EAGLE INTERNATIONAL JOURNAL OF MANAGEMENT, BUSINESS AND ECONOMICS [EIJMBE]

Eagle International Journal of Management, Business and Economics

An International Peer Reviewed, Open-Access and Multidisciplinary Journal
Volume 1 | Issue 2 | September 2026 |
Website: https://eijrihs.com/index.php/eijmbe/index

DESIGNING BETTER INCENTIVES: BEHAVIOURAL ECONOMICS, CONSUMER CHOICE, AND PUBLIC HEALTH INSURANCE

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ABSTRACT

Public health insurance must be able to share the risks of ill health and at the same time remain accessible to the provision of clinically required health services. Adverse selection questions: "Who will sign up for a plan or which plan will they choose?"; utilization response: "What happens when coverage changes the price that patients pay for treatment?". These are separate issues and have different policy implications. This review considers the potential role of behavioural economics and insurance design in enhancing insurance enrolment, risk pooling and benefit design whilst avoiding placing unaffordable costs on the patient. A systematic narrative review was conducted by targeted searches in PubMed/PMC, academic search engines and journal/publisher websites. Only peer-reviewed journal articles from 2019 were eligible. It is clearly reported about its search and eligibility criteria; as it is not possible to retain its original search records, a PRISMA flow diagram and systematic-review claim are not made. Adverse selection was identified in individual hospitalization policies in a randomized trial conducted in Pakistan, but was significantly lower when policies were grouped at the household level or higher. The results from the Indonesia study and from a meta-analysis of United States marketplace studies indicate that providing temporary subsidies and maandatory enrollment support can increase take-up, and providing information only has smaller effects. New evidence reviews have revealed that increased cost-sharing is linked to decreased medication adherence, though there is no clear evidence that it cuts away low-value care. There are encouraging signs regarding value-based benefit design, but results of the impact of value-based benefit design are context-specific and generally limited. The major constraints identified from Nigerian studies are affordability, awareness, administrative capacity, provider participation and trust. Potential public schemes should include subsidies that are broad and designed to accommodate a wide range of providers to ensure accessibility, predictable contributions with low charges for high-value care of vulnerable members, and link provider payment and purchasing with quality. No amount of service use is, in itself, a measure of waste.

Keywords: adverse selection; behavioural economics; health insurance; moral hazard; cost-sharing; risk adjustment; enrolment; Nigeria

1. INTRODUCTION

A health insurance is bought before the time and expense of the illness. This uncertainty also makes it more difficult to make decisions related to premiums, enlistments, benefits, and patient contributions, and provides a collective risk-sharing function. Members of a scheme may change when and what care they use and the insurance may change. This is because managers must differentiate these mechanisms as they may not be addressing the same mechanism.

Adverse selection is a problem in enrolment or plan-choice. It occurs when individuals with greater expected health care expenses are more likely to enroll, and/or be more likely to select a higher level of coverage, than are individuals with lower expenses. The claim costs might increase in a voluntary pool of healthy people, making the scheme less appealing to those who are still in the pool. But, low enrollment doesn't mean that it is a bad sign of adverse selection. It could be because they can't afford to contribute, they are not aware, they don't trust, the service provided is not good, or they don't know how to register.It could be due to an inability to afford to contribute, lack of awareness, lack of trust, poor service quality or the inability to register.

Moral Hazard: This is a reaction to insurance when the price of the insurance coverage is altered at the time of care. Reducing the cost of the care given to patients can lead to greater utilization. The word does not imply that this extra care is not necessary or patients act irresponsibly. Some people may be able to get the care they need through insurance that they didn't have or would otherwise have put off. Other factors such as benefit rules, payment, and availability of services can also influence utilization.

Behavioural economics introduces mechanisms that are not included in a price-only account. Enrolment deadlines may be missed, benefits are difficult to grasp, price of future health risks may be underestimated or the application procedure is cumbersome. The results of the take-up of different programs have shown that affordability and practical support can drive take-up, though the context of the program can also impact this result (Banerjee et al., 2021; Martin et al., 2024).

This review therefore considers insurance design as a series of decisions: How do people enter and stay in the pool? How is financial risk distributed across individuals and plans? How do the financial costs to patients impact access and usage? How is the provider paid and held accountable? Emphasis is given to implications for public insurance with examples from Nigeria and other low-income environments.

Research objectives

The review has four objectives:

i. Distinguish adverse selection from post-enrolment utilization responses;
ii. Assess recent evidence on subsidies, enrolment support, risk adjustment, and plan design;
iii. Examine how cost-sharing affects necessary care and financial protection;
iv. Develop a practical design framework for public schemes, drawing particular attention to Nigeria.

2. CONCEPTUAL FRAMEWORK

2.1 Adverse selection and risk-pool composition

Under a voluntary scheme, individuals might know more than an insurer does about their anticipated health care costs. If the population most likely to claim is also most likely to enrol then claims can be higher than would be expected from the population. At times, there is also a choice of plan options when the higher-risk members select more generous cover. It is not a foregone conclusion that this is what will happen simply because of the fact that they have decided to enrol themselves and their children voluntarily.

Risk adjustment redistributes funds between plans or purchasers to adjust for known variations in risk. It may diminish the disincentive to avoid certain individuals who are likely to use more services, but this depends on what risks are measured and how service payments vary with coverage and utilization. In recent theory it has been argued that the optimal adjustment rule may not be to make covering fully equal to the predicted costs if the coverage itself influences costs (Zwart, 2025). Voluntary insurance evidence also reveals that risk adjustment is correlated with premium rating and choice to go in and out of the market (Klein et al., 2023).

2.2 Utilization response, clinical value, and provider incentives

A reduction in the out-of-pocket cost could result in a rise in demand, but this rise in demand may have a positive welfare impact if it is for services that improve the health of the population, or may have a negative welfare impact if it is for services that do not improve the health of the population. It is not always clear to patients the clinical value or how much the final cost will be. A fixed deductible or copayment can't effectively distinguish services by value. Provider incentives also affect it: fee for service payments can have a positive effect on volume, and tight budgets or capitation can have a negative effect on under-provision. Patient fees should not be used to replace prudent buying and management.

2.3 Behavioural mechanisms in enrolment and renewal

There is a need to pay attention, understand, accept, do administrative work and anticipate uncertain benefits in the decisions with regard to enrolment. Reminders, plain language materials, assisted application, simplified renewals, and easy-to-use defaults can minimize the hassle. These measures are most effective when the individual(s) can make the contribution and feel the scheme will offer them accessible care. Moving to a nudge does not help with a lack of registration system, a lack of provider network or unpaid claims.

3. METHODS

3.1 Review design

The paper is a structured narrative review of peer-reviewed literature regarding health insurance enrolment, risk pooling, selection, cost-sharing, benefit design, financial protection and implementation. It is not a prospective registered systematic review. The search methods below and the eligibility criteria are explicit, but do not claim to exhaustively retrieve or fully meet the PRISMA criteria as the original searches were targeted and contemporaneous record counts were not preserved.

3.2 Data Sources

PubMed/PubMed Central (PMC) and scholarly search results were used in targeted literature searches. Article abstracts and publication information were checked on journal and publisher websites. Selected bibliographic information and DOIs were verified with Crossref–not as a literature search database. These sources were not solicited via a fully standardized, exportable database protocol, but rather the relevant peer-reviewed journal articles were searched.

3.3 Search Strategy

Searches were carried out on 8th November 2026. Search terms and combinations included health insurance, health coverage, community based health insurance, adverse selection, risk adjustment, enrolment/enrolment, behavioural/behavioural interventions, cost sharing, deductibles, value based insurance design, financial protection, catastrophic health expenditure, provider participation, and Nigeria or sub-Saharan Africa. Comparative evidence from Indonesia, Pakistan and high-income insurance markets, where it answered the review questions, was also searched. A verbatim search string and per-database result export was not preserved, but search terms were tailored to the search source. The publication window was from 1 January 2019 to 8 November 2026.

3.4 Eligibility Criteria

3.4.1 Inclusion Criteria

Articles could be eligible if they met all of the following criteria: (a) published in a peer-reviewed journal since 2019; (b) covered health insurance or health-care markets that are insured; and (c) addressed one or more of the following topics: selection or risk adjustment, enrolment or renewal, behavioural support for enrolment, patient cost-sharing, value-based benefit design, financial protection, or provider participation and scheme implementation. The reviewed evidence designs consisted of systematic reviews and meta-analysis, randomized or quasi-experimental evaluations, observational quantitative studies, qualitative studies or mixed methods. Studies were accepted from any country as long as they provided information on a mechanism or policy question that was relevant to public or regulated insurance; contextual transferability was taken into account for the synthesis.

3.4.2 Exclusion Criteria

The evidence set excluded items that were published before 2019, not peer-reviewed journal articles (such as reports, theses, news items, and conference abstracts), not related to health insurance or an eligible health review topic, or were not relevant enough to the review questions. No multiple entries with the same source were counted as a second source. These criteria outline the anticipated eligibility cut-off for the narrative review and a screening log with dates of exclusion was not kept.

3.5 Study Selection Process (PRISMA 2020)

The PRISMA 2020 statement was referred to when describing the identification, eligibility and inclusion (Page et al., 2021) were described in a transparent manner. In the present instance, however, the source searches were designed, not performed, as a systematically designed prospective workflow for a review. Search-result exports, initial record counts, duplicate counts were not saved, nor were counts of title/abstract screening records or full-text exclusion records and reasons, nor were independent duplicate screening records. Hence, the values for those numbers can not be reliably determined and are not estimated. This is a final evidence set of 16 peer-reviewed journal articles; the number of sources identified or screened is not the same as the number of sources included in the final evidence set. A PRISMA flow diagram is not shown as not enough data is available to report on counts by each stage. PRISMA is employed here for transparency in reporting, but this is not to suggest that this is a PRISMA-compliant or exhaustive narrative review.

3.6 Data Extraction

The revised synthesis records or documents the study year, and journal and/or the DOI (when available), country or market setting, study design and population or evidence base, insurance mechanism or exposure, the main outcome domain, and the results that are relevant to the review questions for each of the 16 included articles. Bibliographic metadata was cross checked with journal and/or publisher pages and Crossref. The structured evidence matrix is provided by design, setting, and topic in Table 1. This is a narrative review, so the search log was not maintained and extraction was not an independent process, and therefore, the matrix cannot be said to cover all potentially eligible studies.

In this lesson, students will learn how to analyze and synthesize data.

The evidence was narratively summarized and organised into five themes: (1) selection and risk-pool composition, (2) enrolment, subsidies and behavioural support, (3) patient cost-sharing and medication adherence, (4) value-based benefit design, and (5) provider participation, trust, and financial protection, focusing on the implementation in Nigeria where evidence was available. Results of the study were interpreted in relation to design, context and limitations and observational associations were not considered as causal effect. The populations, interventions, outcomes and institutional settings of insurance organizations were heterogeneous, which made quantitative pooling impossible. A new meta-analysis and formal risk-of-bias assessment was not conducted.

3.7 Data Analysis and Synthesis

Narrative summaries of evidence were clustered into five themes: (1) Selection and Risk-pool Composition; (2) Enrolment, Subsidies and Behavioural Support; (3) Patient Cost-sharing and Medication Adherence; (4) Value-based Benefit Design; and (5) Provider Participation, Trust and Financial Protection, each with a focus on implementation in Nigeria given the availability of evidence. Results of the study were analyzed in consideration of design, setting and limitations, and observational associations were not considered as causal effects. Quantitative pooling was impractical because there were population, intervention, outcome, and insurance institution differences in the populations. A new meta-analysis and formal risk of bias (RoB) evaluation was not performed.

3.7.1 Characteristics of Included Studies

The 16 articles included were of five types of evidence: systematic reviews/meta-analyses (5), randomized evaluations (2), observational or quasi-experimental quantitative studies (4), qualitative studies (2), mixed methods research (1), and theoretical analysis (2). Settings covered Nigeria and other sub-Saharan Africa settings, Indonesia, Pakistan, the USA, high-income health systems and multi-country/low- and middle-income country evidence. The study characteristics for contextually summarizing the synthesis are summarized in Table 1.

Table 1. Characteristics of included evidence articles

Study (year)	Design / setting	Main topic represented in this review
Adekunle & Vincent (2025)	Quantitative observational study; Nigeria	Socioeconomic and other correlates of health-insurance uptake.
Adewole et al. (2021)	Qualitative case study; Ibadan, Nigeria	Trust and the distribution of enrollees across facilities.
Alawode & Adewole (2021)	Qualitative stakeholder study; Nigeria	National and subnational scheme design and implementation challenges.
Banerjee et al. (2021)	Randomized evaluation; Indonesia	Subsidies, registration assistance, enrolment, and selection into national health insurance.
Effiong et al. (2025)	Quantitative multi-site study; six Nigerian states	Coverage and predictors of state-supported scheme enrolment.
Eze et al. (2023)	Systematic review and meta-analysis; LMICs	Community-based insurance, utilization, out-of-pocket spending, and catastrophic expenditure.
Fischer et al. (2023)	Randomized controlled trial; Pakistan	Adverse selection in low-income hospitalization insurance and household bundling.
Fusco et al. (2023)	Systematic literature review; multiple settings	Cost-sharing and medication adherence, outcomes, utilization, and costs.
Graf et al. (2024)	Systematic review; high-income health systems	Economic evidence on cost-sharing and alternative benefit designs.
Klein et al. (2023)	Theoretical/analytical study; voluntary insurance markets	Interactions between risk adjustment, risk rating, and consumer selection.
Martin et al. (2024)	Systematic review and meta-analysis; US ACA marketplaces	Interventions intended to increase marketplace enrolment.
Okunogbe et al. (2022)	Quantitative programme evaluation; Kwara State, Nigeria	Short- and longer-term associations between insurance and catastrophic expenditure.
Shewamene et al. (2021)	Systematic review; sub-Saharan Africa	Barriers to community-based health-insurance uptake.
Shobiye et al. (2021)	Mixed-methods cross-sectional study; Lagos, Nigeria	Provider participation, payment, tariffs, and scheme implementation.
Zhang & Cowling (2023)	Quasi-experimental evaluation; California public employee plans	Value-based insurance design, health-care spending, and utilization.
Zwart (2025)	Theoretical model; regulated competitive insurance	Risk adjustment where adverse selection and moral hazard interact.

4. THEMATIC EVIDENCE SYNTHESIS

4.1 Selection is real in some markets, but low coverage alone is not proof

The only recent clear causal evidence found is in the context of low-income countries, in the form of a randomized trial of hospitalization insurance in Pakistan. There was significant adverse selection in individual policies resulting in welfare loss and a threat to sustainable supply. The observed selection problem was effectively almost eliminated in the case of bundling at household level or above (Fischer et al., 2023). Where feasible and appropriate to the scheme's legal and equity goals, a mechanism of household or group enrolment may be a helpful “pooling” method for household-level enrolment. This discovery is not to be interpreted as a general guide for public insurance: it is a particular voluntary product and market.

While plans may have a disincentive for enrolling high cost members through the use of risk adjustment, it is not the final answer. Even if plans don't address unmeasured risk via provider network, service authorization or benefit specifics, it doesn't stop them from doing so. Voluntary markets also have the effects of risk adjustment and risk rated premiums on the incentives of consumers to join and exit the pool, as well (Klein et al., 2023). If a shift in insurance leads to a corresponding shift in utilization, then risk adjustment based solely on the predicted cost difference can also lead to unintended consequences; Zwart presents a theoretical argument that the size of the transfer does not necessarily need to be identical to the cost difference that is predicted (Zwart, 2025). These results indicate that there is no assumption that a more complete cost equalization is necessarily desirable.

The evidence available does not provide any proof that adverse selection is the main problem affecting coverage in Nigeria. Findings from the analysis of data from a household survey indicate that enrolment is correlated with a range of socioeconomic characteristics, employment status, level of wealth and level of education, whereas a multi-site survey across six states revealed low awareness, financial constraints, and dissatisfaction as important factors associated with enrolment (Adekunle & Vincent, 2025; Effiong et al., 2025). These are only cross-sectional results and do not show causal effects or selection by health risk. Managers should directly assess the risk of their enrollees and their tendency to persist in their enrollment, prior to implementing a remedy for adverse selection.

4.2 Subsidies and assistance can increase enrolment, but operations determine whether applications succeed

Randomised experiments were conducted on Indonesia's National Health Insurance Scheme and found that short term subsidies increased coverage. Enrolment assistance was also shown to increase efforts to join however over half of households who attempted to enrol failed to successfully do so. This showed how financial incentives can be combined with behaviour change to increase coverage. However, the ability to administer will determine whether interested individuals actually enrol (Banerjee et al, 2021).

A systematic review and meta-analysis was conducted on 34 studies comprising of over 18 million individuals. Interventions to improve enrolment in United States Affordable Care Act marketplaces were reviewed. Overall interventions improved enrolment by 0.9% across the 27 studies in the meta-analysis. This is an increase of around 24% compared to controls. Behavioural interventions had a larger estimated effect compared to informational interventions. However, the actual change was not large and results from United States marketplaces may not be generalisable to a public scheme elsewhere (Martin et al, 2024).

In sub-Saharan Africa there are many more barriers to overcoming identified in the community based insurance literature. A systematic review found that community awareness, household resources, trust in scheme management, perception of health, quality of service and eligibility for benefits all affect initial enrolment and subsequent re-enrolment. The studies that were analysed were often of low quality so it is best to use them to provide context for potential issues during implementation (Shewamene et al, 2021).

4.3 Cost-sharing reduces use, but does not reliably identify low-value care

Deductibles, co-payments, and coinsurance all increase cost sharing for patients. Increasing prices can lead to reduced usage and costs but cannot guarantee low value care is removed. Patients may not have knowledge about what treatment is clinically valuable. Cost issues may also play a similar role in deciding whether essential and discretionary treatments will be used.

A systematic review of 79 studies showed that increased cost sharing for prescriptions resulted in consistently worse adherence, persistence, or initiation. There were mixed results of clinical outcomes, overall costs, and general usage. There appeared to be reduced outpatient treatment and increased inpatient treatment. This suggests cost sharing may act as a general method in managing costs (Fusco et al., 2023). Another systematic review focusing on high income systems showed there was limited evidence showing that general cost sharing would be an efficient way to address moral/behavioural hazards. It also noted reduced costs do not mean low value care is not being used (Graf et al., 2024).

This is an important point for pharmaceuticals and managing chronic disease. Payment can be required multiple times which can impact on treatment. However, most of the evidence available around cost sharing is related to insured populations within high income settings. This cannot provide an optimum amount to charge for a copayment in a public scheme within Nigeria or another low income country. Factors such as affordability, availability of providers, availability of pharmaceuticals and benefit structure will influence how cost sharing will work in the area.

4.4 Value-based benefit design is promising, but effects are context-specific

Value-based insurance design aims to reduce out-of-pocket costs for patients with high clinical expectations. It can also create small barriers to low-value services where clinical evidence and safeguards can support this. When appropriately implemented, this should mean that patients pay an amount reflecting the likely benefit of services they receive. Clinical guidelines must be credible, formularies regularly updated, and exceptions clear to understand. Those with low incomes or long-term conditions must also be protected.

A value-based insurance scheme was evaluated within public employee schemes in California. It was found to increase utilisation or expenditure on primary care and immunisations, decrease inpatient admissions and out-of-pocket costs. However, there was no additional overall cost in the first two years. There was little effect at the margin, variability across years, difficult interpretation due to the time of the study during the COVID-19 pandemic and no clinical outcomes measured. This shows value-based design should be approached cautiously (Zhang & Cowling, 2023).

4.5 Nigerian evidence links enrolment to affordability, awareness, trust, and service delivery

Studies in Nigeria have identified challenges within. When discussing the National Health Insurance Scheme stakeholders reported barriers including poverty, unawareness, poor administration and monitoring and issues with service provision including lack of medicines. The scheme has also been found to lack coverage outside formal sector workers and struggles to be implemented in subnational schemes (Alawode & Adewole, 2021). A qualitative study in Ibadan found providers and enrolled individuals had little trust in the scheme and government and there were issues with uneven distribution of enrolled individuals (Adewole et al., 2021).

Providers are part of the insurance product. A mixed methods study found that enrolment was encouraged due to high volumes of patients and income. However, low tariffs, delayed payments or non-payment, and unrealistic expectations were discouraging. Contracting, consistent payment, provider capability and educating the public were highlighted (Shobiye et al., 2021). This can cause issues with enrolment increasing but providers not being motivated.

Insurance can improve finances however there may be differences over time. A panel study found individuals living in the area of the scheme had a 4.3% decrease in catastrophic expenditure based on a 10% threshold for household consumption. Short term insured individuals had a 5.7% decrease however this was not statistically significant four years after scheme implementation. Decreases were seen in poorer households and those with a chronically ill individual (Okunogbe et al., 2022). A systematic review and meta-analysis

found an increase in outpatient usage and overall decrease in out of pocket and catastrophic expenditure. However this varied depending on the outcome and context, there was still high heterogeneity (Eze et al., 2023)

5. DISCUSSION

Evidence suggests that different strategies can be used to improve enrolment selection and use. A broad enrolment base, targeted subsidies, pooling at family/group level and appropriate risk transfer can improve the composition of the risk pool. Benefit design, provider payment methods, referral processes and clinical oversight can improve post enrolment care. While increasing co-payments can reduce claims they may not always result in healthy individuals enrolling and may not ensure they are forgoing low value care.

Behavioural change strategies should be considered as part of the operational design. Without additional information individuals may not be willing to pay and may not successfully apply. Providing assistance with registration may increase attempts but if the registration process is unreliable individuals may not have active coverage. If individuals can use the services that have been promised, by providing clear reminders for renewal, simple processes, assistance outside of online platforms and clear information about the benefits and provider networks, this will create a more credible process (Banerjee et al., 2021; Martin et al., 2024; Shewamene et al., 2021).

Additionally, managers should not assume increased use is a result of moral hazard. Individuals may increase outpatient visits, medication use and preventative care after taking up coverage because they are now able to access care due to previous high out-of-pocket payments. Monitoring should be in place to understand what level of recommended care individuals are accessing and what level of unnecessary duplication, inappropriate prescriptions, preventable admissions and unmet need there is. Claims data should be paired with clinical indicators, patient experience and financial protection.

The findings from Nigeria show that individuals will only choose to become consumers if they feel the scheme is reliable. Levels of contribution, understanding what they are entitled to, providers being involved, claims being settled, availability of medication and trust in the management of the scheme will affect whether individuals contribute to the risk pool. If individuals cannot find a provider within the scheme or the provider is expecting delayed or low payments then the promise of insurance will not be valuable (Adewole et al., 2021; Alawode & Adewole, 2021; Shobiye et al., 2021).

6. Management recommendations

6.1 Broaden enrolment and diagnose the cause of non-participation

Automatic or mandatory schemes should only be introduced if there are legal backing, funding of contributions and a database of those enrolled. Schemes that are not fully compulsory should have an easy sign-up process, allow sign-ups in households or groups of people and provide subsidies for those who can't afford to contribute. Before calling a scheme adverse selected look at how many people are signing up and leaving in different risk groups and income groups.

6.2 Calibrate risk adjustment and protect solidarity

Transparent and validated factors can be used to adjust for predictable variations in costs. Ensure that the risk adjustments are rewarding accurate delivery to high-need patients but do not incentivise coding up. Reinsurance or high cost pooling may be required if there are a small number of very high cost cases that can cause instability in a small risk pool. The risk adjustment formulae need to be considered as to how generous the benefits are, and whether complete equalisation of predicted costs is appropriate (Klein et al, 2023; Zwart, 2025).

6.3 Protect high-value and repeated care

Ensure that essential medicines, preventative care, women's health and evidence-based chronic disease management are low cost or free to patients where they are identifiable and deliverable. If a co-payment is included ensure it is low, predictable and transparent. Ensure that there are annual limits and automatic exemptions for patients who have low income and/or high cost chronic conditions. Avoid high upfront deductibles. Instead consider analysing utilisation, adherence, protection and clinical outcomes. Success should not be measured solely by reducing claims (Fusco et al., 2023; Graf et al., 2024).

6.4 Align provider payment with quality and access

Establish provider tariff systems and payment methods that encourage participation and ensure prompt treatment. Implement a combination of capitation or case method payments alongside quality measures, referral guidelines, auditing and protection from under-treatment. Monitor the performance of networks and claims settlements. Dispute resolution for providers will also occur quickly, alongside monitoring of medicine supply. This addresses the challenges identified around implementation and provider participation in Nigeria (Alawode & Adewole, 2021; Shobiye et al., 2021).

6.5 Use behavioural support with transparent evaluation

Provide clear summaries of the benefits, realistic examples of likely costs to the consumer, clear timeframes to meet, easy and assisted sign up and simple renewal. Provide options available outside of digital channels so those unable to use digital platforms can still utilise the service. Consider who actually completes the sign up and renews their coverage. Provide behaviourally informed support to ensure accurate data, proactive helpdesks and effective service networks.

6.6 Monitor a balanced set of outcomes

Monitor measures such as: number enrolled, renewed or exited; risk adjusted spending; catastrophic health expenditure; time to claim resolution; provider participation; essential medicine compliance; preventative and primary care attendance; preventable admissions; unmet need; complaints and beneficiary satisfaction. Measure average outcomes and ensure that there is no unequal impact on vulnerable subgroups. This will show whether a change has caused any reduction in inappropriate care, caused new barriers or has increased access.

7. Proposed integrated design model

A practical management approach can be divided into 4 areas. The pool will encourage wide participation by making it easy to join, grouping when needed and appropriate subsidies. The price will be fair and transparent, to encourage solidarity. The protect will provide a reliable benefit package, offering high value care, with limits on household exposure and exemptions for those most at risk. The purchase element will ensure providers are paid fairly, high standards of care, good supply of medicines, quality assurance and good claims processing. All of these factors need to be considered together as they impact on each other (enrolment, usage, cost and confidence).

8. Limitations

This review was not conducted using a transparent, repeatable search strategy across several bibliographic databases. Due to this, there was no protocol, exported search terms, deduplication process, independent double screening, exclusion criteria at full text and an explicit risk of bias assessment. This means that it isn't a systematic review but a narrative synthesis. There is no PRISMA flow diagram or summary statistic presented.

Studies have been included from various different insurance bodies and populations. Evidence from the United States may not be directly applicable to tax-funded and/or social insurances schemes in low income countries. Evidence from Nigeria includes cross-sectional surveys and qualitative studies. While these do identify the relevant factors they generally cannot identify causal relationships.

9. Conclusion

Different aspects of insurance design are involved in addressing adverse selection and utilisation. Large risk pools, low premiums, good enrollment mechanisms, and appropriate risk adjustment will help to ensure a balanced population. Post-enrollment, benefit design, paying providers on the basis of quality, and monitoring to ensure patients have appropriate access to services and are not using low value services will improve management.

While cost sharing can reduce service utilisation, more recent evidence has not shown that increasing patient out-of-pocket payments can ensure selective waste reduction. Increased costs can lead to poor medication adherence and undermine the financial protection that insurance aims to offer. In public schemes, improved incentives should ensure appropriate patient care, equity of access, secure risk pools and sustainability of the scheme in the longer term.

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