, hospitals and religious institutions (Andrulis et al. 1999).

Strategy 3. Making the premium affordable

Use of subsidies or setting suitable premium levels to make insurance schemes affordable for eligible populations was found in 22 documents (six in LMICs). The two main categories of this strategy are as follows.

(a) Subsidy. Government or other organizations directly or indirectly contribute all or part of the premiums for the eligible population, mainly involving three approaches:

- Government pays premiums for eligible populations. In the Philippines, the premium of the National Health Insurance Program (NHIP) for indigent households was covered by a government fund, the cost of the premiums being shared by the local government and the NHIP (Bautista et al. 1999).
- Tax credit to subsidize eligible populations indirectly. In Massachusetts in the USA, for example, the ‘health insurance connector’ facilitated the process of small employers’ enrolment by offering Section 125 plans, which allowed individuals to purchase health insurance plans using pre-tax dollars (Burton et al. 2007).
- Donation to pay premiums for the poor. In Kabutare (Rwanda), the local church paid for the contributions of about 3000 orphans and widows with their family members (Carrin et al. 2005).
Strategy 4. Modifying enrolment
Enrolment was maximized by improving the enrolment procedures. This category included 51 articles (eight in LMICs) with four mechanisms.

(a) Simplifying the enrolment procedure. Here providers reduced the requirements for application, improved their forms or provided assistance to help applicants complete the forms. As an example, in California (USA) in 1998 the state government worked with a variety of organizations to provide application assistance to families who were potentially eligible for Healthy Families (California SCHIP) or Medicaid (Buchmueller and Jacobson 2007).

(b) Integrating sources for enrolment. Insurance scheme partnered with other organizations or public programmes to facilitate enrolment. For example, in SCHIPs in the USA, children could be enrolled without the requirement of completing a new application form so long as another means-tested programme had already found that the family was poor or near-poor (Dorn 2007).

(c) Changing the unit of enrolment. Some schemes changed to the family as unit of membership. An example was BadgerCare in Wisconsin, USA, where all family members were required to be enrolled (Gavin 2003).

(d) Improving premium collection approaches. Changing the methods and timing of collecting premiums. For example, in the ORT Health Plus Scheme, a community-based health financing programme in the Philippines, premium collection was flexible, with monthly, quarterly or semi-annual payments. Burial societies in Uganda used their monthly meetings for the collection of premiums, either for first-time members or for those who renewed their membership (Carrin 2003).

Strategy 5. Improving health care delivery
This involved improving uptake by the population by covering a wider range of health care, controlling the price of services covered, or improving the quality of health care. This category was identified in 16 documents (eight in developing countries).

(a) Improving the health care package. Insurance schemes met the needs of the eligible population by enlarging the health care package. In SCHIPs in the USA, children’s health insurance increases Child Health Plus benefits to include emergency, preventive and routine dental care, except orthodontics and cosmetic surgery; emergency, preventive and routine vision care, including eyeglasses; speech and hearing services; durable medical equipment; non-prescription drugs; outpatient mental health services and inpatient mental health, alcohol and substance abuse services (Andrulis et al. 1999).

(b) Controlling the price of services. By adjusting the co-payment, deductible and/or ceiling, the services covered are made affordable for the eligible population. In the USA, the amendments to Medicaid’s original rules in 1982 eliminated cost-sharing for children (Mann et al. 2003).

(c) Improving the quality of services to attract more of the eligible population. In the district of Nouna (Burkina Faso), for example, most of the people took part in the community-based health insurance schemes with the expectation of improvements in quality of care which the health insurance management team promised during the enrolment campaign (De Allegri et al. 2006a).

Strategy 6. Improving the management and organization of insurance programmes
This category of strategies was included in 30 articles (14 in LMICs).

(a) Improving the information system. Making use of an appropriate information system for measurement of the eligible population, enrolment and management of the schemes. In the development of SCHIP in the USA, the state of Maine improved data and information technology and Vermont created a state-wide integrated delivery system using an electronic database (Sasser 2007).

(b) Staff training. Improving the ability of the management staff of the health insurance scheme for more effective outreach and running of the scheme. For example, in order to enrol Latino children, many states in the USA supported staff development and training in cultural competency to include appropriate family members and to deliver appropriate health care services (Zambrana and Carter-Pokras 2004).

(c) Transparent management. Making the insured population engage in the design of insurance schemes. The prepayment schemes including benefit package, premium level, enrolment categories, co-payments and waiting period in Rwanda were designed, discussed and agreed upon (by voting) in a series of about 30 workshops in three districts, which were attended by the local population (Schneider and Diop 2005).

Location of the strategies
Table 2 presents the distribution of strategies by region. All categories of strategies for expanding health insurance schemes were found in the literature from the USA. Most countries appear to strengthen the management of the insurance scheme (strategy 6; 16 countries), although this was often in combination with other strategies. Strategies adopted in LMICs focused on strategy 3 (making the premium affordable by subsidy or other methods), strategy 5 (improving health care delivery to attract populations) and strategy 6 (improving management and organization). Except for Bangladesh and India, where four and five categories of strategies were implemented for extending health insurance coverage, other LMICs adopted fewer than three categories of strategies.

Target population of the strategies
Rural and low-income populations were targeted in the majority of the included countries, especially in LMICs. In the USA, a wide range of strategies were adopted for the target population, while
in other countries only single or a limited number of strategies were implemented for those targeted (Table 3). For rural and low-income populations, studies in Bangladesh, India, the Philippines and Rwanda were found to use premium subsidies for expanding health insurance coverage.

2. What evaluation studies have been done and what have they shown?

There were 25 studies evaluating strategies for expanding health insurance coverage. All the studies were conducted in the USA and most of them focused on Medicaid, SCHIP and BadgerCare. Table 4 summarizes the characteristics of these studies.

Study design

Most were time series analyses. Of the remainder, there was one controlled before-and-after study, one randomized controlled trial, one non-randomized controlled trial, two prospective intervention studies and one that used mixed methods, including interviews with policy makers.
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<tr>
<th>Main strategies</th>
<th>Associated strategies</th>
<th>Content of the strategies</th>
<th>Target population</th>
<th>Study design</th>
<th>Comparator or control</th>
<th>Data source and study period</th>
<th>Health plans</th>
<th>Author's main findings</th>
<th>Main author(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modifying eligibility criteria</td>
<td>Expand Medicaid-eligible to poor adolescents (ages 15–17)</td>
<td>Poor adolescents</td>
<td>Time series</td>
<td>None</td>
<td>National Survey of America's families; 1997, 1999, 2002</td>
<td>Medicaid</td>
<td>Treatment group increased from 22% to 60%, and comparison group from 47% to 57%</td>
<td>Leininger (2007)</td>
<td></td>
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<tr>
<td></td>
<td>The State Children's Health Insurance Program (SCHIP) expanded coverage to children</td>
<td>Children with chronic health conditions</td>
<td>Controlled before-and-after study</td>
<td>Yes</td>
<td>National Health Interview Survey; 1997, 2000, 2001</td>
<td>SCHIP, Medicaid</td>
<td>A 9.8% increase in insured and a 6.4% decline in uninsured</td>
<td>Davidoff et al. (2005)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Extending Medicaid coverage to families with incomes above the Aid to Families with Dependent Children (AFDC) thresholds</td>
<td>Children</td>
<td>Time series</td>
<td>None</td>
<td>March Supplement Current Population Survey; 1988-1996</td>
<td>Medicaid</td>
<td>Increased from 15% to 23%</td>
<td>Shore-Shappard (2005)</td>
<td></td>
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<tr>
<td></td>
<td>Expanding the income eligibility thresholds to higher income children</td>
<td>Children in near-poor families</td>
<td>Time series</td>
<td>None</td>
<td>March Supplement of the Current Population Survey; 1996-2002</td>
<td>SCHIP</td>
<td>Probability of being covered by public health insurance increased by 5.6-6.1%</td>
<td>Lee and Tian (2004)</td>
<td></td>
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<tr>
<td></td>
<td>SCHIP was signed into law as part of the 1997 Balanced Budget Act</td>
<td>Children</td>
<td>Time series</td>
<td>None</td>
<td>March Current Population Survey; 1996-2000</td>
<td>SCHIP</td>
<td>Raises the probability of public coverage by 8.1%</td>
<td>Lo Sasso and Buchmueller (2004)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The programme extended eligibility to a family income up to 185% of the FPL</td>
<td>Low-income women</td>
<td>Retrospective cohort study</td>
<td>None</td>
<td>Administrative data of Wisconsin state; 1995, 1997, 1999</td>
<td>BadgerCare</td>
<td>Increased the probability of having insurance by about 15%</td>
<td>Wolfe et al. (2005)</td>
<td></td>
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<tr>
<td></td>
<td>Expanding eligible criteria to people with HIV/AIDS</td>
<td>Persons living with HIV or AIDS</td>
<td>Time series</td>
<td>None</td>
<td>State HIV/AIDS Reporting and Surveillance system, etc.; 1992-1997</td>
<td>Medicaid</td>
<td>6-12% increase for HIV and AIDS coverage</td>
<td>Bailey et al. (2003)</td>
<td></td>
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<tr>
<td></td>
<td>Law required Medicaid to cover all children up to age 6 with family income below 133% of poverty line by the year 2002</td>
<td>Children</td>
<td>Time series</td>
<td>None</td>
<td>National Longitudinal Survey of Youth; 1989-1990, 1992-1994</td>
<td>Medicaid</td>
<td>Children without insurance fell from 15.5% to 9.1%</td>
<td>Thorpe and Florence (1998-1999)</td>
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</table>
Table 4: Continued

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<thead>
<tr>
<th>Main strategies</th>
<th>Associated strategies</th>
<th>Content of the strategies</th>
<th>Target population</th>
<th>Study design</th>
<th>Comparator or control</th>
<th>Data source and study period</th>
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<th>Author’s main findings</th>
<th>Main author</th>
</tr>
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<tbody>
<tr>
<td>Making premium affordable</td>
<td>Expand eligible populations; use of tax and voluntary donation programmes to support the poor</td>
<td>Children; women; low-income populations; populations with disability</td>
<td>Time series</td>
<td>None</td>
<td>Statistical report on Medical Care, etc.; 1984–1991</td>
<td>Medicaid</td>
<td>More poor populations were enrolled into insurance</td>
<td>Adams (1995)</td>
<td></td>
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<tr>
<td>Awareness campaign; modifying enrolment</td>
<td>Advertisement of the health insurance scheme in collaboration with other organizations; use of community-based organizations to facilitate application procedure; infants are eligible for medical care up to 200% of the FPL</td>
<td>Children</td>
<td>Time series</td>
<td>None</td>
<td>Current Population Survey; 1996–1999</td>
<td>SCHIP</td>
<td>Enrolment rates increased in months after an advertisement</td>
<td>Aizer (2002)</td>
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<tr>
<td>Awareness campaign</td>
<td>Handing out insurance applications in the emergency department</td>
<td>Children</td>
<td>Non-randomized controlled trial</td>
<td>Yes</td>
<td>Survey data in randomized controlled trial (RCT); 2001–2002</td>
<td>SCHIP</td>
<td>14% increase after intervention</td>
<td>Gordon et al. (2005)</td>
<td></td>
</tr>
<tr>
<td>Modifying eligibility standards; awareness campaign</td>
<td>Retrospective cohort study</td>
<td>None</td>
<td>Early Childhood Longitudinal Study; 1998–2002</td>
<td>SCHIP; Medicaid</td>
<td>4.3% participation rate increased</td>
<td>Cullen et al. (2005)</td>
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<tr>
<td>Provide assistance with eligibility and application questions over a telephone hotline, require no face-to-face interview, etc.</td>
<td>Low-income single mothers</td>
<td>Retrospective cohort study</td>
<td>Administrative data from the State of Wisconsin; 1995–1997</td>
<td>Wisconsin BadgerCare Program</td>
<td>Increased by 6–25%</td>
<td>Wolfe and Scrivner (2005)</td>
<td></td>
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<tr>
<td>Modifying enrolment</td>
<td>Distribute information and provide application assistance through various public agencies; coordinate different schemes</td>
<td>Low-income children</td>
<td>Document analysis, and qualitative interviews</td>
<td>None</td>
<td>State documents; 1997–1999</td>
<td>Medicaid</td>
<td>Five states enrolled over 13,000 new enrollees</td>
<td>Dunbar et al. (1999)</td>
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<tr>
<td>Modifying enrolment</td>
<td>English and Spanish television advertisements; community-based application assistance</td>
<td>Children</td>
<td>Time series</td>
<td>None</td>
<td>Medicaid enrolment data and administrative data; 1996–2000</td>
<td>Medicaid</td>
<td>Advertising increased enrolment by 4.7%</td>
<td>Aizer (2006)</td>
<td></td>
</tr>
<tr>
<td>Making premium affordable; modifying enrolment</td>
<td>Single short application; SCHIP premium exemption for American Indians/Alaska Natives in 2001; expanding SCHIP coverage to childless adults up to 35% of the FPL in 2004</td>
<td>Children</td>
<td>Time series</td>
<td>None</td>
<td>Medicaid Statistical Information System; 1999–2003</td>
<td>MICH (SCHIP in Michigan)</td>
<td>Coverage raised by 45%</td>
<td>Ellis et al. (2007)</td>
<td></td>
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</table>

(continued)
Data sources and analysis

Most data sources were surveys or cohorts using existing databases. For the time series, econometric analysis was the main analytical approach. All evaluations reported on expansion of coverage (Table 4). Follow-up was generally between 3 and 5 years.

Strategies

Predominantly these changed the population group eligible by increasing the income threshold for entering health insurance. Strategies fall into six basic categories, and many schemes have been used to expand or improve health insurance plans or community-based health insurance.

In this paper we have synthesized across many papers, using the framework approach, strategies that have been used to expand health insurance coverage. The main outcome indicators include changes in coverage of the health insurance schemes or in probability of the study sample being insured by the interventions. As assessed by the authors, all the studies found that the interventions studied were positive in expanding the coverage of the health plans.

Table 4  Continued

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<th>Content of the strategies</th>
<th>Target population</th>
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<th>Health plans</th>
<th>Author’s main findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Making premium affordable</td>
<td>Deducting 25% of health insurance premium from taxable income</td>
<td>Self-employed population</td>
<td>Time series</td>
<td>None</td>
<td>Current Population Survey; 1995-2005</td>
<td>Private health insurance</td>
<td>0.68% and 1.02% increased by 10% decrease in the after-tax price</td>
<td>Gumus and Regan (2007)</td>
</tr>
<tr>
<td>Modifying enrolment</td>
<td>Earned Income Tax Credit provides refundable tax credits</td>
<td>Low-income workers</td>
<td>Retrospective cohort study</td>
<td>None</td>
<td>National Longitudinal Survey of Youth; 1989–1996</td>
<td>Private health insurance</td>
<td>Increased probability of coverage by 3.1%</td>
<td>Baughman (2001)</td>
</tr>
<tr>
<td></td>
<td>Enrollment by case managers to ensure uninsured Latino children</td>
<td>Latino children</td>
<td>RCT</td>
<td>Yes</td>
<td>Telephone interview (RCT); 2002–2004</td>
<td>SCHIP, Medicaid</td>
<td>Intervention group had 8 times the adjusted odds of having insurance.</td>
<td>Flores et al. (2005)</td>
</tr>
<tr>
<td></td>
<td>Emergency department provides application assistant</td>
<td>Children</td>
<td>Retrospective observational study</td>
<td>None</td>
<td>Hospital registration data; 2001-2002</td>
<td>Medicaid</td>
<td>Medicaid application increased 22%</td>
<td>Mahajan et al. (2005)</td>
</tr>
<tr>
<td></td>
<td>Enrollment assistance in emergency department</td>
<td>Children</td>
<td>Retrospective observational study</td>
<td>None</td>
<td>Prospective observational study for the 12 month period; 1998-1999</td>
<td>SCHIP</td>
<td>31% could be traced directly to ED-based intervention efforts</td>
<td>Gordon and Dupuis (2001)</td>
</tr>
<tr>
<td></td>
<td>Eliminated Asset Test; 12-month continuous eligibility</td>
<td>Children in low-income families</td>
<td>Repeated cross-sectional study</td>
<td>None</td>
<td>March Current Population Survey; 1997-2001</td>
<td>SCHIP</td>
<td>A range of 7.6-17.1% increased by different methods</td>
<td>Bansak and Raphael (2005)</td>
</tr>
</tbody>
</table>

Discussion

The main outcome indicators include changes in coverage of the health insurance schemes or in probability of the study sample being insured by the interventions. As assessed by the authors, all the studies found that the interventions studied were positive in expanding the coverage of the health plans.

Outcomes

In addition, awareness campaigns, offering subsidies to low-income people, and modifications to enrolment approaches were the major strategies found from the studies looking at expansion of coverage.
specific aspects, e.g. focusing on low-income countries or focusing on social health insurance schemes.

The review objectives and methods was not intended to provide a rigorous assessment of the effectiveness of the strategies implemented. This review is an initial step in considering which strategies may be worth evaluating, through review or primary research, in much more depth. This potentially could reduce the value of the review in informing policy makers and academics on what strategies really work. One finding that is important is that in expanding coverage, and in evaluating strategies that do so, we cannot target single interventions, because most of the included documents present a combination of strategies, which is what policy makers will undertake in practice.

There are questions about the appropriateness of effects review methods (such as Cochrane) in health systems development (Pawson et al. 2005). We knew from the outset, from the existing systematic reviews of effects, that there were no rigorous quasi-experimental or experimental studies that had evaluated any strategy in expanding coverage. To carry out a Cochrane review would add little and provide a framework for ‘evidential nihilism’ (Petticrew 2009), which does not help take the debate forward. The Cochrane review on this topic, which we carried out after the scoping study, includes only two small studies from the USA (Meng et al. 2010).

Even though we cannot make generic conclusions about the policy implications of strategies in different settings, policy making in expanding health insurance coverage in one context could be stimulated by practice in other contexts. For example, many of the strategies found in the USA for expanding coverage are non-financial, implying that these strategies are not expensive to implement and thus are ones from which LMICs could learn. China’s rural health insurance scheme demonstrates a good case in point. Its rapid expansion (91.5% of the rural population had been covered by the end of 2008, just 5 years after its inception in 2003) benefited much from education and other non-financial activities to the people, aside from an increase in government subsidies (Li 2008; Ministry of Health, China 2009). Another value of this review in relation to policy making is that the description of strategies for expanding health insurance coverage in LMICs provides a range of options that countries with similar contexts could consider.

As LMICs move forward with programmes of insurance, it would be worthwhile attempting to generate some standard approaches to describing the various sets of complex interventions that they may adopt. In addition, we need to generate a set of generic context factors to describe the country, health status and people that will help to explain the strategies used, and also the potential of the context to influence whether the strategies are feasible, appropriate and effective. Where possible, in the process of implementing these strategies, quasi-randomized methods could be nested into the implementation package to explore the effectiveness of different approaches. For example, the income threshold could be altered, and this monitored by coverage before and after; and at the same time, different approaches to simplifying enrolment could be evaluated at different sites using cluster randomized or controlled before-and-after design.

Health systems research objectives and methods are usually not suitable for effect reviews. In addition, health systems research usually targets a package of interventions and closely links interventions with complicated contexts. These challenges make it difficult to select interventions, study types and study inclusion criteria for an evaluative systematic review. There needs to be further methodological development in drawing out the results from one research study in one context and applying it somewhere else. This review tries addressing these challenges by conducting a descriptive systematic review of options for policy but not going further into formal effectiveness analysis; this was not relevant to the questions we posed.

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M.Q. contributed to design, methods, review and writing; B.B.Y. contributed to methods, review and writing; L.J. contributed to review and writing; J.W. contributed to methods and review; B.Y. contributed to methods and review; G.P. contributed to design and writing.

Conflict of interest
The authors declare that they have no competing interests.

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