

LITERATURE REVIEW

Evidence Review and Analysis of Provider Behavior Change Opportunities



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Contact

4301 Connecticut Avenue NW, Suite 280 | Washington, DC 20008
+1 202 237 9400 | BreakthroughResearch@popcouncil.org
breakthroughactionandresearch.org

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Emily Zimmerman
Jana Smith

Vivien Caetano

Rachel Banay

ideas42

List of Acronyms

ACT	Artemisinin-based Combination Therapy
ART	Antiretroviral Therapy
ANC	Antenatal Care
DOT	Directly Observed Therapy
CHW	Community Health Worker
COPE	Client-oriented, Provider-efficient
FPRH	Family Planning and Reproductive Health
HIV	Human Immunodeficiency Virus
iCCM	Integrated Community Case Management
IMCI	Integrated Management of Childhood Illnesses
IPTp	Intermittent Preventive Treatment of Malaria in Pregnancy
ITN	Insecticide-treated Bed Net
LARC	Long-acting Reversible Contraception
MNCH	Maternal, Newborn, and Child Health
MOI	Missed Opportunities for Immunization
PITC	Provider-initiated HIV Testing and Counseling
POC	Point-of-care
PMTCT	Prevention of Mother-to-child Transmission
PNC	Postnatal Care
RCT	Randomized Controlled Trial
RDT	Rapid Diagnostic Test
SBC	Social and Behavior Change
SCC	Safe Childbirth Checklist
SDG	Sustainable Development Goal
SRH	Sexual and Reproductive Health
STI	Sexually Transmitted Infection
UNICEF	The United Nations Children’s Fund
VCAT	Values Clarification and Attitude Transformation
WHO	World Health Organization

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Executive Summary

The field of global health is increasingly starting to recognize the potential for interventions informed by behavioral economics to address pressing health needs.¹⁻³ Research from behavioral economics and other behavioral sciences has increasingly been used to strengthen programming by providing a novel lens for understanding behavior. This approach entails identifying contextual features which affect how individuals make relevant decisions and take action, and then designing solutions that can change this context or mitigate the impact of contextual barriers to improve health within existing practical constraints.

However, only limited research and programmatic work to date has focused on health care providers' behaviors and interventions to support them. Just as patients may act in ways that do not always appear to align with their health interests or intentions, providers may also act sub-optimally in ways that affect patient health. The complexity of providing health care services in low-resource settings amplifies many of these behavioral challenges, and the stakes in these settings are particularly high. Providers' communication and interaction with patients influences service uptake and utilization; their adherence to quality standards determines the clinical effectiveness of the services they provide; and through a single interaction they can exert profound influence on a patient's future care-seeking and self-care behaviors.

This paper reviews the evidence on the promise of behavioral economics to improve health outcomes through provider-facing interventions in five critical health areas. Our analysis draws from the limited existing evidence base on this topic to suggest where and how behavioral economics interventions may be most impactful and where further research may contribute most to building the knowledge base.

Methodology

This review is not intended to be a systematic or comprehensive review of the evidence on provider behaviors, but to gather evidence from a wide range of sources on the potential for provider behavior change interventions. Since there is not a clear definition of high-impact provider behaviors in the literature, we first sought to define prospective provider behaviors. Because this review is intended to inform further field research in Zambia, we focused on 27 provider behaviors in five health areas that are particularly critical in the Zambian context: family planning, maternal, newborn, and child health, child nutrition, malaria, and HIV/AIDS.

The promise of behavioral economics: review of evidence

For each of the 27 provider behaviors, we reviewed the evidence on three questions:

1. What is the potential link between this provider behavior and health outcomes?
2. What interventions (behavioral and otherwise) have attempted to improve this provider behavior, and what is the evidence of their effectiveness?
3. To what extent are the challenges driven by behavioral, rather than structural (i.e., infrastructure or clinical skills), factors?

The following are our conclusions from this review for each prospective provider behavior:

PROVIDER BEHAVIOR	PROMISE OF BEHAVIORAL ECONOMICS IN CHANGING PROVIDER-SIDE BEHAVIOR
Provider gives essential newborn care immediately after facility-based birth	Behavioral economics approaches hold promise in improving outcomes by increasing uptake of this behavior when providers have been trained in the practices and structural barriers such as lack of equipment and supplies are not the primary challenge.
Provider encourages four or more antenatal care (ANC) visits	Behavioral economics approaches may hold promise for improving ANC-related outcomes through this provider behavior 1) when well-organized efforts to promote ANC through community-based providers exist and structural barriers are surmountable (that is, patients overcome structural barriers to receive other kinds of care) or 2) where ANC initiation rates are high but follow-through on subsequent ANC visits is low.
Provider encourages facility-based delivery	Behavioral economics approaches may hold promise for improving provider encouragement of facility-based delivery 1) when ANC coverage is high and structural barriers can be surmounted or 2) where community-based volunteers are effective in conducting outreach to pregnant women and structural barriers to accessing care can be surmounted.
Provider follows best practices during facility-based delivery	Behavioral economics approaches hold promise in improving outcomes by increasing uptake of this provider behavior when providers have been trained in the clinical practices and structural barriers (e.g., equipment and supplies) are not the primary challenge to complying with best practices during delivery, whether clinical or related to respectful care.
Provider encourages postnatal check-up within two days of birth	Behavioral economics approaches may hold promise for improving attendance to postnatal care (PNC) through providers 1) when facility-based delivery is high (or concurrent) or 2) where community-based volunteers are effective in conducting outreach to women who have recently delivered and structural barriers to accessing care can be surmounted.
Provider encourages full completion of timely vaccinations for children under two years old	Behavioral economics approaches may hold promise for improving immunization coverage through this provider behavior 1) when there are well-organized efforts to promote immunizations through community-based providers and structural barriers for accessing immunization are surmountable, 2) there are high rates of facility-based delivery or PNC, or 3) where immunization initiation rates are high but follow-through on subsequent vaccines is low.
Provider gives relevant information to caregivers on signs, symptoms, and appropriate treatment of immediate risks (such as acute respiratory infections and diarrheal disease)	Behavioral economics approaches may hold promise for improving care-seeking behavior for child health conditions through providers 1) when there is a well-organized cadre of community-based health workers trained in the basics of integrated community case management (iCCM) and structural barriers for accessing care are surmountable or 2) there is a well-organized cadre of community health workers (CHWs) trained in treatment of child health conditions.
Provider counsels pregnant women and mothers on the importance of sleeping under an insecticide-treated bed net (ITN) and provides intermittent preventive treatment of malaria in pregnancy (IPTp)	Behavioral economics approaches may hold promise for providing IPTp through providers when ANC coverage is high, and stock-outs of antimalarial drugs are not common. A provider-focused approach for ITN distribution and use, informed by behavioral economics, does not seem promising.
Provider conducts microscopy or rapid diagnostic test (RDT)	Behavioral economics approaches hold promise in increasing use of RDTs through providers when structural barriers—stock-outs in the case of the provider or high service fees in the case of the patient—are not the primary drivers of non-use in the context.
Provider prescribes quality-assured Artemisinin-Based Combination Therapy (ACT) with correct dosage in cases of confirmed malaria	There is potential for behavioral economics approaches to improve provider ACT prescribing behavior when 1) accurate testing (RDT or microscopy) is available and used, 2) ACTs are free to patients, and 3) ACTs are consistently available in sufficient quantities so that rationing of drugs is not a rational provider response.
Provider encourages breastfeeding within one hour after delivery	Behavioral economics approaches hold promise in increasing provider counseling in initiation of breastfeeding within one hour of delivery in contexts where facility-based delivery is high (or concurrent).
Provider encourages exclusive breastfeeding for six months	Behavioral economics approaches may hold promise for increasing exclusive breastfeeding through this provider behavior when 1) ANC, PNC, facility delivery, or vaccine coverage is high and there are frequent interactions with the health system during the 6-month postpartum period or 2) there is a well-organized cadre of CHWs trained in exclusive breastfeeding counseling with strong postpartum identification and frequent contact with new mothers.

Provider counsels on minimum meal frequency and nutritious, age-appropriate meals	Behavioral economics approaches may hold promise for improving provider counseling on meal frequency and content when 1) immunization coverage is high and providers trained in meal frequency and content are available during these sessions or 2) there is a well-organized cadre of CHWs trained in meal frequency and content who have frequent contact with new mothers.
Provider initiates testing and counseling in a health facility	Behavioral economics approaches hold promise for improving provider adherence to provider-initiated HIV testing and counseling (PITC) when testing supplies are available.
Provider delivers community-based testing services according to best practices	Behavioral economics approaches hold promise for improving provider delivery of testing and counseling in community-based settings when testing supplies are available and providers are adequately trained.
Provider ensures accurate testing	Behavioral economics approaches have potential to support providers' role in accurate testing, including effective counseling to clients on retesting or confirmatory testing, where testing supplies are available and where providers receive adequate training on the mechanics of performing and interpreting tests.
Provider performs voluntary assisted partner notification services	Behavioral economics approaches may hold promise in increasing partner disclosure and testing through this provider behavior when adequate testing supplies are available and assisted HIV partner notification services are recommended by national or local policy but partner disclosure and testing remains low.
Provider initiates appropriate HIV care immediately after a diagnosis is confirmed	There is potential for behavioral economics approaches to improve providers' immediate Antiretroviral Therapy (ART) initiation where 1) ART is available and 2) the main barriers to treatment for patients are not structural.
Provider regularly monitors viral loads	There is potential for behavioral economics approaches to improve provider compliance with viral load monitoring guidelines where 1) viral load testing technology is available and there are no major structural barriers to its use, 2) providers are adequately trained in the technology but use it insufficiently or incorrectly, and 3) adherence support or second-line ART is available for cases in which treatment failure is detected.
Provider communicates results of monitoring to patients	There is potential for behavioral economics approaches to increase and improve provider communication of viral load results to patients where 1) viral load results are consistently received by the facility and 2) there are existing cadres of community-based providers to conduct outreach.
Provider counsels if viral loads are not ideal	Behavioral economics approaches have potential to increase the effectiveness of ART adherence counseling when providers are trained to counsel and patients do not experience structural barriers in access to care.
Provider counsels sexually active adolescents (15–19) on modern contraceptive use	Behavioral economics approaches could hold promise to increase adolescent contraceptive uptake through this provider behavior when 1) provider bias is a key main barrier prohibiting uptake or 2) other components of youth-friendly services are being implemented.
Provider counsels parents to discuss modern contraceptive use with adolescent children	While behavioral economics could increase execution of this provider behavior, the evidence does not suggest that this behavior itself will have an important effect on outcomes.
Provider counsels women in union on spacing	Behavioral economics holds promise in increasing the frequency and quality of provider counseling on spacing.
Provider counsels women on communicating with partner about family planning	Behavioral economics approaches could help improve provider counseling to engage men when men frequently attend family planning counseling, though it is unclear whether this would affect family planning uptake.
Provider counsels women on a full suite of methods	Behavioral economics holds promise in improving provider counseling on the full suite of methods to improve health outcomes when frequent stock-outs of those methods is not an issue.
Provider counsels on condom use	Behavioral economics appears to hold some promise in ensuring and enhancing providers' counseling on condom use to improve outcomes when user fees for condoms are not a barrier for patients and when 1) CHWs are trained in condom promotion and effective in encouraging consistent use or 2) existing patient-facing interventions are effective in encouraging consistent use upon initial provider counseling.

Cross-cutting insights and applications

While all individual health behaviors have unique dimensions that merit independent assessment, many behaviors in the health field are interlinked. These linkages provide opportunities for impacting multiple behaviors or identifying places where lessons can be leveraged to influence programming on different behaviors. Cross-cutting insights and applications arise from three different angles:

- **Behavioral barriers** arise from features of the context in which providers live and work that trigger universal psychological tendencies, and similar barriers may appear across quite different provider behaviors. Understanding how cues in one context contribute to a behavioral barrier for a single provider behavior can generate insights into how a similar barrier might arise elsewhere for a different provider or behavior.
- **Transversal themes** are the common manifestations of various barriers in the way providers act, such as their response to a new technology or guideline. An understanding of when and how transversal themes result from behavioral barriers opens the door to applying components of one solution to another health issue or behavior.
- **Spillover effects** consider ways in which the immediate effects of one behavior may increase the likelihood of future interactions with the health system in a way that could affect other health outcomes by directly or indirectly surmounting patient-side barriers. Understanding the spillover effects of provider behaviors allows us to focus our efforts on the most impactful behaviors (and interventions) and eventually to move toward more comprehensive solutions that support provider behavior more broadly.

Gaps in the evidence

Provider-facing interventions fall into several general categories. In the review, we considered interventions that are classically considered SBC interventions, interventions that leverage behavioral economics in their design, and interventions that could be further enhanced with behavioral economics approaches. While the evidence base is limited across most intervention types and for most provider behaviors, some trends emerged from our review.

- **Training and education interventions** reinforce or supplement providers' existing knowledge. While they are common (and frequently recommended) and some have demonstrated efficacy, the evidence of their impact on provider behavior is mixed.
- **Managerial approaches** involve supportive supervision, mentorship, or peer support or the implementation of audits, targets, monitoring, or feedback to improve performance. They have been implemented more frequently and have shown more success than other intervention types.
- **Institutional process improvements** include checklists or case sheets to enhance provider behaviors across facilities or groups, and **individual process improvements** target individuals' performance through microplanning devices, job aids, and targeted reminders. The limited evidence available for these types of interventions suggests that they are promising, although they have not been implemented or studied as frequently as other types of interventions.
- **Supplementary patient-facing materials** furnish assistance to providers primarily when they counsel, explain, or otherwise convey information to patients. Few of the programs identified in our review employed these materials.
- **Financial incentives** reward providers for a desired behavior. Few of the programs identified in our review linked financial incentives with the specific provider behaviors of focus, although there is a broader body of evidence on financial incentives for health care providers showing mixed results.

The path forward

Our aim is for insights from this review to be used to inform two types of critical decisions about programming and research on provider behavior change:

- **Designing and adapting programs to maximize impact**, adapting proven solutions to new contexts, employing lessons from the literature to address different challenges, and making strategic decisions about where and how to intervene for maximum impact on health outcomes.
- **Shaping the research agenda to fill critical gaps in understanding of provider behavior**, focusing research efforts on behaviors and contexts that:

- Have strong potential for behavioral economics solutions to impact health outcomes by increasing the likelihood that a provider performs an action or improving the way in which they do so.
- Been the subject of limited existing research and/or show early promise of impact.
- Share hypothesized barriers and transversal themes with other behaviors, suggesting potential to generate cross-cutting insights.
- Have potentially great spillover effects on other health behaviors and outcomes, suggesting that effective solutions may be particularly impactful.
- Are conducive to behavioral economics solutions, because in context there are gaps in performance of the provider behavior that are not primarily due to structural constraints.

The two aims of shaping research and maximizing impact are interconnected. As carefully scoped and designed research fills gaps in understanding of behavioral economics approaches to provider behavior change, these lessons can translate to improvements in programming.

User Guide

IF YOU'RE INTERESTED IN:	TURN TO:
<p>Reviewing the evidence base for provider-facing interventions in a specific health area</p>	<p>Section 3, which contains brief summaries of evidence for provider-facing interventions in:</p> <ul style="list-style-type: none"> ● Maternal, newborn, and child health (Section 3.1) ● Malaria (Section 3.2) ● Child nutrition (Section 3.3) ● HIV/AIDS (Section 3.4) ● Family planning (Section 3.5)
<p>Understanding how and under what circumstances a behavioral economics approach might improve provider behavior in a particular health area</p>	<p>Section II, which describes the promise of behavioral economics to improve provider behaviors in:</p> <ul style="list-style-type: none"> ● Maternal, newborn, and child health (Section 3.1) ● Malaria (Section 3.2) ● Child nutrition (Section 3.3) ● HIV/AIDS (Section 3.4) ● Family planning (Section 3.5)
<p>Seeing how behavioral economics applies to provider behavior across health areas</p>	<p>Section 4, which provides an overview of some common “behavioral barriers” that may impede desired actions for multiple provider behaviors and health areas, as well as the common manifestations of these barriers in the way providers act.</p>
<p>Identifying “proven” interventions to improve provider behaviors across health areas</p>	<p>Section 5, which classifies the availability and strength of the evidence across health areas and intervention types and identifies provider behaviors and intervention types for which the evidence of effectiveness is strongest.</p>
<p>Prioritizing research in an area that has not yet been deeply explored</p>	<p>Section 5, which classifies the availability and strength of the evidence across health areas and intervention types and identifies provider behaviors and intervention types that show promise but for which the evidence is currently limited.</p>

1 Introduction

The field of global health is increasingly recognizing the potential for interventions informed by behavioral economics to address pressing health needs.¹⁻³ While structural interventions such as new therapies and additional personnel are critical to functioning health systems, these approaches do not always yield expected health gains and may require resources that are not available.⁴ The field of social and behavior change (SBC) has been very effective in complementing these structural approaches to address underlying social norms and knowledge gaps that may hinder attainment of strong health outcomes. As the SBC field has grown and evolved, research from behavioral economics and other behavioral sciences has increasingly been used to strengthen programming by providing a novel lens for understanding behavior. This approach entails identifying contextual features that affect how individuals make relevant decisions and take action, and then designing solutions that can change this context or mitigate the impact of contextual barriers to improve health within existing practical constraints.

Surprisingly, less SBC research and programmatic work has focused on provider behaviors and interventions. Just as patients behave in ways that do not always appear to align with their health interests or intentions, providers may also act sub-optimally in ways that affect patient health. For example, providers' communication and interaction with patients influences service uptake and utilization. The extent to which providers adhere to quality standards determines the clinical effectiveness of the services they provide. Often through single interactions with patients, they profoundly affect a patient's future care-seeking and self-care behaviors.

Targeted provider behavior change interventions have the potential to lead to important health gains while leveraging existing personnel, resources, and touch-points. Evidence suggests both reasons for shortfalls in providers' practices as well as ways these shortfalls could be addressed using behavioral economics approaches. While the field of provider behavior change in general is ripe for innovation, there are also unexplored areas of opportunity where SBC approaches, particularly behavioral economics, could be employed to address provider behaviors that have traditionally been considered exclusively as health systems strengthening work. While technical skills are requisite for behaviors in the clinical realm, once basic training has occurred the same attitudes, beliefs, and motivations that may affect bias toward patients may also influence provider adherence to clinical practices. Given the tremendous value-add that SBC approaches could offer to health systems work, provider behaviors included in this review consider areas that are more commonly believed to be in the SBC realm as well as clinical provider behaviors more commonly believed to be health systems strengthening work but whose underlying causes are behavioral and could therefore benefit from behavioral insights.

This evidence review and analysis identifies potential provider behaviors of focus for interventions, summarizes available evidence on the link between each such behavior and impacts on health, synthesizes evidence on interventions that have sought to address the behavior, and analyzes the potential effectiveness of behavioral economics approaches for the behavior to inform future directions of this work.

2 Methodology

Each component of the literature review and analysis involved a different methodological approach.

In Section 3 on desirable provider health behaviors, given that high-impact provider behaviors are not defined in the literature, we developed a prospective list of potential provider behaviors for investigation. We began with the list of health areas identified by the USAID-Zambia mission as priority and identified related provider behaviors. To do this, we surveyed clinical standards of care and the broader literature, including reformulating USAID's Accelerator Behaviors with a provider focus. It should be noted that several of these behaviors would classically be defined as areas where SBC approaches could be applied, while others on the surface may seem to be clinical behaviors more relevant to health systems strengthening work. Given that behavioral economics approaches may be applied to a range of different approaches, both traditional SBC and not, these behaviors are also evaluated to understand how much of provider non-compliance is related to factors that are driven by context, attitudes, or beliefs rather than technical skills, or in other words could benefit from the application of behavioral insights. This broader approach expands the range of opportunities for SBC approaches to affect health with behavioral economics. The initial list of provider behaviors is found in Table 1.

Next, we assessed the link between health outcomes of interest in each health area and each identified provider behavior to determine whether or not increasing the behavior had the potential for positive health impact. Through this process, we ruled out behaviors in which provider actions were shown or hypothesized not to improve associated health outcomes significantly. (While we limited our review to interventions focused specifically on these selected behaviors, we recognize that research on other provider behaviors may in some cases be relevant.)

Within each health area, we then reviewed each provider behavior individually, providing an overview of its relationship with health outcomes. We then provided a summary of provider-oriented interventions that appeared to target the behavior, describing the intervention types and the results of any relevant evaluations

where possible. As noted previously, given that behavioral economics approaches could be applied to channels and intervention types not considered classically as SBC, we included in our review any intervention that sought to change provider behavior, with the exception of technical trainings that were oriented around building new clinical skills. While this process was not intended to be comprehensive, we attempted to understand the universe of intervention types and draw on relevant examples as well as evidence of their efficacy. It should be noted that provider-oriented interventions were rarely evaluated as stand-alone interventions and rarely identified as "provider behavior change" in the literature and program reports. Identifying these interventions required a good degree of ingenuity, which made the process less systematic but more comprehensive. We concluded the description of each behavior with an analysis of the promise of behavioral economics to enhance it, based on hypothesized decisions and actions the provider and patient undertake and the barriers (explanations for why optimal decision-making and follow through related to the behavior is not occurring) that may be at play.

Section 4's analysis of cross-cutting insights and applications synthesized findings from Section 3 to indicate where and how provider behaviors may be interlinked, and the opportunities these linkages suggest to identify how provider-facing interventions (i.e., interventions that are focused specifically on changing the provider's behavior) could affect multiple health outcomes. The analysis did this by identifying common behavioral barriers, transversal themes, and potential spillover effects. Behavioral barriers are specific barriers that may underlie several behaviors; addressing a common barrier could thus enhance several types of behaviors. Transversal themes describe how multiple behavioral barriers might manifest into a broader area of interest in ways that could similarly affect several behaviors and health areas. Spillover effects describe how increasing uptake of a health service may increase the likelihood of future interactions with the health system in a way that promotes health by addressing patient-side barriers through provider behaviors.

The gap analysis in Section 5 drew on the provider behaviors identified in Section 3. This analysis was intended

TABLE 1 PROVIDER BEHAVIORS MATRIX AMONG FIVE KEY HEALTH AREAS

FAMILY PLANNING AND REPRODUCTIVE HEALTH (FPRH)	HIV/AIDS TESTING AND TREATMENT ADHERENCE	NUTRITION IN CHILDREN UNDER 2 YEARS OLD	MATERNAL, NEWBORN, AND CHILD HEALTH (MNCH)	MALARIA
Provider counsels sexually active adolescents on modern contraceptive use	Provider initiates testing and counseling in a health facility	Provider encourages breastfeeding within 1 hour after delivery	Provider gives relevant information to caregivers on signs, symptoms, and appropriate treatment of immediate risks (e.g., acute respiratory infections and diarrheal disease)	Provider counsels pregnant women and mothers on the importance of sleeping under an ITN and provides doses of IPTp
Provider counsels parents to discuss modern contraceptive use with adolescent children	Provider delivers community-based testing services according to best practices	Provider encourages exclusive breastfeeding for 6 months	Provider encourages full completion of timely vaccinations for children under 2 years old	Provider conducts microscopy or rapid diagnostic test
Provider counsels women in union on spacing	Provider ensures accurate testing	Provider counsels on minimum meal frequency and nutritious, age-appropriate meals	Provider encourages 4+ antenatal care visits	Provider prescribes quality-assured ACT with correct dosage in cases of confirmed malaria
Provider counsels women on communicating with partner about family planning	Provider performs voluntary assisted partner notification services		Provider encourages facility-based delivery	
Provider counsels on a full suite of methods	Provider initiates appropriate HIV care immediately after a diagnosis is confirmed		Provider follows best practices during facility-based delivery	
Provider counsels on condom use	Provider regularly monitors viral loads		Provider gives essential newborn care immediately after facility-based birth	
	Provider communicates results of monitoring to patients		Provider encourages postnatal check-up within 2 days of birth	
	Provider counsels if viral loads are not ideal			

to summarize, for each desirable provider behavior described, the evidence for provider-facing interventions. We grouped interventions according to several key types that encompassed interventions commonly viewed as SBC as well as other intervention types that could leverage behavioral insights and ranked these types according to overall efficacy. For each behavior, we assessed the availability and strength of evidence for each category of intervention using a basic rubric, recognizing that our literature review was not comprehensive. Despite this fact, the exercise allowed us to portray, by provider behavior, interventions that have been tested with either

promising or lackluster results, or areas without sufficient research. This analysis will inform priority areas for provider behavior change interventions and future research.

In the conclusion, we outlined how the evidence and analysis in this review could be used to design and adapting programs to maximize impact, and to shape a research agenda to fill critical gaps in understanding of provider behavior change. We then illustrated their application to choosing a provider behavior of focus for formative research in the Zambian context.

3 Evidence for Behavioral Economics Solutions

This section summarizes our findings from the literature review and provides an assessment of the potential application of behavioral economics approaches to address specific provider behaviors. In the literature review, we first characterized the linkage between the specific provider behavior and relevant health outcomes to determine whether or not focusing on the provider would hold potential for more distal impact. The reason for this exercise is that specific priority provider behaviors are not well defined in the literature, nor is there clear evidence of the link between provider behaviors and outcomes. Therefore, we take this opportunity to propose and then pressure-test different provider behaviors drawing from the patient-oriented behaviors that comprise USAID’s Accelerator Behaviors. Next, we identified interventions that had been developed and tested to address provider behaviors in different health areas, including approaches considered classically as SBC interventions as well as other interventions with a behavioral focus. To assess the potential application of behavioral economics approaches, we sought to rapidly envision the primary decisions and actions from both provider and patient perspectives related to the behavior and health outcomes of interest. Drawing from the literature as well as our own expertise on behavioral barriers, we hypothesized as to whether or not individual-level behavioral approaches could be effective in changing the behavior at hand, as opposed to, for instance, structural or infrastructure approaches, in a way that could conceivably impact outcomes. This assessment was not intended as a comprehensive diagnosis process of these behaviors, but instead to shed light on areas of particular promise that could be explored further with additional research.

3.1 Maternal, newborn, and child health

Provider gives essential newborn care immediately after facility-based birth

Potential link between provider behavior and health outcomes

Most essential newborn care is applied immediately after birth with little or no client intermediation, so provider adherence to these practices has great potential to affect health outcomes of interest for facility-based births. Interventions at birth include immediate drying and providing stimulation, warmth, hygienic care, support for immediate breastfeeding, and administration of Vitamin K, as well as a suite of other practices for babies facing particular complications.⁵ The World Health Organization (WHO) has articulated a set of 28 evidence-based practices to assist birth attendants in providing this care, which includes several practices related to essential newborn care specifically.⁶

It should be noted that structural barriers may also play a role in a provider’s ability to adhere to this behavior. For instance, necessities for providing newborn care may be lacking in health facilities in low- and middle-income settings (e.g., cleaning materials, oxygen supply and delivery systems, guidelines for care). Where a safe, hygienic environment or practical equipment is unavailable, adherence to practices may be limited.^{7,8} Insufficient staffing or poor staffing organization have also been identified as barriers to the uptake of evidence-based practices.^{8,9} Nonetheless, the literature also points to the potential for behavioral approaches; one study on efforts to spread a checklist intervention found that lack of motivation, resistance to a new routine, increased workload, and the non-intuitive nature of the checklist were barriers to greater usage—all factors that are behavioral in nature.⁹

Interventions focused on this behavior

Job aids such as **checklists** have demonstrated an ability to improve provider practices when accompanied by appropriate **training** or **mentoring**.¹⁰ The WHO's Safe Childbirth Checklist (SCC) was recently implemented as part of a cluster randomized controlled trial (RCT) in India, along with an 8-month coaching program during which coaches (nurses) and coach leaders (physicians or public health professionals) conducted site visits to implementing facilities. These visits occurred for two to three days every two months. Coaches and coach leaders motivated facility staff to implement the Checklist and identify and resolve barriers to better patient care. At least one designated facility staff member served as a childbirth quality coordinator for each facility. While the intervention did not have a significant impact on relevant health outcomes, birth attendants' adherence to best practices increased statistically significantly in the intervention group relative to the control group.

Potential application of behavioral economics approaches

In analyzing the potential for behavioral economics approaches, we consider the dynamics of the relevant decisions and actions related to the behavior including participants, timing, and location(s). In the case of this behavior, the most relevant decisions and actions are taken by the provider with minimal patient intermediation, which makes for a relatively simple behavioral map. The time between the provider making a decision about applying these practices and the provider applying these practices (or defaulting into practices of habit) is short, which could facilitate an integrated design for addressing decision and action barriers through similar touchpoints. Furthermore, the context in which providers take actions is most likely a health facility; therefore, the relevant contextual cues (i.e., reminders or prompts) can be more easily identified and potentially modified to facilitate provider uptake of this behavior.

Conclusion

Behavioral economics approaches hold promise in increasing uptake of this provider behavior to affect outcomes when providers have been trained in the practices and structural barriers such as lack of equipment and supplies are not the primary challenge.

Provider encourages four or more antenatal care visits

Potential link between provider behavior and health outcomes

Receipt of antenatal care (ANC) can begin a positive cascade of health behaviors for women and infants. Women who receive ANC are more likely to deliver in a facility,¹¹ and facility delivery in turn has been well documented as a means to reduce neonatal mortality.¹² Some barriers to increasing ANC coverage are structural in nature, including distance, lack of transportation to the facility, and cost of services,^{13–15} all of which inhibit patient utilization. Among providers, lack of equipment, medicines, and supplies may partially account for low coverage and quality of ANC.¹⁶ While structural barriers to providing care exist, there are ways in which behavioral approaches could enhance the early uptake and completion of recommended ANC consults.

While provider behavior would seem to be important in increasing ANC, relatively limited evidence exists on the efficacy of providers encouraging ANC as a means of driving uptake. One study showed that poor relationships or negative experiences with providers during early ANC visits deterred women from continuing to attend ANC. Fear of reprimand from providers for failing to adequately space pregnancies or for failing to attend early ANC visits also deterred women from attending ANC.¹⁷ In another study, broad quality improvement efforts in facilities led to increases in ANC initiation during the first trimester (8% to 24%) and to women receiving four or more ANC visits (37% to 64%).¹⁸ These findings suggest that how providers deliver services may indeed impact ANC service uptake by patients. The authors did not, however, characterize the mechanisms by which these changes occurred or determine concretely which provider behavior changes were most influential in impacts to patient behavior. Therefore, it is difficult to identify the provider behaviors on which to focus to affect ANC service on the basis of this study.

Interventions focused on this behavior

A number of studies have demonstrated the potential of various forms of job aids such as **pictorial booklets** to increase willingness or likelihood of receiving facility-based ANC.^{19–21} Similar interventions have equipped community health volunteers with **audio cassettes** to deliver standardized messages to pregnant women and their husbands about the importance of maternal care

and good nutrition.²⁰ In Nigeria, a **mobile app** dynamically guided community health extension workers through ANC protocols and showed a statistically significant increase in the quality of ANC administered. Completion of ANC visits by patients was not measured as an outcome, however.²²

A quality improvement program in rural Kenya organized facility- and community-based providers into **improvement teams** to examine performance gaps in service delivery and their root causes as well as to devise and implement changes to address gaps (with coaching). This program led to increases in the number of pregnant mothers starting ANC within the first trimester, increases in the number of mothers completing at least four ANC check-ups, and improved compliance with quality standards during ANC visits.¹⁸

In the area of ANC, **performance incentives** to facility-based health care providers have been applied with mixed success. One study showed that they did not increase the likelihood of more than one ANC visit or of an ANC visit in the first trimester but did lead to a significant increase in birth preparedness and in receipt of anti-tetanus vaccinations during ANC.²³

Potential application of behavioral economics approaches

This behavior involves a relatively complex set of decision and action points, since both patients and providers play a critical role in ensuring four or more ANC visits. First, a patient would need to decide to attend her first ANC visit and act on this decision. This is likely to be driven more by patient-side factors than by easily identifiable provider-side factors unless community-based health workers play an active role in referring pregnant women to ANC and effectively create a moment of action or increase intention to attend ANC in the first place. Even without community mobilization, however, general perception of quality of care may play an important role in a patient's decision to initiate ANC. This perception may be derived from a range of previous interactions with the provider, including previous ANC experience or other consultations. Once the patient has attended her first ANC visit, the facility-based provider may be instrumental in ensuring follow-up with additional ANC visits by making the benefits to attending subsequent visits more salient.

Conclusion

Behavioral economics approaches focused on providers may hold promise for improving ANC-related outcomes

1) when well-organized efforts to promote ANC through community-based providers exist and structural barriers are surmountable (that is, patients overcome structural barriers to receive other kinds of care) or 2) where ANC initiation rates are high but follow-through on subsequent ANC visits is low.

Provider encourages facility-based delivery

Potential link between provider behavior and health outcomes

Similar structural barriers can be found for facility delivery as for ANC; these include distance, lack of transportation to the facility, cost of services, and lack of equipment, medicines, and supplies.^{13–16,24} Despite these structural barriers, evidence seems to suggest that providers can nonetheless wield influence in increasing facility-based delivery among patients. For instance, careful planning of the logistics required to arrive at a facility may help patients overcome these barriers; research suggests that providers can effectively facilitate this planning in a way that meaningfully affects outcomes.^{25,26}

Additionally, perceived low quality of care and disrespect and abuse by providers have been noted as negatively affecting incidence of facility-based delivery.^{27–31} This evidence also suggests that focusing on providers to improve the quality of respectful care could meaningfully impact a patient's decision to deliver in a facility.

Interventions focused on this behavior

Several studies have demonstrated the potential for job aids such as **pictorial booklets** to promote maternal health care and encourage facility delivery.^{19–21} Other job aids for this purpose include **persuasive and testimonial videos**. In one intervention, providers in India displayed these videos on their phones to serve as job aids to motivate pregnant women to deliver in facilities. While researchers felt the videos improved motivation and engagement, they also noted practical challenges familiarizing providers with the technology (formal results have not been published).³²

A program implementing quality improvement efforts through facility-based teams (see ***Provider encourages four or more antenatal care visits, pg 12***) led to an increase in facility delivery from 33% to 52%. Though information on specific provider behaviors related to increasing facility-based delivery was not provided, the improvements that providers identified and implemented included coordination with traditional birth attendants,

enhanced privacy, and streamlining of services.¹⁸ Also related to quality improvement, an intervention incorporating a 6-day **training** addressing major causes of maternal and newborn death and morbidity, as well as a quarterly **supportive supervision** system, was associated with a 30% increase in facility deliveries in Ugandan health facilities. Supervision visits were conducted by a team including a pediatrician, an obstetrician, a midwife, and a district technical officer. During visits, the team conducted skills assessments, problem solved with front-line staff, and reviewed the facility's workplan.³³

Birth plans are a job aid for providers to help prepare women and their families for birth, including choosing a delivery venue, arranging transportation, and underscoring the importance of skilled delivery care in the event of potential complications. Discussing birth plans during ANC has been shown to increase facility delivery.²⁶ Another study of birth plan preparedness cards delivered to women either by providers in facilities during ANC or by community health workers (CHWs) at home visits showed a suggestive trend toward planning for birth and complications and increases in the knowledge of danger signs. The study did not measure the impact of these changes on facility-based birth.²⁵ In India, a **phone-based dialogic message system** for use by providers was tested to facilitate birth planning with patients; the intervention significantly improved quality of counseling but not health outcomes.³⁴

Performance incentives have been applied to increase facility delivery as well. In one study in Burundi, they were associated with facility delivery among a subgroup of non-poor participants but not among the poor, suggesting the importance of addressing other patient-side barriers to increase facility-based delivery.³⁵

Potential application of behavioral economics approaches

For this behavior, the decision and action of the patient are most relevant, but a provider could influence a patient's decision. Patients may decide whether or not they plan on delivering in a facility in advance but may change this decision in light of concerns or complications closer to the delivery date due to a variety of contextual features. Acting on this decision may require overcoming structural barriers and negotiating with partners or other family members, which providers are unlikely to be able to influence directly. However, both facility- and community-based providers may play a role in building or

changing the patient's intention to deliver in a facility, for example through the counselling and services provided during ANC or through community outreach. This could be achieved, for example, by making the risks of her decision more salient or by decreasing the perceived hassles or discomfort of going to the facility. Finally, while a provider may not be able to directly help a patient overcome structural barriers to action, he or she can help ensure that a patient is not impeded from taking the final action by factors that could otherwise have been overcome by birth planning.

Conclusion

Provider-focused behavioral economics approaches may hold promise for encouraging facility-based delivery 1) when ANC coverage is high and structural barriers can be surmounted or 2) where community-based volunteers are effective in conducting outreach to pregnant women and structural barriers to accessing care can be surmounted.

Provider follows best practices during facility-based delivery

Potential link between provider behavior and health outcomes

Several best practices for facility-based delivery are applied with minimal client intermediation, so provider adherence to these practices has great potential to affect health outcomes of interest for facility-based births. The SCC articulates many evidence-based essential birth practices to guide birth attendants during delivery.⁶ It should be noted that providers face some structural barriers in the application of certain clinical best practices during delivery; for instance, some literature notes a lack of equipment, medicines, and supplies, which can hinder a provider's ability to comply with certain guidelines.^{7,15} Nonetheless, not all clinical guidelines require additional equipment, suggesting the behavioral nature of compliance of many of the practices. Furthermore, best practices during facility-based delivery include the provision of respectful maternity care, and the behavioral dimensions of respectful care are well-documented in the literature.^{27,31} In addition to the importance of compliance with this behavior from the perspective of clinical outcomes and human rights, quality of care during delivery and respectful care are also predictive of choice of delivery location for the next delivery³⁶ and may affect future care-seeking behavior.

Interventions focused on this behavior

Limited research has explored provider interventions to promote respectful care during delivery. Studies of two programs have shown that **trainings**, including Values Clarification and Attitude Transformation (VCAT), in respectful maternity care are feasible to implement and have the potential to reduce disrespect and abuse; they are not, however, sufficient in driving sustainable provider behavior change.³⁷ Notably, these studies include multiple intervention elements beyond the trainings (other behavioral interventions are described below), making the impact of training alone unclear.

Provider **training** to increase the quality of emergency obstetric care in low-resource environments is lacking in strong evidence.³⁸ In Mexico and Thailand, a series of **workshops** were used to promote providers' use of the WHO's *Reproductive Health Library*, an online resource on best practices in obstetric care. A randomized evaluation found that the workshops increased providers' use of the *Reproductive Health Library* but did not lead to sustained or consistent changes in clinical practice.³⁹

Here again, **checklists** such as the SCC form part of the basis-of-care improvements, though with limited emphasis on respectful care. As described above, a program to implement the checklist in facilities in India was facilitated through **coaching visits** and a local **program champion** at the facility. The cluster RCT to evaluate this effort found that birth attendants' adherence to best practices increased statistically significantly in the intervention group relative to the control group, thus providing evidence of behavior change for this intervention. However, there was no significant difference between the treatment groups according to maternal, perinatal, or neonatal adverse outcomes.⁶

Audits and feedback mechanisms have been shown to lead to an absolute increase in health care professionals' compliance with desired practice. These mechanisms are effective when feedback is repetitive, provided by a supervisor or colleague, communicated in both verbal and written formats, and includes both explicit targets and an action plan.⁴⁰

One such mechanism is a **service charter**, which has been used to generate consensus about expectations between patients and providers through a participatory process in which providers receive direct feedback from

patients around respectful care. Quality improvement processes have also been used in several geographies to generate additional interventions to improve delivery of respectful care. In Tanzania, these processes led to interventions such as provider **recognition** with the provision of tea, best-practice sharing across wards, patient surveys to generate **feedback**, and **adjustments to the environment** such as the creation of a private admissions area and provision of curtains for privacy. As a result of this multi-component intervention, the odds of women experiencing disrespect and abuse during childbirth were reduced, though the effect of individual intervention components was not measured.⁴¹

Caring for carers is another approach that has been minimally tested to improve the provision of respectful maternal care. **Counseling for providers** to help them overcome experiences related to high workload, trauma, or critical incidents is one such approach. A study in Kenya found suggestive evidence that this approach, as part of a multi-component intervention that included training for providers, community-level training and dialogue, and engagement with policymakers, decreased instances of disrespectful and abusive behaviors.⁴²

Potential application of behavioral economics approaches

In the case of this behavior, while the patient's perception is critical, the most relevant decisions and actions are taken by the provider with minimal patient intermediation. The time between the provider making a decision about applying these practices and the provider applying these practices (or defaulting into practices of habit without making an explicit decision) is short, which could facilitate an integrated design for addressing decision and action barriers. Furthermore, the context in which providers take action is most likely a health facility; therefore, the relevant contextual cues (i.e., elements in the environment that are triggering certain behaviors) can be more easily identified and modified in ways that can facilitate provider uptake of this behavior.

Conclusion

Behavioral economics approaches hold promise in increasing uptake of this provider behavior in a way that affects outcomes when providers have been trained in the clinical practices and structural barriers (e.g., equipment and supplies) are not the primary challenge to complying with best practices during delivery.

Provider encourages postnatal check-up within two days of birth

Potential link between provider behavior and health outcomes

Postnatal care (PNC) reduces morbidity and mortality of both mothers and infants, as providers may detect and treat problems, offer support with breastfeeding, provide immunizations, and discuss birth spacing at that time.⁴³ In more remote settings, structural as well as behavioral or socio-cultural factors may be important barriers for patients accessing PNC. After delivery, women may not feel ready to travel long distances if they live far from a facility; in addition, there may be a tradition to keep infants indoors during this initial period.⁴⁴ Women may be more likely to receive PNC when they have high levels of trust in the health care system,⁴⁵ which could conceivably be instilled by a respectful delivery and have been shown to be linked to receiving at least one ANC visit by a skilled provider.⁴⁶ Community-based providers may be able to help patients overcome some behavioral barriers to accessing care. Nonetheless, there is relatively scant literature exploring the link between providers encouraging PNC and service uptake.

Interventions focused on this behavior

Preparedness for birth and its possible complications generally seems to have positive effects on subsequent PNC. The use of **birth plans** by providers during ANC has been shown to be associated with increased PNC uptake,²⁶ as has mothers' awareness of obstetric danger signs during pregnancy⁴⁷ and receiving birth preparedness messages from a Safe Motherhood Action Group during pregnancy.⁴⁸

When Kenya's Ministry of Health changed PNC guidelines to improve timely coverage, a package of provider-facing interventions supported implementation.⁴⁹ The interventions included a 3-day **training**, two **supportive supervision** visits, and post-partum **registers** in each facility. Knowledge among providers improved, with high individual-level variation (which could be attributed to the training). PNC attendance rates and timeliness improved after the policy change, but the evaluation did not consider the impact of the provider-facing intervention.

Potential application of behavioral economics approaches

In the case of PNC, while patient decisions and actions may be most critical to service uptake, there are several places along the patient journey where providers may be particularly influential and where behavioral economics approaches could be applied. For instance, the satisfaction of patients who deliver in a facility with the services they receive may positively or negatively influence their decision to return for PNC. Additionally, how the provider frames PNC during ANC or delivery (if they discuss it at all) may influence a patient's intention to attend PNC. Depending on the strength of this intention, different contextual cues may influence a patient to attend PNC or not. While many of these cues may not be related to providers, community-based providers could play an influential role in strengthening a patient's intention to attend PNC or helping to define a moment to act on this intention to spur follow-through. Community-based providers could also serve as a facilitating contextual cue in the case of women who do not deliver in a facility.

Conclusion

Provider-focused behavioral economics approaches may hold promise for improving attendance to PNC 1) when facility-based delivery is high (or occurrent) or 2) where community-based volunteers are effective in conducting outreach to women who have recently delivered and structural barriers to accessing care can be surmounted.

Provider encourages full completion of timely vaccinations for children under two years old

Potential link between provider behavior and health outcomes

Most evidence on full completion of timely vaccinations for those under two years old focuses on structural barriers rather than on elements of provider behavior. These structural barriers include factors that reduce the ability of health systems to deliver immunization services (e.g., political dynamics, infrastructure, and finances).⁵⁰ Weak monitoring and information systems may also affect completion of vaccinations,⁵¹ but despite provider contributions to these shortcomings, challenges are typically framed from a systems-level supply-chain perspective.

According to WHO's 2013 Global *Vaccine* Action Plan, however, provider behavior has a role to play in reducing caregiver barriers. For example, lack of information and understanding about the importance of immunization among caregivers is a key barrier to initiation and

completion of vaccines.⁵² Therefore, factors mentioned in the WHO Plan over which providers may exert influence include demand generation, convenient and predictably available vaccination sessions, practical counseling about why to get vaccinated and about expectations post-vaccine, and provider attitude toward patients. Providers can also reduce fear and hesitancy by addressing reports of serious adverse events following immunization. The Plan also suggests that incentivizing performance could increase vaccination among previously unreached parents, although implementation challenges must be considered and research conducted so the incentives are appropriate for their context.⁵³

In addition to these angles, missed opportunities for immunizations (MOIs) have been noted by the WHO as a promising avenue to increase vaccination coverage. MOIs are defined as “an opportunity when a person eligible for immunization and with no valid contraindication visits a health service facility and does not receive all recommended vaccines.”⁵⁴ In a systematic review, one of the most reported reasons for MOIs among children was related to service providers. The most common specific reasons for MOIs as related to service providers included not reviewing immunization cards or history, reluctance to open a vaccine vial, perceived contraindications, and not offering the immunization.⁵⁴ A study in India determined that providers were less likely to verify vaccination status during illness visits as opposed to vaccination visits.⁵⁵ This work suggests the importance of provider behavior in increasing full completion of vaccinations.

Interventions focused on this behavior

A strategy developed by WHO, the United Nations Children’s Fund (UNICEF), and Reaching Every District includes provider-facing elements. One piece of this strategy involves health facility **microplanning**, which includes tools to facilitate individual health workers monitoring their own performance with targets. Interventions include **operational maps** accompanied by a facility **session plan** to ensure coverage of each site with the right delivery mechanism. **Supportive supervision** is another provider-facing intervention that seeks to help providers identify problems contributing to lower vaccination coverage and work to solve them; such efforts sometimes include the use of **videos**.^{56,57} **Monitoring charts** for visibly tracking progress on monthly or annual goals are another example of microplanning interventions aimed to affect provider behavior. These microplanning tools have been used to roll out vaccine outreach efforts—in some places more effectively⁵⁸ than others⁵¹—and are believed

to have been important in increasing coverage.⁵⁹ While little research appears to have been conducted on the efficacy of microplanning tools, an intervention in India found that a comprehensive training among immunization staff, along with ongoing supervision by a full-time consultant, was associated with both having a monitoring chart and correctly calculating immunization dropout.⁶⁰

In Guinea and Kenya, the client-oriented, provider-efficient (COPE) quality improvement program (also discussed in Section 3.3, **Provider counsels on minimum meal frequency and nutritious, age-appropriate meals**, page 25) led to improvements in counseling on immunization that improved mothers’ knowledge and immunization coverage.⁶¹ The program consisted of self-administered assessments focused on client and staff needs, followed by tools for planning and making improvements within the facility.

Three studies evaluated the use of **mobile-based apps** to support health workers in increasing vaccination coverage.⁶² One tool created electronic vaccination records and registers but was found to have no effect on increasing vaccine coverage. Another mobile tool helped track where mobile immunization teams had been and helped decrease the number of areas that were not covered in previous campaigns. The third study measured the effectiveness of an app to support health workers in assessing families prior to a campaign and then to track uptake. It was found to help address misconceptions about vaccinations and support developing service-delivery plans. Cellular technology is also being used in other ways to drive provider behavior: **Text message reminders** have been used to facilitate CHWs’ efforts at targeting specific patients.⁶²

In one experiment, **monitoring technology** coupled with **individualized bonus contracts** was used to improve performance in mobile polio vaccination efforts in Pakistan.⁶³ Health workers were asked to choose a target number of vaccines that they hoped to provide during each of the two days of the campaign. They were also randomly assigned to submit this allocation either prior to the start of the campaign or the morning of the first day. Health workers with contracts tailored to their timing preferences provided significantly smoother service than those without them. Additionally, authors found that health workers were present-biased in their allocations; those who were asked to allocate the vaccines the day of the campaign were more likely to procrastinate and allocate more vaccines to the following

day than those who were asked to allocate the vaccines in advance.

An initiative in Estonia may be one of few **financial incentive** schemes for provision of vaccines in a low- or middle-income country. Providers receiving these incentives met the 90% coverage rate for childhood immunization, while providers who did not receive incentives did not meet this threshold.⁶⁴

Finally, while results are still pending, ideas42 has also developed interventions targeting health providers in Ethiopia to increase full immunization rates for babies. The intervention includes behaviorally informed **tracking posters** that display the immunization status of providers' patients, allowing them to easily survey which babies are behind schedule as well as display and take pride in their successful immunizations. In addition, providers receive **text message reminders** prompting them to reference the poster and perform outreach to those who drop out prior to immunization campaigns.

Potential application of behavioral economics approaches

In certain ways, this behavior has similar dynamics to that of increasing ANC attendance. First, a caregiver would need to decide to bring her child for immunization and act on this decision. There are several touchpoints where providers may be influential in shaping this initial decision. In the case of a facility-based delivery or PNC service, the provider could counsel the caregiver on the importance and timing of the first vaccine to increase her intention to follow through. Alternatively, or additionally, community-based providers who play an active role in identifying newborns for immunization may influence a caregiver's decision to get the initial immunization or spur action by helping her develop a concrete plan to attend an immunization session. Once the caregiver has brought the child for the first vaccine, the facility-based provider may be instrumental in ensuring follow-up of additional vaccines by making the benefits of additional doses salient and by clearly communicating how action can be taken. The experience of patients with the provider, such as quality of care and treatment including wait times, may also influence future patient action. Community-based providers can also play an important role in helping caregivers overcome forgetfulness by reminding them of the timing and location of subsequent vaccines close to the time when they must take action. They can also promptly refer patients to facilities should they experience side effects they attribute to the vaccine, which if

unaddressed could inhibit follow-through for subsequent vaccines.

Conclusion

Behavioral economics approaches focused on providers may hold promise for improving immunization coverage 1) when there are well-organized efforts to promote immunizations through community-based providers and structural barriers for accessing immunization are surmountable, 2) where there are high rates of facility-based delivery or PNC, or 3) where immunization initiation rates are high but completion rates are low.

Provider gives relevant information to caregivers on signs, symptoms, and appropriate treatment of immediate risks (such as acute respiratory infections and diarrheal disease)

Potential link between provider behavior and health outcomes

Provision of integrated community case management (iCCM) for common childhood illnesses by CHWs is one approach that has been widely explored in the literature to increase care-seeking among caregivers or provide treatment at a community level, thus eliminating many patient-side barriers.^{65,66} Much of this research, of varying degrees of quality, suggests that focusing on provider behavior in this realm, particularly on community-based providers, can effectively increase care-seeking through community mobilization and education.⁶⁷ For instance, providers can work with patients to discuss folk and traditional treatments or knowledge and information barriers that may otherwise prevent clients from recognizing symptoms or understanding treatment options.^{68,69}

Additionally, UNICEF has articulated seven different intervention models for case management of children by CHWs, which cover options from basic management and verbal referral to integrated multiple disease case management, including treatment.⁷⁰ A systematic review of these models highlights the strong evidence for impact on child mortality of pneumonia management by CHWs.⁷¹ CHW-provided treatment approaches may be the most promising in settings where structural barriers such as distance from a facility or reliable transportation could otherwise affect care-seeking.

A less direct link between provider behavior and related child health outcomes concerns the perception of quality of care provided in health facilities. Given the importance of a client's previous experience at health facilities for her

willingness to seek care from providers, helping providers offer more supportive and respectful care and de-link care from HIV-related services at upstream “gateway” touchpoints could improve the health outcome.⁶⁸

Interventions focused on this behavior

One study in Rwanda tested a multi-pronged intervention focused on CHWs that showed increases in care-seeking for fever, diarrhea, and acute respiratory infections.⁶⁵ The intervention included a 4-day **training** in iCCM, a **supervisory system** of monthly reports and cell coordinators, and **peer support groups** that leveraged peer comparison to improve performance. The authors noted peer support groups as the most promising of the programmatic components. A **training** program of CHWs combined with the provision of medical supplies also had a positive effect on care-seeking in Zambia.⁷² In Mali, a provider-focused iCCM **training** program of role-playing sessions paired with one **supervisory visit** was found to improve the quality of counseling to caregivers, which could potentially affect care-seeking, though this was not measured as an outcome in the study.⁷³

Interventions have also been tested to prepare CHWs or volunteers to conduct home-based treatment of pneumonia and diarrhea, which could reduce reliance on improper treatment methods in homes while simultaneously reducing burdens on local health facilities. A **training and supervision program** of CHWs to provide treatment was tested in Bangladesh and was found to be effective and acceptable.^{74–76} CHWs have also been shown to increase coverage of treatments such as oral rehydration therapy. For instance, Sierra Leone has particularly high coverage of oral rehydration therapy compared with other sub-Saharan African countries, a fact that has been attributed to its cadre of community volunteers, whose efficacy is similar to that of facility providers in many settings.⁷⁴

Potential application of behavioral economics approaches

To ultimately drive improvements in related child health outcomes, both patients and providers must make different decisions and actions. First, a health provider must give information to the caregiver on warning signs to know when to seek care. In the case of facility-based providers, the decision to give this information and the action of doing so are likely to be closely tied in terms of timing. Behavioral economics could be used to ensure that providing this information is top of mind and that

a provider does not forget to do so in the course of a consultation. The caregiver would then need to recall this information to decide to act upon it once these warning signs appear and decide to take action in seeking care. Should the information have been conveyed by the provider at a moment when the caregiver was preoccupied with other concerns or at a moment very distal from the time of symptoms, this provider-focused approach might not be as suited to support a caregiver’s decision to seek care.

An alternative provider scenario for this behavior could include a community-based provider. In this case, the provider would decide whom to provide with information and could support the caregiver in the decision to seek care and act on this intent. Behavioral economics approaches could help stimulate the provider to take action, use the appropriate heuristics to identify whom to speak to, and support framing the message to most effectively stimulate action. In the case that community-based providers are also equipped with the skills to provide care, this process would be more straightforward, as the decisions and actions of the patient would be more fully in the hands of the provider.

Conclusion

Behavioral economics approaches focused on providers may hold promise for improving care-seeking behavior for child health conditions when 1) there is a well-organized cadre of community-based health workers trained in the basics of iCCM and structural barriers for accessing care are surmountable or 2) there is a well-organized cadre of community-based health workers trained in treatment of child health conditions.

3.2 Malaria

Provider counsels pregnant women and mothers on the importance of sleeping under an insecticide-treated net and provides intermittent preventive treatment of malaria in pregnancy

Potential link between provider behavior and health outcomes

Insecticide-treated nets (ITNs) and intermittent preventive treatment in pregnancy (IPTp) are recommended for effective malaria prevention in pregnant women.⁷⁷ Accomplishing these activities through ANC visits is an important component of a national coverage strategy.⁷⁸ There is some literature suggesting a link between

counseling and use of ITNs. For instance, a cross-sectional study in Nigeria showed that while ITN ownership did not necessarily equate to use, women who felt confident to install an ITN and knew that it could protect pregnant women from malaria were significantly more likely to use it, indicating a potential role for provider counseling.⁷⁹ Another intervention in Nigeria showed that counseling, when combined with community distribution of ITNs and IPTp, resulted in significantly greater ITN usage in treatment areas.⁸⁰ Despite this link, the literature also highlights the importance of patient obstacles to ITN use, including discomfort, problems with installing ITNs, and seasonal variations in use—along with the belief that the insecticide with which nets are treated could be harmful.⁸¹ Some of these obstacles could be addressed through provider counseling, but several may not be, as implied in the literature. One evaluation in Zambia showed that CHW follow-up visits with families who received an ITN had a modest short-term impact on use, but this impact disappeared in the medium term.⁸² Another study from Kenya noted an increase in ITN usage after CHW implementation, but usage data was self-reported and based on a pre-post comparison.⁸³

IPTp during ANC visits has been shown to be an effective and inexpensive intervention.⁸⁴ The literature notes both provider-side barriers to IPTp as well as patient barriers that could be addressed by providers. Patient barriers to IPTp include low awareness of benefits, timing, and dosage and uncertainty about the safety of taking medication during pregnancy. If IPTp is administered as intended, as directly observed therapy (DOT), few opportunities arise for the patient to defer, change her mind, or forget to take the dose. However, providers may not understand the necessity for DOT or may overestimate women's adherence when not directly observed.⁸⁵ Provider barriers include poor knowledge of dosage, timing, and side effects and inaccurate estimation of gestational age, which subsequently limits the dosages a woman receives during pregnancy. Staff being too busy to prescribe or not considering the need to prescribe also hinders appropriate care, indicating that provider scarcity or automaticity may be in effect.⁸⁶

Interventions focused on this behavior

In a study in India, **supportive supervision** combined with community mobilization was associated with statistically significant increases in ITN use, treatment-seeking,

and timely diagnosis in two treatment arms relative to the control arm. Supportive supervision involved education about transmission, diagnosis, and treatment of malaria, support for performing and interpreting rapid diagnosis tests, and administration of the correct dosage of ACT and follow-up to ensure compliance.⁸⁷

A study in Kenya showed that **retraining** of health care providers on the delivery, timing, and dosage for IPTp significantly increased coverage.⁸⁸

Potential application of behavioral economics approaches

In the case of ITN use, the patient is the decision-maker and the person who must take action to affect malaria outcomes, with providers playing a lesser role. During ANC, a facility-based provider could be cued to counsel a patient on ITN use, in which case the decision and action to counsel would be closely tied. Alternatively, behavioral economics approaches could stimulate counseling by community-based providers with at-risk populations. Nonetheless, once the initial counseling has been conducted, the decision to use the ITN, and more importantly, to consistently and correctly use the ITN, is in the hands of the patient. As noted above, provider intervention, in the form of follow-up visits by CHWs, may not be effective in guaranteeing consistent use of ITNs, thus pointing to the limitations of an approach focused on the provider.⁸²

In the case of providers giving doses of IPTp, a behavioral economics approach could be applied to cue providers to discuss IPTp with their patients and support providers in taking action to give treatment in cases when stock-outs are not an issue. Decisions and actions are closely entwined, made in the facility context, and are in the hands of the provider, thus making it relatively straightforward to identify contextual cues which could prompt providers to give IPTp.

Conclusion

Behavioral economics approaches focused on providers may hold promise for providing doses of IPTp when ANC coverage is high and stock-outs of IPTp are not common. A provider-focused approach for ITN distribution and use informed by behavioral economics does not seem promising.

Provider conducts microscopy or rapid diagnostic test

Potential link between provider behavior and health outcomes

Malaria confirmation conducted by a provider through either microscopy or a rapid diagnostic test (RDT) sets the foundation for ongoing sound malaria treatment. Importantly, a negative test result can also facilitate alternative correct diagnoses and reduce the over-prescription of antimalarials.⁸⁹ Conducting the test is in the hands of the provider; therefore, the provider's behavior is tied to outcomes. A literature review on the uptake of RDTs among clinicians indicates that health workers may be acting in a climate of staff shortages and therefore affected by scarcity when failing to administer RDTs, though providers are frequently impeded by stock-outs or rationing due to low availability, suggesting the role of both behavioral and structural barriers for this behavior.⁹⁰

Interventions focused on this behavior

A study in Myanmar of informal private health care providers (e.g., general retail stores, drug vendors and pharmacists), a common first point of care for febrile illness, investigated the effects of bi-monthly **intensive support visits** by health officers to providers, including discussions with providers and additional **education**, on use of RDTs. The study found that these provider-facing interventions combined with price subsidies on RDTs, were more effective in increasing use of RDTs than either price subsidies alone or price subsidies combined with financial incentives for providers.⁹¹

An intervention in Zambia among CHWs not previously trained to administer RDTs found that a **job aid** in the form of a detailed instructional flowchart with visuals statistically significantly increased correct administration of the RDT relative to package instructions alone.⁹² Use of the job aid plus a 3-hour **training** increased test administration even further. In an intervention in Uganda targeting registered drug-shop vendors due to their primacy treating those with febrile illnesses, **training and supervision** gave these providers both the technical knowledge and legitimacy they did not previously have to use RDTs, though the study did not evaluate their administration of RDTs.⁹³ Training combined with an **audit-feedback** system on diagnostic performance led to improvements in conducting and properly recording diagnostic tests for malaria in Laos.⁹⁴

In Tanzania, a trial tested a) **interactive workshops** on malaria testing and prescription together with **feedback summaries** on RDT use and treatments prescribed, and **best practices and motivational messages delivered through SMS** and b) all of those elements in addition to **posters** and **patient-facing leaflets** with Ministry of Health **branding**, and found that these did not result in differences in RDT testing between treatment and control groups, thus suggesting the complexity of factors that may be at play in different contexts.⁹⁵

Potential application of behavioral economics approaches

Assuming limited structural barriers for the patient (e.g., high service fees), the most relevant decisions and actions relating to this behavior are done by the provider with minimal patient intermediation. This fact simplifies identifying relevant contextual cues driving this behavior. Behavioral economics approaches could cue the provider to consider this test, support employing the appropriate heuristics for determining when to screen, and facilitate acting on this intention to screen by eliminating hassles where feasible, among other tactics. Behavioral economics could also be used to strengthen how the provider frames the screening to the patient should patients be hesitant for reasons other than impactful financial constraints.

Conclusion

Behavioral economics approaches hold promise in increasing use of RDTs when structural barriers—stock-outs in the case of the provider or high service fees in the case of the patient—are not the primary drivers of non-use in the context.

Provider prescribes quality-assured artemisinin-based combination therapy with correct dosage in cases of confirmed malaria

Potential link between provider behavior and health outcomes

Appropriate treatment with artemisinin-based combination therapy (ACT) following a malaria diagnosis by RDT or microscopy is crucial to reducing malaria morbidity and mortality, limiting drug resistance from over-prescription, and ensuring that patients with other conditions are appropriately diagnosed and treated.⁹⁶ Stock-outs and shortages are common in low-resource settings,⁹⁷ as are counterfeit ACTs,⁹⁸ and these structural limitations may also influence providers' behavior.⁹⁹ There may also be cost barriers, as antimalarials are not available free of

charge to patients in all settings, and ACTs are generally more expensive than other antimalarial drugs.¹⁰⁰

However, even when these structural barriers are not present, the literature notes various types of treatment error, including failure to prescribe any antimalarial after a positive test result,^{101,102} treatment with an antimalarial drug that is not recommended by best-practice guidelines or with an incorrect dosage,^{102,103} and prescribing an antimalarial after a negative test result because the patient presents with clinical symptoms of malaria or because the provider interprets the negative result as suspected malaria.^{104,105} Furthermore, providers may be susceptible to pressure from patients. In a qualitative study in Tanzania, clinicians reported feeling pressure from patients or fearing that they would complain if not given antimalarials, even though the patients did not directly request them.¹⁰⁶ Another study in Kenya found that some providers are influenced by patients' preferences for certain types of medication.⁹⁹

Improving correct treatment after a malaria test thus has strong potential to improve outcomes by ensuring that patients with malaria are properly treated, improving diagnosis and treatment of other illnesses for which patients present with similar symptoms, and limiting drug resistance.

Interventions focused on this behavior

Training and job aids are common interventions to promote adherence to ACT prescription guidelines by providers, but they are often insufficient to generate improvements in treatment. For instance, having undergone training is not generally found to be associated with better prescription practice.¹⁰⁷ The Integrated Management of Childhood Illnesses (IMCI) training approach,^{108,109} which involves on-site training, interactive learning, and opportunities for clinical practice, has shown some positive results for malaria treatment in Tanzania¹⁰⁸ and Uganda.¹¹⁰

Job aids have been commonly employed as a complement to training, with mixed results. A study in Kenya found that the presence of a **wall chart** explaining correct prescription practices was significantly associated with better treatment quality.¹¹¹ Other studies in Tanzania^{101,112} and Kenya¹¹³ found that training on ACT use and availability of job aids were not significantly associated with correct prescription by providers. A study in the Central African Republic found a negative association between presence of job aids and treatment quality.¹¹⁴

In Tanzania, a trial that tested **interactive workshops** on malaria testing and prescription, **feedback summaries** on RDTs and prescriptions, **best practices and motivational messages delivered through SMS**, and (for a subset) materials with Ministry of Health **branding**, found that these reduced providers' over-prescription of antimalarials to patients who had a negative RDT, but did not increase antimalarial prescription among those who had a positive RDT result.⁹⁵

Improvements in knowledge or prescription practices from training tend to deteriorate over time.¹¹⁵ While the need for effective **follow-up and supervision** is commonly mentioned as an appropriate response,^{99,107,116} there is limited evidence of the effects of supervision on malaria treatment. A randomized evaluation in Nigeria found that **supportive supervision** using a **checklist** adapted from IMCI activities resulted in improvements in providers' knowledge of malaria and correct prescription practices.¹¹⁷ However, other studies have found that supervision visits were not significantly associated with correct prescription by providers in Tanzania¹⁰¹ and Malawi.¹¹⁸ In lieu of supervision, a study in rural Kenya found that **text messages** sent to health workers increased their adherence to proper malaria case management with medication by 23.7%.¹¹⁹

One review found that **pre-packaging of drugs** is one of the most effective ways of increasing adherence to dosage guidelines among both providers and patients.¹⁰⁷ In Ghana, providers noted that when they received prepackaged antimalarial doses, they tended to modify their prescription behavior to dispense the correct packaged amount; patient compliance also improved with pre-packaging.¹²⁰ In Burkina Faso, packaging antimalarials for children in age-specific packets with a full course of treatment led to improvements in adherence to dosage and duration guidelines for treatment.¹²¹

Potential application of behavioral economics approaches

In contexts where user fees are not a barrier, the most relevant decisions and actions are taken by the provider, but the patient may strongly influence the provider's behavior. In some contexts, over-prescription may be driven by patients' and their caretakers' demand for antimalarials.^{115,122} Behavioral economics approaches could be applied to support a clinician in framing their treatment recommendation in a way that is best positioned to be positively received.

Behavioral economics can also be applied to support accurate decision-making and action in areas where contextual features unrelated to the patient may lead a provider to prescribe in a sub-optimal way. For instance, health workers from lower cadres tend to be more likely to prescribe ACT correctly.^{99,101,111} Behavioral economics could be applied to address potential overconfidence as it relates to identity to address this issue in higher-cadre health workers. There is also evidence that high patient load in facilities is associated with incorrect treatment practices;^{99,123} behavioral economics could be applied to support providers in managing the negative impacts of scarcity (limited available mental bandwidth due in this case to excessive workload).

Conclusion

There is potential for behavioral economics approaches to improve provider ACT prescribing behavior when 1) accurate testing (RDT or microscopy) is available and used, 2) ACTs are free to patients, and 3) ACTs are consistently available in sufficient quantities so that rationing of drugs is not a rational provider response.

3.3 Nutrition among children under two years old

Provider encourages breastfeeding within one hour after delivery

Potential link between provider behavior and health outcomes

Breastfeeding within one hour after delivery provides many health benefits for the infant that are well-established in the literature.^{124,125} Encouraging early initiation of breastfeeding could accompany other essential newborn care in the case of facility-based births. While little research has considered providers' role in this behavior, a small number of observational studies has shown provider counseling^{126,127} and early skin-to-skin contact¹²⁸ (which can be facilitated by providers) to be associated with early initiation of breastfeeding. In one study in Madagascar, a multi-pronged intervention including provider-facing components was tested to increase breastfeeding initiation along with other outcomes.¹²⁹ Among women who initiated breastfeeding within an hour, health workers and CHWs were by far the most common sources of information reported.¹²⁹ The potential role for provider counseling is also suggested in literature identifying patient-side barriers. For example,

one systematic literature review noted patients' cultural reasons for failing to initiate early breastfeeding, including the belief that colostrum is harmful¹³⁰ or that administering other pre-lacteal feedings such as water or butter is beneficial.¹³¹ Provider counseling could help address such concerns, though this question does not appear to have been studied explicitly.

Interventions focused on this behavior

Training modules such as the *WHO/UNICEF Breastfeeding Counselling: a training course* attempt to equip providers with the skills to support mothers in early breastfeeding, such as through observing and assessing breastfeeds and asking open questions and empathizing during counseling.¹³² In an RCT conducted in Brazil, those who received the training experienced statistically significant increases in knowledge as well as clinical and counseling skills (though patient breastfeeding behavior was not assessed).¹³³

A more comprehensive approach with patient and provider-facing components is embodied in baby-friendly hospital support. This support consists of **facility-level practices under the rubric** of "10 Steps to Successful Breastfeeding." Recommended steps include having a **written breastfeeding policy** communicated to all staff, training staff in the skills necessary to implement the policy, informing pregnant women about the benefits of breastfeeding, helping women initiate breastfeeding within a half-hour after birth (for example by demonstrating how to position the baby and achieve a latch), and showing mothers how to maintain lactation. A recent systematic review and meta-analysis found that Baby Friendly Hospital support resulted in a 20% increase in early initiation of breastfeeding.¹³⁴

Another provider-focused intervention mentioned earlier in the review is the use of **checklists**. WHO's SCC includes a point around initiation of breastfeeding and skin-to-skin contact in the "soon after birth" section of the list to make this action more salient for the provider. A recent evaluation of the SCC in India saw moderate absolute increases in breastfeeding within one hour of birth in facilities implementing the SCC with **coaching**.¹³⁵

Potential application of behavioral economics approaches

Both providers and patients play a role in ensuring prompt initiation of breastfeeding, but unlike in several other behaviors, the actions of both occur within a narrow timeframe and in the same physical context. While

structural barriers such as limited staffing in facilities may make it more difficult for providers to counsel consistently,^{8,15} there may be behavioral dimensions of these barriers as well and ways to optimize the provider environment to increase counseling. Behavioral economics approaches could be used to cue a provider to counsel and strengthen how to frame the messages in a way that better addresses patient concerns. Behavioral economics approaches could be used to prime patients to consider breastfeeding initiation, which would then facilitate effective provider counseling—important given providers’ limited time and workload. Since this action is likely to occur within the health facility, contextual cues that could prompt the right decisions and actions in providers and patients may be more easily identified and addressed with behavioral economics approaches.

Conclusion

Behavioral economics approaches hold promise in increasing provider counseling in initiation of breastfeeding within one hour of delivery in contexts where facility-based delivery is high. It is important to note that having a high facility-based delivery rate is not a contextual limitation but simply a high-impact context. Behavioral economics approaches can support this goal for the women who deliver in facilities regardless of the general prevalence of facility-based delivery in the context.

Provider encourages exclusive breastfeeding for six months

Potential link between provider behavior and health outcomes

Exclusive breastfeeding for the first six months of life confers health benefits for infants. Besides nutrition, these benefits include preventing diarrhea and other common childhood illnesses.¹³⁶ Evidence shows that providers may be effective in promoting duration of exclusive breastfeeding, especially with several interactions with patients (e.g., three to 6) occurring across both the prenatal and postpartum periods; a literature review suggests these are both important moments to provide support as long as the interventions are only moderately time-intensive.¹³⁷ Studies conducted in Mexico, Uganda, Burkina Faso, and South Africa with peer counselors and in Ghana with nurse counselors also found that rates of exclusive breastfeeding were higher among women who had received counseling and frequent follow-up visits from counselors.^{138–140} Combined individual and group education and counseling, whether conducted at the facility or in the community by health professionals

or lay counselors, may also increase duration of breastfeeding.¹⁴¹ Health care providers may be most effective when they understand the sociodemographic and cultural determinants of exclusive breastfeeding, such as perceived insufficient milk supply or beliefs about infant nutrition, so that they can offer practical guidance in advance to address these barriers.¹⁴² It should be noted, however, that some barriers to exclusive breastfeeding may be structural and not easily overcome with provider intervention. In a systematic review of exclusive breastfeeding in lower-resource settings, maternal employment or illness were among the most common non-behavioral barriers to exclusive breastfeeding.¹⁴²

Interventions focused on this behavior

A study in Madagascar indicates that provider **training** was effective in increasing exclusive breastfeeding when combined with additional **messaging** and **community mobilization**. In this instance, 1- to 2-day skills-based modules for providers and CHWs focused on reviewing protocols for contact with clients and enhancing interpersonal communication skills to encourage mothers to try a new practice. These elements were combined with community mobilization events and dissemination of key messages through local mass media and resulted in an increase in the rate of exclusive breastfeeding of infants under six months of age.¹⁴³

This finding is consistent with other literature indicating that training of hospital staff, when integrated with mass media, counseling, and community mobilization significantly increase exclusive breastfeeding prevalence.^{129,134}

Job aids, such as **counseling cards**, have also been used to support health workers in encouraging exclusive breastfeeding.¹⁵⁰ These cards were part of a broader intervention tested in Benin, which also included **training through role-playing** and **technical reference guides**. The intervention was shown to increase the exposure of pregnant women to messaging around breastfeeding; however, exclusive breastfeeding itself was not measured.¹⁴⁴

Potential application of behavioral economics approaches

Both providers and patients are involved in making relevant decisions and taking action related to this behavior. For patients who have not decided whether to undertake exclusive breastfeeding or who have decided not to breastfeed, a provider may initiate this conversation to try to address concerns. Behavioral economics

approaches could be used to cue a provider to have this conversation with targeted framing during a number of potential touchpoints including ANC, PNC, or vaccination. A patient could then decide to exclusively breastfeed but would need to take continuous action on this intention. Should an appropriately timed touchpoint exist, a provider could be cued to address concerns that arise after the patient takes the initial action. Importantly, as noted in the literature, frequent follow-ups by providers may be critical to support patients in overcoming potential behavioral barriers to maintain the behavior. This strategy itself could be devised using theory from behavioral economics, and the content of these follow-up sessions could also be optimized with behavioral economics.

Conclusion

Behavioral economics approaches focused on providers may hold promise for increasing exclusive breastfeeding when 1) ANC, PNC, facility-based delivery, or vaccine coverage is high and there are frequent interactions with the health system during the 6-month postpartum period or 2) there is a well-organized cadre of CHWs trained in exclusive breastfeeding counseling with strong postpartum identification and frequent contact with new mothers but adherence to counseling is low.

Provider counsels on minimum meal frequency and nutritious, age-appropriate meals

Potential link between provider behavior and health outcomes

Complementary feeding, or introducing solid foods to infants over six months (with or without continued breastfeeding), supports children's growth and health, although guidelines on appropriate timing and composition of foods vary across countries.¹⁴⁵ The role of providers may be significant in this domain, despite inconsistent guidelines. A meta-analysis including 17 randomized and quasi-randomized studies showed that nutrition counseling alone as well as the provision of complementary foods led to significant increases in the weight of infants six months to two years old, possibly resulting from greater food diversity (including more animal products), higher meal frequency, and better food-related hygiene.^{146–148} Most interventions involved community health or nutrition educators conducting home visits or group trainings,^{148–151} whereas fewer enlisted doctors.¹⁵²

Interventions focused on this behavior

Provider **training** has been conducted to spur provider counseling. The WHO course *Complementary Feeding:*

Family Foods for Breastfed Children forms the basis of a 3-day training course for health professionals on the topic. This course was evaluated in an RCT in Egypt, which found better outcomes in the treatment versus control group: Clinicians were more likely to conduct counseling and give appropriate advice, mothers had higher recall of advice, and children had statistically significantly greater weight gain.¹⁵³

The WHO *Global Strategy for Infant and Young Child Feeding* suggests the role of providers and lay counselors to increase counseling.¹⁵⁴ A review of studies of in-service provider training on child nutrition found that training led to improvements in providers' knowledge (18 of 18 studies) and counseling (12 of 12 studies)—including counseling skills, likelihood of providing nutrition advice, and appropriateness of the advice given.¹⁵⁵ Studies in Brazil^{152,156} and Pakistan¹⁵⁷ found that training providers on child feeding counseling improved providers' communication skills during counseling with mothers of sick children, improved mothers' knowledge of recommendations, and reduced growth faltering in children.

Quality improvement interventions can also improve provider counseling on nutrition. A study in clinics in Guinea and Kenya found that COPE services led to improvements in counseling and respectful care in a number of areas, including child nutrition. The approach was intended as a complement to the ICMI training and consisted of **self-administered guides** encouraging providers to consider and respond to issues of service quality, accompanied by **supportive supervision**.⁶¹

Job aids such as **pictorial books** to accompany provider counseling and materials for facilitating community meetings on infant nutrition have been produced by many organizations. However, studies examining the efficacy of such interventions are sparse.

Potential application of behavioral economics approaches

Both providers and patients are involved in making relevant decisions and taking action related to this behavior. First, a provider such as a CHW would initiate the counseling either cued by a patient or conducted per standard practice. Behavioral economics approaches could be used to make this action top of mind for the provider should salience be a barrier. Behavioral economics could also be used to optimize the counseling itself, whether it be to structure the content in a way that helps avoid choice overload, reframe the messages so they address

client concerns to spur action, or simplify the delivery of the counseling itself, among other options depending on the barriers at play. A patient would then need to make a decision about this advice and take action on it. In optimizing the counseling with behavioral economics approaches, attention could be paid to ensuring that initial patient intention is established during the counseling session itself, so that the provider angle can be most effective. A range of different patient-side barriers might exist, which could arise from the moment of intention formation with the provider to the practice of these behaviors in the household by the patient. Frequent interaction with the health system in this period can help ensure that the provider will be well-positioned to support patients in taking action. Behavioral economics approaches could be used to cue community-based or facility-based providers to engage in conversations with patients about feeding practices after the initial counseling and could help optimize provider-oriented interventions to support maintenance of these patient behaviors.

Conclusion

Behavioral economics approaches focused on providers may hold promise for strengthening provider counseling on meal frequency and content when 1) immunization coverage is high and providers trained in meal frequency and content are available during these sessions, or 2) there is a well-organized cadre of CHWs trained in meal frequency and content who have frequent contact with new mothers but adherence to counseling is low.

3.4 HIV/AIDS testing and treatment adherence

Provider initiates testing and counseling in a health facility

Potential link between provider behavior and health outcomes

It is well-established in the literature that provider-initiated testing and counseling (PITC) increases HIV testing uptake¹⁵⁸ and is often the main entry point to comprehensive HIV care for anyone who interacts with a provider.¹⁵⁹ Since PITC can occur regardless of whether or not patients have HIV-related signs or symptoms, this behavior has particularly high potential to affect health outcomes by helping providers identify HIV-positive patients who would not have otherwise sought testing—or been recommended testing—and can reap the benefits of earlier treatment initiation.

Moreover, the way in which providers offer testing can also influence testing uptake and subsequent health outcomes. There is compelling evidence that offering HIV testing as a routine step that patients are expected though not required to undergo (an opt-out rather than an opt-in approach) can increase testing uptake,^{160,161} in part by reducing perceived stigma associated with testing and making it easier for both providers and patients to discuss HIV openly.^{162,163}

Although PITC has been recommended by the WHO since 2007¹⁵⁹ and commonly forms a component of countries' HIV testing guidelines,¹⁶⁴ gaps in provider compliance remain.^{165–167} Structural barriers such as stock-outs and shortages of testing supplies, understaffed facilities, and lack of private spaces to deliver counseling sometimes hinder delivery of PITC,^{165,168,169} although there is also evidence that behavioral barriers (discussed below) are at play.

Interventions focused on this behavior

The WHO recommends that all providers who perform testing receive training and ongoing supervision on obtaining informed consent, protecting confidentiality and privacy, avoiding stigma and discrimination, and conducting appropriate referral.¹⁵⁹ The WHO has compiled an extensive library of training tools and materials for providers on these topics.¹⁷⁰ In interventions introducing routine opt-out testing in ANC settings (which led to substantial increases in testing uptake), clinic staff received **training** on how to introduce HIV testing as part of routine antenatal services and to dispel the common misconception that testing is mandatory, though these studies did not evaluate the effectiveness of the training itself on increasing screening rates.^{160–162}

An impact evaluation of Rwanda's pay-for-performance scheme found that **financial incentives** to providers increased HIV testing and counseling. Providers were paid based on a range of outcomes, including number of clients tested and number of couples tested, with a significantly higher payment for couples. The likelihood of an individual being tested increased by 6.1–10.6% while the likelihood of a couple being tested increased by 10.2–14.5%.¹⁷¹

Provider-oriented interventions have also focused on reducing the effects of stigma in HIV testing and treatment. The Horizons Program evaluated 10 such programs across several regions, finding that multi-pronged interventions led to reductions in biased treatment,

improvements in understanding and equitable use of universal precautions, and improvements in counseling and testing practices such as seeking informed consent. Rates of provider-initiated testing were not measured.¹⁷²

One component of this program was **sharing data** on stigma and its effects on the health care facility to help facilities and providers recognize and acknowledge its existence, which researchers found led to improved buy-in and engagement from management. In India, this data was used to develop a **supervisory checklist** to help hospital managers identify discriminatory practices. Involving management in this way helped catalyze reform in the facilities.¹⁷³ A pre-post analysis of another component in Vietnam found that the introduction of “safe and friendly” **hospital policies** covering issues such as access to testing and confidentiality led to reductions in discriminatory practices.¹⁷⁴ Another component of the multi-pronged approach included **trainings** to all cadres of providers. A study in Vietnam found that the addition of a **workshop**, co-facilitated by people living with HIV, on the causes and manifestations of social stigma, led to greater improvements in testing and treatment behaviors than a standard training on HIV care alone.¹⁷²

Potential application of behavioral economics approaches

In order to complete this behavior, providers must remember to initiate testing, decide to initiate testing for a particular patient, act on that decision, and offer testing in the correct manner and accompanied by appropriate counseling. Behavioral economics approaches could be used to address the provider barriers that may arise at these stages to increase compliance with PITC. For example, behavioral economics approaches could remind providers to test patients and enhance provider motivation.¹⁶⁵ They could also help mitigate discomfort or stress associated with testing¹⁷⁵ and fear of confronting an HIV-positive test result.¹⁶⁹ Where provider attitudes toward patients affect PITC, from deterring high-risk patients from coming in for testing¹⁷² to directly denying care,¹⁷⁶ behavioral economics approaches could help shift patterns of behavior and mental models.

Conclusion

Provider-focused behavioral economics approaches hold promise for improving provider adherence to PITC when testing supplies are available.

Provider delivers community-based testing services according to best practices

Potential link between provider behavior and health outcomes

Community-based testing services, often delivered by trained lay providers, are a key step in identifying HIV-positive individuals and linking them to appropriate treatment, and in particular to reaching key populations that are unlikely to visit a health care facility or to proactively seek out testing services.¹⁶⁴ Testing strategies outside the facility setting have increased uptake, as providers can influence who receives facilitated access to testing services and is therefore more likely to be tested.^{177,178} Providers’ delivery of community-based testing services can also influence health outcomes through their choices about where and how to focus their efforts. For example, the WHO recommends index testing as a strategy to improve efficiency and cost-effectiveness of HIV testing services,¹⁶⁴ though providers may resist or struggle with this shift in testing approach.¹⁷⁹

Structural barriers such as a lack of supplies and equipment for testing, long distances to reach patients, and limited availability of trained providers to conduct testing pose a challenge to delivering testing services. In the absence of these barriers, provider behavior can influence health outcomes by increasing coverage of testing services and ensuring that testing reaches the populations most likely to benefit from it.

Interventions focused on this behavior

While there is evidence suggesting that community-based testing through CHWs and other providers can enhance uptake and quality of HIV services, there is scant evidence on related provider-facing interventions in this area.¹⁷⁸ In Malawi, CHWs received two weeks of **theoretical training** on care and support for both HIV/AIDS and tuberculosis, plus **on-the-job training** with community nurses.¹⁸⁰ However, these interventions were not evaluated to measure their effectiveness in improving community-based testing.

Interventions aimed at shifting provider testing strategies have successfully increased rates of index testing, but gaps in compliance remain. The Clinical and Community HIV/AIDS Services Strengthening project in Mozambique **trained** community counselors on index testing and

implemented a **data monitoring system** to track counselor performance. Monitoring allowed for **follow-up** with specific counselors for additional skill-building to improve results, as well as to address barriers identified among certain counselors who failed to switch to index testing.¹⁷⁹

Potential application of behavioral economics approach

Both provider-facing and patient-facing interventions may be effective in increasing coverage of HIV testing among target populations. Behavioral economics interventions among providers performing community-based outreach and testing could increase compliance with defined testing policies (such as index testing or targeting key populations) by strengthening the intention to follow guidelines and supporting follow-through on this intention.¹⁷⁹ Where guidelines allow discretion on the part of providers as to where they focus testing outreach, behavioral economics approaches could be used to support targeting testing with appropriate heuristics for identifying high-risk groups and salient feedback on outreach efforts. Behavioral economics could also be used to support providers in how they offer testing services, for example framing testing services in a way that most resonates with at-risk, under-tested groups and organizing these campaigns in a way best positioned to help patients overcome their concerns or address potential provider stigma.¹⁸¹

In cases where front-line providers have less control over who is offered testing, or where target populations are already being offered but are not accepting testing services, patient-facing behavioral economics interventions may hold more promise instead of (or as a complement to) provider-facing approaches.

Conclusion

Provider-focused behavioral economics approaches hold promise for improving testing and counseling in community-based settings when testing supplies are available and providers are adequately trained.

Provider ensures accurate testing

Potential link between provider behavior and health outcomes

Accurate testing is essential to ensuring timely diagnosis and treatment for HIV-positive individuals and as a safeguard against initiating treatment unnecessarily for HIV-negative individuals whose initial test result is

reactive. Accurate testing relies on adherence to the relevant testing algorithm, which specifies the correct type and sequencing of tests to use under different circumstances and how different types of results should be interpreted.¹⁸² Although RDTs are relatively simple to perform, providers can make errors in interpreting results that identify false positives (HIV-negative individuals incorrectly started on ART) and false negatives (HIV-positive individuals who are not referred for treatment).¹⁸³ Depending on test results and recent or ongoing risk of exposure, patients should be re-tested within a specified timeframe or should receive additional confirmatory testing.¹⁶⁴

The appropriateness of a provider's counseling in each of these scenarios and how the provider manages the conversation with a patient may also influence the likelihood of the patient's return for subsequent re-testing and confirmatory testing, increasing diagnosis rates. Additionally, some providers may be able to mobilize outreach efforts in the case that a patient does not return, which can also impact accurate testing. Accurate testing, in turn, is needed to ensure that HIV-positive individuals receive the appropriate treatment (see **Provider initiates appropriate HIV care immediately after a diagnosis is confirmed**, page 30) while minimizing the potential cost and unnecessary harm from initiating ART in patients who are not in fact HIV positive.¹⁸⁴

Interventions focused on this behavior

In low-resource settings, most HIV testing is performed by non-laboratory providers, for whom the CDC and WHO have developed a training package as well as guidelines for countries to roll out a training program.¹⁸³ Non-laboratory providers can provide testing with a high degree of accuracy even after a brief training; in Cambodia, non-laboratory providers who underwent a half-day **training** performed marginally better than laboratory staff.¹⁸⁵

The WHO's training recommendations place particular emphasis on the importance of training and supportive supervision for lay providers.¹⁶⁴ A recent review found that after completing a training program, lay providers are generally able to collect and interpret diagnostic tests with comparable accuracy to a clinician and are acceptable to patients, though most studies did not assess the accuracy or quality of the counseling provided by lay providers.¹⁸⁶ Moreover, these studies did not evaluate the type or extent of training needed to support accurate testing, though even brief trainings have been

shown to improve quality. A study in Zambia found that participation in the 3-day national training program on HIV rapid testing was significantly associated with testing accuracy.¹⁸⁷

In addition to training, quality assurance programs consisting of **on-site supervision, standardization of trainings and tools**—such as a log book for use at all testing sites—and **proficiency testing** are recommended to sustain results from training.^{183,188} Proficiency testing consists of sending simulated samples to HIV-testing sites to assess the accuracy of results and evaluate technical competence in testing, and can help identify gaps in provider capacity and further training needs.^{187,189}

In Zambia, a standards-based management and recognition program involved **detailed performance standards** outlined in a **checklist** used to assess provider performance, combined with training, supportive supervision, and on-site assistance. The program led to a 36% increase in repeat HIV testing during ANC (in accordance with prevention of mother-to-child transmission [PMTCT] guidelines), as well as improvements in ongoing counseling on HIV testing during ANC.¹⁹⁰

Potential application of behavioral economics approach

Most actions needed to ensure accurate testing lie with the provider. Behavioral economics approaches may hold potential to reinforce proper processes and interpretation in busy work environments or where repetition dampens providers' adherence to the testing algorithm. In addition, behavioral economics could inform interventions to build providers' confidence when they have not received extensive training but still hold the requisite skills. In other settings, prompts for providers could help mitigate overconfidence in initial test results or clinical assessments. Behavioral economics can also offer strategies to help providers deliver uncomfortable and often unwelcome news about necessary follow-up to patients in a way that is both clear and motivating.

Conclusion

Behavioral economics approaches have potential to support accurate testing, including effective counseling to clients on retesting or confirmatory testing, where testing supplies are available and where providers receive adequate training on the mechanics of performing and interpreting tests.

Provider performs voluntary assisted partner notification services

Potential link between provider behavior and health outcomes

Disclosure of positive HIV test results to a patient's sexual or drug-use partners has potential to improve health outcomes in two ways: by identifying individuals with an increased likelihood of being HIV positive and linking them to testing and treatment^{191,192} and by supporting effective preventive steps for couples in serodiscordant (mixed HIV status) partnerships. Providers can play a role in partner notification in several ways. Passive notification occurs when a provider encourages HIV-positive individuals to disclose their status to partners. Provider referral occurs when, with the consent of the HIV-positive patient, the provider confidentially contacts the person's partner directly to offer testing services. In contract referral, HIV-positive patients enter into a contract with a provider and agree to disclose their status and potential HIV exposure to their partners within a specific time period. If the partners of the HIV-positive individual do not access testing or contact the provider within that period, the provider will contact the partners directly. In dual referral, the provider accompanies the patient when they disclose to partners. Provider, contract, and dual referral are methods of assisted partner notification recommended by the WHO.¹⁹³

Providers play an essential role in assisted partner notification, both by counseling HIV-positive patients on options for notifying partners and by accompanying patients when they disclose to their partners or by following up directly with partners. Assisted partner notification has been shown to increase screening rates and detection of HIV among partners.¹⁹⁴ Moreover, the manner in which a provider offers voluntary assisted partner notification to HIV-positive individuals may influence the patient's willingness to disclose and help minimize any associated risks to the disclosing partner.¹⁹³

Interventions focused on this behavior

The WHO highlights the importance of training and support for providers counseling patients appropriately on partner notification, reinforcing the voluntary nature of partner notification, tracing and locating partners, documentation and reporting, risk minimization, and maintaining privacy.¹⁹³ However, we are not aware of any evidence on the relative effectiveness of different types of training, supervision, or other support for providers on

partner notification or any other interventions that are meant to change provider behavior with regard to this practice in particular.

Potential application of behavioral economics approach

To carry out assisted partner notification, the provider must first discuss patients' HIV status and sexual and drug-use history and counsel on disclosure options. The provider is tasked with convincing but not pressuring patients to disclose, a balance that behavioral economics approaches could help strike through framing and motivation. Although there are often barriers on the patient side to consenting to partner notification (including fear of stigma or violence), providers may play an important role in helping patients overcome those barriers.

If the patient consents to assisted notification, providers must carry out their role in notification by accompanying the patient when they disclose to partners or by notifying partners directly. Where structural barriers do not impede notification, behavioral economics could help providers to overcome procrastination and competing claims on their attention and to conduct ultimate disclosure conversations sensitively in a way that encourages appropriate care.

Conclusion

Behavioral economics approaches may hold promise in increasing partner disclosure and testing when adequate testing supplies are available and assisted HIV partner notification services are recommended by national or local policy but partner disclosure and testing remain low.

Provider initiates appropriate HIV care immediately after a diagnosis is confirmed

Potential link between provider behavior and health outcomes

HIV testing can only serve as a gateway to treatment if providers link patients to appropriate, timely care after diagnosis. This includes initiating ART as soon as possible for everyone living with HIV regardless of CD4 count (which indicates the effect of the virus on a person's immune system). This "Test and Start" approach improves health outcomes for the HIV-positive patient and reduces the likelihood of transmission.¹⁹⁵ For providers who are authorized to prescribe ART and work in facilities that stock it, this means prescribing ART immediately upon confirmation of the diagnosis. For other

providers, it means referring the patient to a facility where they can begin ART and supporting the patient to ensure follow-through (in some cases, accompanying the patient to the facility where they can receive ART).¹⁹⁶

In either case, appropriate immediate care upon diagnosis also includes counseling patients on the meaning of their diagnosis and the importance of taking and adhering to ART.¹⁹⁷ There are potential negative impacts of beginning and not maintaining treatment, including increased infectiousness¹⁹⁸ and development of drug resistance.¹⁹⁵ WHO recommendations nonetheless conclude that the benefits of early treatment initiation outweigh the potential risks, though these risks underscore the importance of effective counseling beginning from the time of diagnosis, and in some cases ongoing adherence support, to accompany the Test and Start approach.¹⁹⁵

HIV-positive patients often fail to initiate treatment when they are eligible.^{199,200} Although structural barriers, including poor information systems, lack of available drugs, and other direct and indirect costs are often at play,²⁰¹ the evidence suggests that providers can play a role in strengthening the linkage to treatment.^{167,196} Improving linkage to care and preventing loss to follow-up is estimated to nearly double the benefits (reduced death toll and prevention of new infections) from universal testing and treatment.²⁰²

Interventions focused on this behavior

Referral systems for HIV care are often weak and fail to generate feedback to providers on who has followed up and when,¹⁹⁹ and developing more robust referral systems with tracking tools has been shown to support providers to facilitate referrals more effectively. In a study in Tanzania, 2-part **referral forms** with unique matching numbers were used both to facilitate patients' access to the HIV clinic and to monitor the proportion of diagnosed clients who followed up. When combined with other patient-facing interventions, referral rates were near 100%, with more than two-thirds of patients following through on the referral.

Training and supportive supervision have been shown to support effective initiation of ART by lower cadres of providers. The Streamlining Tasks & Roles to Expand Treatment and Care for HIV (STRETCH) program in South Africa combined **educational outreach** to nurses with supervision by a facility manager and a **toolkit** (including a **checklist** outlining the six key elements of

comprehensive HIV care to be integrated into all primary care services and **letters authorizing nurses to prescribe ART**).²⁰³ The nurses were able to safely deliver ART and the intervention improved several health outcomes and quality-of-care indicators but did not reduce mortality rates.²⁰⁴ Conversely, brief **trainings** of a few days were found in Uganda and Zimbabwe to be insufficient for nurses to feel comfortable managing ART for PMTCT and were supplemented with ongoing supervision.²⁰⁵

A randomized trial in South Africa found that an **on-site outreach education program** for all clinic staff, as compared with offsite training for ART specialist nurses only,²⁰⁶ improved health workers' compliance with recommended care following an HIV diagnosis.^a The outreach education program covered practical topics such as coordination between providers in the facility and considerations of the clinical context and simplified material from multiple sources into a **single set of guidelines**.²⁰⁶ An **online distance learning program** was found (in a pre-post analysis) to improve providers' knowledge of ART and their reported confidence initiating ART and encouraging patient adherence.²⁰⁷

A study in Malawi found that a simple **screening tool** for ART eligibility for CHWs outperformed the then-current WHO clinical staging guidelines for determining ART eligibility. The tool allowed providers to classify patients as ART-eligible based on a small number of readily observable features and was far less complex and time-consuming than WHO staging.²⁰⁸ While this particular tool will become less relevant with the expansion of universal HIV treatment regardless of CD4 count, its effectiveness suggests that streamlined or simplified versions of referral or prescription guidance may be effective in supporting appropriate HIV care initiation, especially for lower provider cadres.

Potential application of behavioral economics approach

A provider undertakes most of the necessary decisions and actions in providing HIV care after diagnosing a patient. Behavioral economics approaches may be useful in navigating complex and evolving standards of care, boosting providers' confidence in their skills and judgment when they are adequately trained. Behavioral economics could also inform efforts to ensure providers emphasize treatment for all patients, as some evidence

indicates that providers may hesitate to prescribe ART to patients they think are unlikely to adhere to treatment.²⁰⁹ Beyond offering services to all patients, counseling and encouraging could be further behaviorally optimized to address barriers patients may face at this stage.

Conclusion

There is potential for behavioral economics approaches to improve immediate ART initiation where 1) ART is available and 2) the main barriers to treatment for patients are not structural.

Provider regularly monitors viral loads

Potential link between provider behavior and health outcomes

Regular monitoring of individuals on ART is important to ensure treatment efficacy and improved health outcomes.²¹⁰ Monitoring allows providers to identify cases in which the patient is not adhering to ART or has developed drug resistance and to adjust ART or provide additional support accordingly.²¹¹ Correct monitoring involves both frequency of monitoring^b and use of the most appropriate method. Where available, viral load monitoring is the recommended method because it detects treatment failure earlier than CD4 count monitoring or clinical symptoms, often before resistance has developed.²¹¹

Point-of-care (POC) viral load testing is beginning to become available in resource-limited settings.²¹² However, testing is still frequently done by sending samples to a laboratory, in some cases with waits of several weeks or longer for results.²¹³ As a result, performing viral load monitoring requires providers to identify patients who are due for monitoring, stimulate them to undergo monitoring, take samples correctly, send them to a laboratory, and receive, read, and document results. This set of provider behaviors is essential to communicating results to patients and providing timely support to patients whose viral loads are not ideal (see **Provider communicates results of monitoring to patients**, page 32 and **Provider counsels if viral loads are not ideal**, page 33). These behaviors have great potential to influence health outcomes by increasing the number of HIV-positive individuals who have achieved viral load suppression²¹⁴ and limiting the development of drug resistance.²¹⁵

^aIn that study, provision of co-trimoxazole prophylaxis before ART initiation.

^bWHO guidance recommends monitoring at 6 and 12 months after initiating ART and every 12 months thereafter.²¹⁰

Structural barriers (including high cost, lack of transportation, and insufficient equipment) limit access to viral load monitoring in many contexts.²¹⁶ However, provider behavioral barriers such as improper processes and equipment use²¹⁷ as well as incomplete understanding of the benefits of viral load monitoring also all contribute to under-use,²¹⁷ suggesting opportunities for behaviorally informed interventions.

Interventions focused on this behavior

Viral load monitoring has until recently been unavailable in most low- and middle-income countries. As a result, although recommendations for promoting provider adherence exist, few studies to date have documented any evidence of their effectiveness in promoting provider behaviors.

A review of several interventions to support scale-up of viral load testing suggests that provider **training** and use of **monitoring and evaluation tools** to identify and correct gaps support scale-up efforts.²¹⁸ WHO guidelines recommend training and supportive supervision for clinicians, including clear messages for providers on the rationale for viral load testing as well as guidance on viral load clinical algorithms, interpreting results, and documenting follow-up.²¹⁹

In Botswana, providers significantly increased correct CD4 and viral load monitoring when a **clinical mentorship program** was implemented.²²⁰

A study in Mozambique found suggestive evidence that use of the iDART system—a pharmacy **software** that facilitates ART stock control, dispenses drugs, monitors patients, sends messages to patients who are late to treatment, and flags patients with a high viral load—helped improve adherence to viral load monitoring by improving communication with patients who required enhanced adherence counseling.²²¹

Médecins Sans Frontières (MSF) has implemented several interventions to improve viral load monitoring, although none have been evaluated. In one intervention, a formally assigned staff member serves as a “**viral load focal point**” dedicated to managing documentation and identifying patients in need of adherence counseling and repeat viral load testing. In Zimbabwe and Lesotho, clinics set monthly targets for viral load tests and mentors provided regular **feedback**. MSF suggests these targets facilitated supervision and enhanced motivation. In Zimbabwe, viral load testing was incorporated into

patients’ regular ART appointments and **instructions** around when to test were simplified to facilitate appropriate test timing. While not evaluated, this intervention reflected experiences in Malawi, where restrictive instructions around viral load testing resulted in patients not being tested.²²²

Potential application of behavioral economics approaches

Effective viral load monitoring relies on actions undertaken by both patients and providers. Monitoring is predicated on a touchpoint with patients. As such, behavioral economics could inform demand-generation efforts to encourage HIV-positive patients to visit facilities for testing²²² or identification and outreach through community-based providers. Among providers, behavioral economics could inform trainings to familiarize providers with new technologies they may not fully understand (even if they have been adequately trained).²¹⁷ Behavioral economics could also help overstretched providers²²¹ comply with a number of additional complex steps or adopt new guidelines in a timely fashion. Finally, behavioral economics approaches could help temper providers’ overconfidence in their ability to conduct accurate clinical monitoring, since their assessments of patients’ status and adherence to ART tend to be inaccurate.²²³

Conclusion

There is potential for behavioral economics approaches to improve provider compliance with viral load monitoring guidelines where 1) viral load testing technology is available and there are no major structural barriers to its use, 2) providers are adequately trained in the technology but use it insufficiently or incorrectly, and 3) adherence support or second-line ART (for treating drug-resistant cases) is available for cases in which treatment failure is detected.

Provider communicates results of monitoring to patients

Potential link between provider behavior and health outcomes

A critical component of regular monitoring is communicating the results of the test and the importance of viral load monitoring to patients.^{224,225} This may be accomplished through a follow-up visit to the health facility, text messages, or outreach by providers (including volunteers and other community-based providers) to patients after results are received. Alternatively, where samples are processed on-site, results can be communicated

on the same day.²²⁶ In the case that viral loads are high, this communication is critically important to ensure that patients do not become despondent and that they receive the appropriate support (see **Provider counsels if viral loads are not ideal**, next section).²²⁷ For patients who have suppressed viral loads, communicating results of monitoring appropriately can serve as a positive affirmation of treatment,²²⁷ which could improve health outcomes if the affirmation increases patients' motivation to maintain adherence to treatment.

There is evidence that a large proportion of patients with elevated viral load results do not receive repeat viral load testing, suggesting that providers may not be communicating results or their implications effectively.²²⁸ Structural barriers such as difficulty tracing or contacting patients, poor sample management, and limited staff capacity impede viral load monitoring follow-up with patients.^{216,229} However, these impediments are not significant enough to rule out any contribution behavioral economics might make to improve the consistency and quality of communicating monitoring results.

Interventions focused on this behavior

As in the case of conducting viral load monitoring, recommendations for promoting follow-up results communication exist; however, we were not able to find studies documenting evidence of their effectiveness in promoting provider behaviors.

MSF recommends a clearly defined process for follow-up and a point person assigned to review, document, and act on results to improve timely follow-up. These recommendations are based on programmatic or laboratory scale-up of viral load testing in seven countries between 2013 and 2016. In Zimbabwe and Malawi, a **high viral load form** was used to flag when follow-up is required and also to facilitate outreach and communication to patients.²²² **SMS communication** to clinics and patients served as an additional means of contacting patients.²²² While MSF's implementation suggests these strategies could hold promise, they were not rigorously evaluated.

Potential application of behavioral economics approaches

A provider's role in communicating the results of monitoring depends on the provider's cadre and position and the health care setting itself. Where patients proactively visit a facility to receive viral load results, the provider's role may be limited to appropriately counseling patients during testing on the importance of follow-up. In this

case, it is likely that most behavioral barriers occur on the patient side; thus, patient-facing interventions may hold the most promise in those settings. However, where providers are equipped to perform patient outreach to communicate results or encourage follow-up, behavioral economics may be applied to these processes to improve outcomes. For instance, behavioral economics could help instill an intention to act by dispelling assumptions about patients who are unlikely to be helped by these measures. Behavioral economics could also be used to provide a clear moment at which outreach is expected to occur or a deadline for performing it, especially when tracking and communicating with patients may require persistence and sustained attention.

Conclusion

There is potential for behavioral economics approaches to increase and improve provider communication of viral load results to patients where 1) viral load results are consistently received by the facility and 2) there are existing cadres of community-based providers to conduct outreach.

Provider counsels if viral loads are not ideal

Potential link between provider behavior and health outcomes

Routine monitoring can detect cases of non-adherence, but improving adherence (and re-suppressing viral loads) necessitates following up with patients if their viral loads are not ideal and linking them to adherence support services or providing those services directly. This step is critically important to ensuring that monitoring translates to improved health outcomes. The WHO recommends an adherence-support intervention followed by repeat viral load testing for all patients with high viral loads.²¹⁹

In low-resource settings, adherence counseling is often conducted by lay providers and takes place in either individual or group settings. Adherence-support counseling can cover a range of behavioral or structural barriers to patients' adherence, often guiding patients to identify these barriers and collaborating with patients on strategies to overcome them.²³⁰ While provider counseling may not be able to overcome certain structural barriers,²³¹ appropriate counseling following detection of high viral loads has been shown in some settings (though not always)²³² to improve treatment adherence and lead to re-suppression.^{214,234} However, lay counselors commonly receive insufficient training and support, undermining

their ability to counsel effectively²³³ and highlighting an opportunity for behaviorally informed interventions.

Interventions focused on this behavior

There is particularly little research on interventions to support providers in the performance of effective counseling or to ensure that it is offered to all patients who might benefit.

MSF recommends **training** for providers on adherence support²²² and has created training and implementation tools, including job aids to support counseling.²³⁰ The WHO also recommends that providers offering adherence support receive training on effective counseling and an **algorithm** to guide adherence sessions before switching patients to second-line ART.²¹⁹ Neither set of recommendations has been rigorously evaluated.

Job aids and patient-facing tools may be helpful to guide conversation and support compliance with a counseling protocol. A study in Thailand provided lay counselors with a **poster** to help guide patients through interpretation of test results and a **simple protocol** to structure the conversation. Counselors quickly understood and were able to implement the protocol, and it led to improvements in patient adherence (though the study did not compare this counseling protocol with any other approach).²³⁴

Potential application of behavioral economics approaches

To provide effective counseling, providers must first determine that patients require adherence support. Behavioral economics could enhance providers' willingness to refer patients to adherence by first helping them correctly interpret patients' reasons for non-adherence. Once a need for counseling has been established, the counseling itself could then further be shaped to address the critical factors driving patients' non-adherence. Evidence that soft skills and patients' perceptions of being known and understood by providers are effective in increasing adherence to ART²³⁵ indicates that behavioral economics approaches hold promise to support these skills and improve counseling approaches.

Conclusion

Behavioral economics approaches have potential to increase the effectiveness of ART adherence counseling when providers are trained to counsel and patients do not experience structural barriers in access to care.

3.5 Family planning

Provider counsels sexually active adolescents (15–19) on modern contraceptive use

Potential link between provider behavior and health outcomes

Access to youth-friendly services has been shown to impact the sexual and reproductive health (SRH) and well-being of adolescents, including reducing pregnancy rates, increasing condom use, increasing knowledge of access to different contraceptive methods, and increasing use of family planning and reproductive health services.^{236,237} A recent evidence review found that youth-friendly services and comprehensive sexuality education were two approaches with strong evidence of positive impact on adolescent use of contraceptives.²³⁸ While school-based models may provide the most effective channel for comprehensive sexuality education, quality counseling through health providers may be a complementary or alternative channel. Particularly effective dimensions of youth-friendly services include trained, friendly, non-judgmental providers and communication and outreach to inform youth and encourage service usages.²³⁸ This review suggests the importance of provider behavior, especially given the role that bias may play, while at the same time highlighting the need for complementary approaches to effectively tackle the complex issue of adolescent contraceptive use.

Interventions focused on this behavior

One approach to changing provider behavior as it relates to adolescent family planning counseling in many settings is **training**.²³⁹ A literature review on the effectiveness of initiatives to improve adolescent access to and use of SRH services in low- and middle-income countries, however, found limited efficacy of providing adolescent friendliness **training** for providers.²³⁶ Evidence is much stronger when a combination of patient-facing and structural interventions are implemented in concert with provider training.

Another program implemented in Mozambique and Tanzania sought to mainstream youth-friendly SRH services in public-sector facilities through a range of interventions including **training** providers and staff in the full range of contraceptive methods, conducting **facility data reviews** and **citizen report cards** to improve performance feedback, providing **job aids** to CHWs, and implementing a **mentorship program** in addition

to structural improvements to facilities. While not rigorously evaluated, results suggest these programs may have increased the number of new adolescent contraceptive users and use of services across time, led to increased uptake of long-acting reversible contraception (LARC), and increased correspondence between the methods clients were referred for and the methods they received at the facility, which authors used as a proxy for reduced provider bias.²³⁷

Potential application of behavioral economics approaches

Providers must decide to offer counseling and then provide it; these decisions and actions are closely tied. Behavioral economics approaches could be used to cue the provider to give counseling, including in cases where bias or mental models may inhibit this service currently. Behavioral economics could also inform counseling content, for example in order to frame messages in a way most likely to resonate with adolescents and to support intention formation.

Conclusion

Behavioral-economics-informed provider-side approaches could hold promise to increase adolescent contraceptive uptake when 1) provider bias is a key main barrier prohibiting uptake or 2) other components of youth-friendly services are being implemented.

Provider counsels parents to discuss modern contraceptive use with adolescent children

Potential link between provider behavior and health outcomes

Parental involvement in adolescent children's sexual health can help ease and accelerate the use of modern contraception; in some contexts, it is crucial to addressing adolescents' sexual health needs.²⁴⁰ Studies show that some providers feel uncomfortable giving contraceptives to adolescents without parental permission and fear parental repercussions. This may be particularly true in small communities where providers may be more recognized or accountable.²⁴¹ There is little evidence, however, on whether providers counseling parents on discussing contraceptive use with their children has an impact on adolescent sexual health. Furthermore, the link between parent-child communication and contraceptive use is also unclear, according to the conclusions of a review on sexuality and HIV/AIDS in sub-Saharan Africa.²⁴² The health impact of providers counseling parents on adolescent contraceptive use is therefore unclear.

Interventions focused on this behavior

Some work has been done around the relationship between parents and adolescents aimed at increasing community support for adolescent contraceptive use; however, these programs do not single out the role providers play in such efforts.²⁴³ Provider-facing interventions have targeted provider behavior when dealing with adolescents rather than attempting to address provider counseling with parents, which seems to be an unexplored area.

Potential application of behavioral economics approaches

Both providers and patients undertake decisions and actions related to this behavior. Behavioral economics approaches could be used to cue providers to discuss contraceptive use with parents—perhaps necessary, since parents most likely visit the health facility for other reasons that the provider may be focused on. Behavioral economics approaches could also be used to facilitate the conversation, for both the provider and the parent, by adjusting processes in a standard consultation so that this counseling is perceived as the default step. Another way behavioral economics could be used to facilitate the conversation would be in supporting the framing of the counseling using insights from the behavioral sciences. These insights could also be used to frame counseling takeaways best positioned to drive action on the part of the parent—in this case, to speak with their adolescent child about contraceptive use. However, because the link between this provider behavior and ultimate action on the part of the adolescent is distal, behavioral economics approaches focused on providers may hold limited promise. For instance, even after forming an intention, parents would still need to act on that intention to speak with children instead of changing their minds, deferring the conversation, or falling prey to a number of barriers that would be challenging for a provider to address after the initial counseling.

Conclusion

While behavioral economics could increase execution of this provider behavior, the evidence does not suggest that this behavior itself will have an important effect on outcomes.

Provider counsels women in unions on spacing

Potential link between provider behavior and health outcomes

Effective counseling on spacing can prompt women to consider whether and when they would like to have a child or another child. Doing so may instill a moment of choice and help form an intention to avoid pregnancy that then facilitates family planning acceptance. Evidence that higher quality of care helps women be more decisive in pregnancy intentions and reduces the likelihood of unintended pregnancy suggests provider behavior can influence health outcomes.²⁴⁴

Interventions focused on this behavior

Multiple organizations have developed **job aids** that include this behavior as a step within larger processes. Most of these tools have been deemed effective at improving quality of care, which could affect spacing. For example, the WHO developed the *Decision-Making Tool for Family Planning Clients and Providers* as a job aid that providers can use to guide clients through an informed decision-making process, including discussing spacing. The tool, designed as a **flipchart**, was deemed useful by providers as a job aid and decision aid in Mexico²⁴⁶ and increased client involvement in decision-making in Nicaragua.¹⁴⁷ Changes in contraceptive use were not measured. Population Council's *Balanced Counseling Strategy: A Toolkit for Family Planning Service Providers*^c is a set of job aids for counseling clients about family planning, including an 11-step **algorithm**, which gives providers step-by-step guidance on how to conduct a counseling session (organized according to stages of the consultation) to guide the provider through the counseling process, a set of **counseling cards** for contraceptive methods, and **brochures** for each method. Healthy timing and spacing of pregnancies is one of the topics covered in the tool. The Balanced Counseling Strategy has been shown to improve the quality of care in family planning.²⁴⁸ However, an evaluation of a similar tool suggests that simply providing a tool may not alone improve the quality of counseling.²⁴⁹

^cThe initial version of this toolkit has been updated and expanded. The most recent version of the toolkit, *The Balanced Counseling Strategy Plus: A Toolkit for Family Planning Service Providers Working in High HIV/STI Prevalence Settings* (Third Edition) is available at: <https://www.popcouncil.org/research/the-balanced-counseling-strategy-plus-a-toolkit-for-family-planning-service>

Similarly, an evaluation of the Consult and Choose program in Jordan, which included a **counseling protocol** that prompted providers to counsel about birth spacing and six other family-planning-oriented tasks, found that providers were less likely to discuss birth spacing than five of the other tasks. In the same program, some clients viewed a **film** that included messages about birth spacing. Eighty-five percent of those who watched the film reported that it was influential, and one-third of those women said they would plan their families as a result.²⁵⁰ Spacing and contraceptive use outcomes were not measured.

Another study involved providers discussing a **narrative** around postpartum pregnancy risk and distributing leaflets during typical community health activities. It found reported shifts in perceived pregnancy risk, benefits of spacing, and social support for postpartum family planning. While more than half of women interviewed stated they intended to use a modern contraceptive, only approximately one-third of women were using a modern contraceptive method.²⁵¹

In Zambia, a standards-based management and recognition program focused on PMTCT led to a 41% increase in family planning counseling on spacing and contraceptive methods among HIV-positive women. The program included **detailed performance standards** combined with **training, supportive supervision, and on-site assistance** for providers.²⁴⁷ The evaluation did not disentangle which of these components was most effective in increasing family planning counseling on spacing specifically.

Beyond job aids, a CHW-based program in Bangladesh increased contraceptive use and significantly lowered pregnancy 24 months after a live birth through training and communication materials around spacing.²⁵² CHWs in the intervention arm received additional training on healthy spacing, postpartum family planning, and contraceptive methods and logistics management. Notably, the original study design was adapted so CHWs could distribute pills and condoms during their routine visits because participants requested contraceptives from CHWs, suggesting some intention formation occurred among participants.²⁵³ Therefore, the study's results represent the combined effect of the **training, communication materials**, and direct provision of family planning methods.

Potential application of behavioral economics approaches

While the patient herself (in concert with her partner and family) must determine her desired birth spacing, a provider who counsels on ideal spacing can provide an initial moment of choice for the woman or couple to consider spacing and potentially instill an intention to avoid pregnancy by increasing her perception of pregnancy risk. Behavioral economics approaches could motivate a provider to initiate such a conversation and could provide framing more likely to be effective with a woman on reasons for spacing and contraceptive options, as evidence suggests that provider biases around women's marital status and current family size may affect the quality of counselling.^{250,254} The patient would then need to decide whether to use contraception and accept a method, perhaps even concurrently. If a woman did not accept a method immediately, a provider could still create a plan or appointment to provide the patient with a contraceptive method. These conversations could be especially effective when women have reasons to return to a health facility after an initial conversation, for example for PNC or children's immunizations.

Conclusion

Behavioral economics holds promise in increasing the frequency and quality of provider counseling on spacing.

Provider counsels women on communicating with partner about family planning

Potential link between provider behavior and health outcomes

Male partner involvement in family planning can help ease and accelerate the use of contraception, particularly in cultures where men are the primary decision-makers in the household.²⁵⁵ One avenue to increasing men's involvement is to encourage partner communication such that men are included in learning and making decisions about contraception. Providers may contribute to this dynamic in different ways, whether by counseling women on communicating with their partners about family planning or by engaging men in couples counseling. Despite this potential, there is limited evidence on the effectiveness of providers engaging women to discuss with their partners as tied to family planning uptake, and a recent evidence review on couples counseling noted both the need for more evidence as well as the great variation in approaches and definitions of couples

counseling.²⁵⁶ One study in Jordan, for instance, found no significant difference in outcomes between counseling women alone or counseling couples together.²⁵⁷ Furthermore, most research focuses on efforts that engage men or couples directly (i.e., patient-facing interventions) rather than efforts that examine provider behavior as a driver for male engagement. Therefore, it is difficult to establish a definitive link between this provider behavior and family planning outcomes.

Interventions focused on this behavior

While there is an ever-growing body of interventions that seek to increase male engagement, there is a dearth of literature on interventions to influence provider behavior as it relates to encouraging male engagement or couples counseling. Engaging partners is often mentioned in counseling job aids and other tools, but we did not identify explicit interventions that seek to affect how providers frame these messages or increase couple communication. Additionally, while a recent evidence review highlighted literature on couples counseling interventions, it noted the lack of practical guidance on integrating it with other services, which could include changing provider behavior to provide this service or to conduct couples counseling more effectively.²⁵⁶

Potential application of behavioral economics approaches

The decisions made and actions taken to facilitate men's involvement in family planning are complex and may only tangentially involve a provider. A provider would need to determine to counsel a woman about communicating with her partner or counsel a couple together, and then do so. Behavioral economics approaches could motivate the provider to counsel, for example by addressing bias about what may be effective or by reducing discomfort around the conversation. Behavioral economics approaches might also be used to improve the quality of counseling, for example by framing messages to motivate women to discuss with their partners. However, women who were counseled alone would then need to decide to speak with their partners and follow through on this intention instead of deferring this action or changing their minds, resulting in potential for drop-off on the patient side. Couples counseling could provide a more promising avenue for a provider to increase family planning uptake, and behavioral economics could be

used to optimize this counseling in cases where men have contact with providers.

Conclusion

Behavioral economics approaches could help improve provider behavior to give effective counseling to engage men when men frequently attend family planning counseling or have contact with providers at other times, though it is unclear whether this would affect family planning uptake.

Provider counsels women on a full suite of methods

Potential link between provider behavior and health outcomes

Myths and misconceptions about contraception and a lack of awareness about the available methods are often identified as barriers to contraception uptake.²⁵⁸ Thus, providers can play a role in improving uptake of methods by providing accurate information, answering questions, and guiding patients to select the best methods for them. Quality family planning counseling enables providers to play that role and has been shown to increase uptake of contraceptive methods.^{244,250,257,259} While structural barriers such as stock-outs and scarcity of time may affect a provider's ability to counsel women on a full suite of methods, evidence also suggests that behavioral approaches can address other critical barriers that hinder optimal counseling.²⁶⁰ For instance, while provider counseling can play an important, positive role in helping women choose the best method for them, provider bias and assumptions may limit counseling on methods. For example, some providers may believe LARCs are only appropriate for multiparous women.^{250,261} Providers may also choose to counsel women on methods that are simplest for them to provide or methods that require minimal effort from the patient due to bias regarding her capacity for proper use. Focusing on provider behavior to ensure that women are counseled on a full suite of methods therefore seems to hold promise to increase family planning uptake given the importance of quality counseling.

Interventions focused on this behavior

Several **job aids** have been developed and implemented to encourage counseling on a full suite of methods. The WHO's *Decision-Making Tool for Family Planning Clients and Providers* is one such job aid. The tool is a 2-sided flipchart, with one side designed as a decision aid to help clients choose a family planning method and the other side a job aid for providers with technical information,

counseling tips, and other guidance. Evaluations in Mexico and Nicaragua found the tool to be useful as both a **job aid** and a **decision aid**.^{246,247} Evidence from Nicaragua suggests that such tools can improve providers' counseling on contraceptive methods. Using this tool, providers worked harder to identify new clients' needs, involve them in the decision-making process, and educate them on their chosen methods more thoroughly.^{4,247} In Tanzania, **mobile job aids** supported providers discussing the full suite of methods. While client and provider reports suggest that the tool improved quality of counseling, only 1 in 10 clients reported discussing the full suite of methods with the provider.²⁶²

Financial incentives for providers tied to indicators around interpersonal communication content have been used in some settings to improve provider counseling behavior, including counseling on family planning methods. In Egypt, an incentive scheme significantly improved the likelihood that providers helped patients choose a contraceptive method, though whether or not providers counseled on a full suite of methods was not necessarily measured, as the intervention sought to improve quality of counseling rather than method uptake in order to protect patient choice.²⁶³

In Indonesia, providers who completed **self-assessment exercises** after a **training** on client-centered counseling improved the quality of their family planning counseling (as compared with providers who only attended training). The self-assessment consisted of a weekly 15- to 20-minute written exercise to reflect on a single client interaction. As a result of this intervention, providers offered more information in longer sessions; the frequency of providers' facilitative communication increased; and clients' questions and satisfaction improved. Providers who attended a **peer-review group** meeting in addition to completing self-assessment showed further improvements in counseling behaviors but no additional increases in client satisfaction.²⁶⁴

⁴Other existing tools include: Population Council's *The Balanced Counseling Strategy Plus: A Toolkit for Family Planning Service Providers Working in High HIV/STI Prevalence Settings*, Johns Hopkins School of Public Health's GATHER guide to family planning counseling; and UK's National Institute for Health and Care Excellence's guidance for LARCs.

Potential application of behavioral economics approaches

The decision to explain the full suite of methods and providers' follow-through on this decision are nearly simultaneous and likely occur within the same clinical interaction. This close timing makes the application of behavioral-economics-informed cues more likely to affect both the decision and action. Evidence shows that knowledge about a method does not affect whether a provider counsels on that method if the provider already holds assumptions about which methods are appropriate for certain woman.²⁶⁵ Behavioral economics approaches could be used to help frame the counseling so that it is less susceptible to provider bias and to minimize hassles for the provider in explaining different methods. Behavioral economics could also shape counseling that effectively expands the choice set of a woman rather than being a rote exercise.

Conclusion

Behavioral economics holds promise in improving provider counseling on the full suite of methods to improve health outcomes when frequent stock-outs of those methods is not an issue.

Provider counsels on condom use

Potential link between provider behavior and health outcomes

The link between condom use and protection against pregnancy and sexually transmitted infections (STIs) as these relate to health outcomes is well-established. For providers to play a meaningful role in increasing condom use, provider counseling must address patient-side behavioral barriers that hinder condom use in the relevant population.²⁶⁶ For example, for adolescents in South Africa, six factors were found to hinder condom use: lack of perceived risk, peer norms, condom availability, adult attitudes toward condoms and sex, gendered power relations, and the economic context of adolescent sexuality. The evidence on the effectiveness of condom counseling on condom usage to prevent pregnancy, STIs, or HIV, however, is not strong.²⁶⁷ That said, there are a number of factors that make the link between this behavior and relevant health outcomes challenging to assess. For one, it is difficult to accurately measure condom use, which often relies on self-reported data prone to social desirability bias.²⁶⁸ Additionally, the effectiveness of counseling on condom use may be different depending on the reason for condom promotion, the target population, and the focus of the counseling session. For instance,

a focus on negotiation skills rather than the benefits of condom usage may be more effective, especially among at-risk groups.²⁶⁹ A meta-analysis found no significant effect of counseling on condom use between study groups for HIV or pregnancy, but did find some effects for other STIs.²⁷⁰ Other research suggests that improving the quality of counseling could further reduce condom failure rates.²⁷¹ This body of research therefore implies that while the current evidence may not strongly support the link between this provider behavior and health outcomes generally, it may be effective for certain health conditions or populations. This highlights the need for additional research to fully understand the impact of this provider behavior on outcomes.

Interventions focused on this behavior

Previous work on condom-use counseling has focused on implementing and evaluating different counseling techniques (e.g., motivational interviewing vs. general health counseling) and their impact on condom use—not necessarily the provider behavior itself or adherence to best practices. One intervention type that has been used to influence provider condom counseling is **job aids**. A common job aid is *The A Toolkit for Family Planning Service Providers* for family planning counseling in areas with high rates of HIV and STIs.^{e,248} This toolkit includes an **algorithm** that summarizes the process for the provider, **counseling cards**, and **brochures**. While this toolkit is widely available, there does not appear to be research evaluating its effectiveness for provider behavior specifically or the link between its application and condom usage. Other job aids to support counseling on dual protection, such as PATH's counseling job aid, have been developed for use by CHWs and peer educators.²⁷² These job aids include **checklists** for providers to prepare for their outreach visit or deliver counseling as well as **messaging guides** to address client objections. It does not appear that research on the effectiveness of these aids has been conducted.

Trainings are another common intervention that have been used to change provider behavior around counseling on condoms. Many different resources to facilitate this training exist, including K4Health's Condom Use

^eThe initial version of this toolkit has been updated and expanded. The most recent version of the toolkit, *The Balanced Counseling Strategy Plus: A Toolkit for Family Planning Service Providers Working in High HIV/STI Prevalence Settings* (Third Edition) is available at: <https://www.popcouncil.org/research/the-balanced-counseling-strategy-plus-a-toolkit-for-family-planning-service>

Toolkit. The impact of these trainings on provider behavior does not seem to have been researched rigorously.

Potential application of behavioral economics approaches

While a provider may counsel patients on condom use, the decision and action to use condoms must be undertaken by the patient, repeatedly and consistently. That said, provider counseling may be effective in helping form an intention or overcoming behavioral barriers on initial use by patients, for example by instructing on proper use or addressing perceived norms around condom use. Behavioral economics could be used to cue a provider to counsel on condom use and choose the right framing to facilitate the patient’s engagement with counseling. Where CHWs are trained in condom promotion, behavioral economics approaches could help support their work with patients to overcome barriers to initiation and to support consistent use.

Conclusion

Behavioral economics appears to hold some promise as to ensuring and enhancing providers’ counseling on

condom use to improve outcomes when user fees for condoms are not a barrier for patients and when 1) CHWs are trained in condom promotion and effective in encouraging consistent use or 2) existing patient-facing interventions are effective in encouraging consistent use upon initial provider counseling.

3.6 Provider behaviors with greatest behavioral economics potential

The preceding summaries described the connections between provider behaviors and ultimate health outcomes, characterized existing evidence on provider-oriented interventions addressing the behavior, and assessed the potential for solutions informed by behavioral economics. The following 11 behaviors were determined to hold great promise for enhancement with behavioral economics approaches (Table 2).

TABLE 2. PROVIDER BEHAVIORS WITH GREATEST BEHAVIORAL ECONOMICS POTENTIAL

FAMILY PLANNING	HIV/AIDS TESTING AND TREATMENT ADHERENCE	NUTRITION IN CHILDREN UNDER 2 YEARS OLD	MATERNAL, NEWBORN, AND CHILD HEALTH	MALARIA
Provider counsels on a full suite of methods	Provider initiates testing and counseling in a health facility	Provider encourages breastfeeding within 1 hour after delivery	Provider follows best practices during facility-based delivery	Provider conducts microscopy or rapid diagnostic test
Provider counsels women in unions on spacing	Provider delivers community-based testing services according to best practices		Provider gives essential newborn care immediately after facility-based birth	Provider prescribes quality-assured ACT with correct dosage for confirmed malaria cases
	Provider performs voluntary assisted partner notification services			
	Provider initiates appropriate HIV care immediately after a diagnosis is confirmed			

4 Cross-Cutting Insights and Applications

While all individual health behaviors have unique dimensions that merit independent assessment, many behaviors in the health field are interlinked. These linkages provide opportunities for impacting multiple behaviors or identifying places where lessons can be leveraged to influence programming on different behaviors. On the programming or service-delivery side, integrated services are a clear, long-standing example of supporting patients and/or providers to overcome barriers related to one health-seeking behavior by integrating its delivery with another service for which there is already a clear touchpoint. In the behavior-change field, research on gateway behaviors presents another model for understanding the interconnectedness of behavior.²⁷³

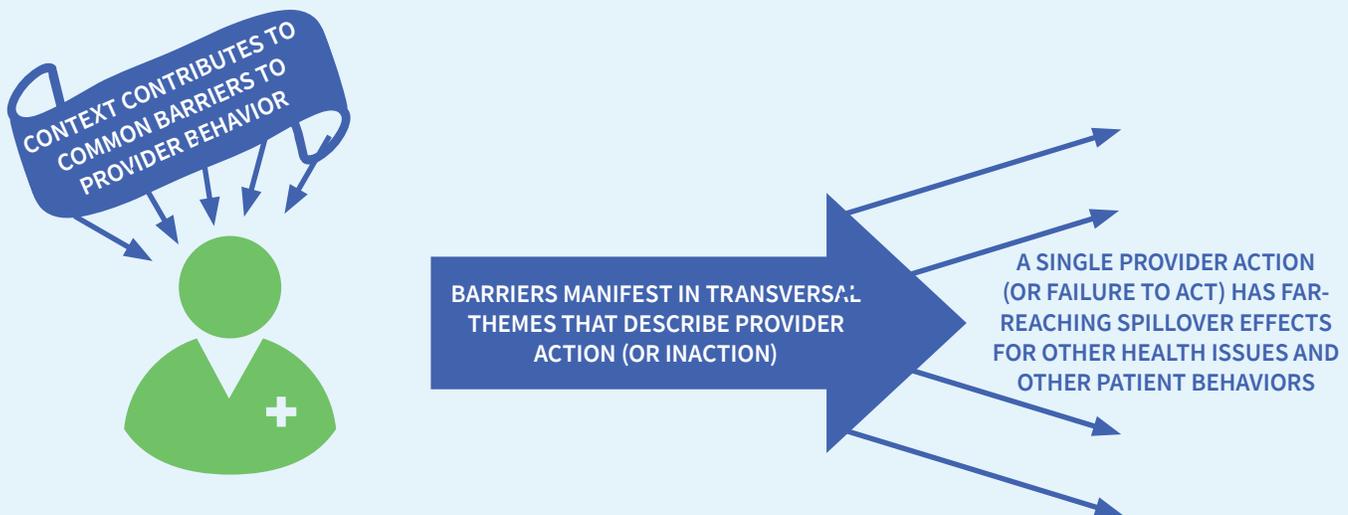
Provider behavior change is particularly ripe for generating cross-cutting applications, as individual health providers typically offer a wide range of services and do not always conceive of their role from the narrow lens of individual health areas. The Health Communication Capacity Collaborative began through a 2016 review²⁷⁴ to unpack some of the cross-cutting applications of relevance to provider behavior and specifically to identify cultural, attitudinal, and motivational factors that may impede provider behavior. We build on this analysis with

a more granular examination of the common underlying behavioral drivers (contextual and psychological) at the root of these issues, which informs our discussion of where and how they may arise elsewhere. We also build on the Integrated Gateway Model for health behavior²⁷³ by unpacking the contextual features that influence providers' behavior at gateway moments and identifying behavioral insights that help explain why a patient's experience in a particular gateway moment may be uniquely powerful.

This section explores the cross-cutting insights and applications that may arise across provider behaviors, focusing on the 27 provider behaviors discussed in this report and considering three different angles (Figure 1): common behavioral barriers, transversal themes, and spillover effects. These cross-cutting insights become particularly valuable in the shift from insights about provider behavior toward solutions that drive particular desired behaviors.

- **Behavioral barriers** hold health care providers back from acting as they should (and in some cases, as they intend to) in their roles of providing information, guidance, and clinical services to patients. These

FIGURE 1: BARRIERS, TRANSVERSAL THEMES, AND SPILLOVER EFFECTS



barriers arise from features of the context in which providers live and work that trigger universal psychological tendencies. Very similar barriers may appear across quite different provider behaviors, triggered by similar contextual features. Understanding how cues in one context contribute to a behavioral barrier for a single provider behavior can generate insights into how a similar barrier might arise elsewhere for a different provider or a different behavior. An example of a behavioral barrier could be **status quo bias**, which is a psychological tendency to resist change.

- **Transversal themes** are the common manifestations of various barriers in the way providers act. An understanding of when and how transversal themes result from behavioral barriers opens the door to applying components of one solution to another health issue or behavior. An example of a transversal theme is **provider motivation**, which may be the result of different barriers working together.
- **Spillover effects** include insights on how increasing uptake of a health service may increase the likelihood of future interactions with the health system in a way that could affect other health outcomes by directly or indirectly surmounting patient-side barriers through provider behavior change. A single provider behavior often has far-reaching effects on patient behaviors that it does not directly touch. Understanding the spillover effects of provider behaviors allows us to focus our efforts on the most impactful behaviors (and interventions) and eventually to move toward more comprehensive solutions that support provider behavior more broadly.

This section reviews each of the three cross-cutting dimensions in turn and ends with an analysis of which provider behaviors may show most promise to generate cross-cutting insights.

Common hypothesized barriers

Behavioral barriers arise from features in a person’s context that cue certain biases or psychological tendencies. The result is a decision or action (or failure to decide or act) that is not optimal and cannot be fully explained by structural factors and rational economic decision-making. Because behavioral barriers are rooted in context, they are often unique and context specific. However, in many cases similar barriers tend to arise across types of behaviors from features that are common to many

contexts. This section describes 10 such barriers, which we hypothesize to be present throughout the provider behaviors described in this report. The list below is intended to be illustrative rather than exhaustive; there are almost certainly many other barriers that commonly influence providers’ actions.

Health care workers in the developing world often work in a context of profound scarcity: Supplies and resources are limited, and so is providers’ time. The context of scarcity taxes mental bandwidth—attention, cognitive processing, and self-control—in ways that hinder executive functioning.²⁷⁵ Scarcity is a crucial feature of the context that exacerbates a number of the barriers discussed below, making them particularly likely to arise (and to have profound effects on providers’ behavior) in low-resource settings.

One byproduct of this scarcity is that health care workers’ attention is often stretched in many different directions. A single nurse working in a rural health facility, for example, may at one time be tasked with monitoring the condition of a woman who recently gave birth, vaccinating children, and managing patient intake—all while worrying about and fielding questions from the long line of patients waiting for care. We all have **limited attentional capacity**—much more limited than we tend to think.^{276–278} The result is that we tend to miss details without realizing it and to notice only what we expect to see. It’s very difficult for a new or unexpected detail to push through the “noise,” even when it might seem obvious or impossible to miss. Limited attention can lead providers to forget to perform a task or to miss details that we (and they) think they should notice. It is most likely to create barriers when the provider is juggling several tasks and where there are no salient cues to consider that task. For example, a provider may have been trained to counsel an infant’s caregivers on warning signs of common infections, recognize this task as important, and still fail to do so because in the hectic moments of caring for a young child and imparting a wide array of information, they simply forget. Another provider, distracted by the long line of patients waiting for her, may fail to impart important information when counseling an HIV-positive patient on ART or may not dedicate sufficient time to convincing the patient of the importance of beginning treatment immediately.

A related consequence of scarcity is the tendency to **tunnel** attention and effort on what is immediately in front of us. For health care providers, this “tunnel” often

encompasses the immediate patient or task at hand. A provider who sees a pregnant woman for her first ANC visit may tunnel on the clinical advice he is giving the woman and fail to counsel her on when to return for future visits and on the importance of doing so—an important and related piece of information that falls just outside the “tunnel” of his immediate responsibilities to monitor the woman’s and child’s current conditions and provide advice on any pressing clinical needs. Tunneling can also cause providers to focus on the patients who are physically present in the facility at the expense of those who are not, such as a patient who has not come to the clinic for HIV monitoring when they should have.

Busy providers are continually forced to make judgments about what activities are most important and about how to allocate their limited time and effort. In doing so, they face many occasions to assess what drives their patients to act or not act in a particular way, often with limited information about what actually influences patient behavior. These assessments are shaped by various **biases** and may in turn cause providers to underestimate the role that certain actions such as counseling, informing, or encouraging can play in shaping patients’ behavior, with the result that they dedicate less time and effort to those tasks or skip them altogether. One such bias is the tendency to explain and predict others’ behavior by their intrinsic personality traits (such as laziness or lack of interest) rather than by contextual features (such as the information or advice they’ve received), called the fundamental attribution error.²⁷⁹ When providers do not receive salient or clear feedback on the effects of providing counseling or information, it is particularly easy to develop and maintain flawed perceptions of what drives patient behavior. For example, when choosing whether to counsel a new mother on age-appropriate meals, the provider may receive little or no feedback on whether the mother follows through on the guidance. As a result, the provider may find it easy to presume that counseling has no effect and that how the mother feeds her child depends entirely on “the sort of mother she is.” For other types of counseling, the cases in which providers fail to produce the desired behavior in the patient may be recalled with more ease than successful attempts—for example, a provider might hesitate to encourage an HIV-positive patient to speak with his partner if the provider can recall multiple instances when she failed to convince a patient to disclose, even if the counseling has been effective many more times.

Conversely, other contextual cues can generate **overconfidence** about a provider’s effectiveness or understanding of the situation. We all have a tendency to be over-optimistic about our own chances of experiencing positive outcomes, in part because we focus on factors that improve our own chances while failing to recognize the degree to which others also share those factors.²⁸⁰ For a health care provider whose context cues him to focus on the ways in which he is in control, it may be particularly easy to overestimate the degree of that control—for example, overestimating one’s ability to assess a patient’s condition without a diagnostic test.

When we face the possibility of receiving or acknowledging unpleasant information, we tend to **ostrich**, or avoid confronting the bad news, even when doing so would be useful.²⁸¹ A health care provider might avoid broaching the topic of notifying partners of HIV status, for example, if doing so requires him to discuss the patient’s sexual history in a way that violates social norms or is uncomfortable. Similarly, a provider might avoid counseling a patient on a topic if she expects a negative or defensive response. Ostriching can occur even when a provider is not fully aware of the reasons he avoids certain behaviors or conversations, or doesn’t recognize the extent to which the prospect of an unpleasant response is shaping her actions.

Status quo bias is a psychological tendency to resist change, which can make it painful for us to adapt to new processes, rules, or expectations.²⁸² It can be particularly strong when switching entails a cost (even if the cost is trivial) or when it requires the actor to make some express or implied admission that the status quo is not optimal. Uncertainty about some aspect of the change can also increase our preference for what we’re doing now, as the potential risks of changing loom larger in our minds than what we may stand to gain. For health care workers, status quo bias can trigger resistance to using new technologies, adapting to new clinical guidelines, or changing how they allocate time. A CHW might hesitate to comply with new guidelines for index case testing targeting individuals for HIV testing in part because doing so involves an implicit recognition that the way she was approaching testing before was not ideal. The same worker might resist changing her approach to testing because the potential downsides of the shift (failing to test an HIV-positive person who is not identified through the more targeted approach of index testing) loom larger the potential gains (reaching and testing more high-risk individuals). Status quo bias might also lead a provider to

fail to implement a new protocol for essential newborn care because they are deterred by the time and effort it would take to become comfortable with this step; even if they do not disagree with the new protocol, have been adequately trained, and the additional effort is minimal, the hassle of this final step can exert a profound influence.

Mental models (or schemas) are representations we hold of how the world around us works and of our relationship to it. They are unconscious mental structures that are shaped by prior experience and guide us as we navigate decisions and actions.²⁸³ For health care providers, mental models of their own roles may shape perceptions of what is appropriate and important for them to do, while mental models of patients' needs may shape decisions about when, how, and to whom to offer particular services. Those mental models are formed through the training providers have received, what they observe others doing around them, and subtle cues in their environment that reinforce perceptions of how the health system works and the role they play within it. A clinician whose training has focused largely on delivering tests, administering procedures, and prescribing medication may find it difficult to align this mental model of his role with an expectation that he also convinces patients to follow through as needed. It may be easy for this clinician to assume, for example, that the task of convincing a mother to have her child vaccinated falls to a community volunteer and that his role is limited to administering the vaccine. Mental models of target patient populations can shape decisions about who needs certain services. For example, mental models of who is most at risk (which may not align with actual risk profiles) or who is most likely to follow through with treatment can influence whom a provider offers HIV testing to. Because these models have deep roots in providers' lived experiences, simply providing more training or information is often insufficient to correct them.

Our brains strive to reduce ambiguity and to form consistent understandings of people and situations. One result is **halo effects**, which cause us to interpret new information about a person or situation in a way that is consistent with other information we have received.^{284,285} For a health care provider, this might result in being less likely to counsel on warning signs for disease when a child appears healthy in other respects or placing less emphasis on the importance of PNC after an easy delivery.

Transversal themes

It is common for more than one behavioral barrier to be present in a single scenario. The combined influence of barriers manifests in transversal themes that describe the way providers act and give clues for how the context in which they work may influence other decisions and actions. This section highlights four such themes, though others certainly exist.

Provider bias refers to biases that manifest in the way providers interact with patients and the services they choose to provide in a particular case. It can influence who receives what services in what way and has implications for respectful and appropriate care of patients. Notably, provider bias does not always result (although it may result)²⁸⁶ in patients being poorly treated or denied services. The roots of provider bias are complex, stemming from numerous different cognitive biases (systematic errors in memory or evaluation) including attribution bias as well as from other types of barriers. The consequence is that health care services may not be provided optimally to all patients.

Provider bias might, for example, help explain a provider's choice to counsel some but not all HIV-positive patients on disclosing their status to their partners because they make assumptions about who is most likely to follow through or who is most at risk or because the conversation may be particularly uncomfortable with certain types of patients. It might also explain a provider's willingness to counsel adolescents on family planning or the way the provider carries out the conversation, which may be shaped by views about who "should" be having sex, the types of advice adolescents need, and the role they should play as a health care provider in supporting family planning choices among this population.

Provider motivation refers to the degree of motivation providers have to carry out their defined duties as well as to go above and beyond in service of the broader purpose of their role. It includes motivation of volunteer as well as professional cadres of health care providers, recognizing the substantial differences between the two. Motivation determines the level of effort providers are willing to make, their willingness to devote time and energy to tasks they perceive to be outside of their delineated responsibilities, and even how they think about what those responsibilities are. While provider motivation may in large part be explained by structural factors

such as compensation, workload, and training and preparation, there may also be significant behavioral factors at play. For example, the tone and content of feedback providers receive from patients as well as supervisors (and the feedback that is most salient to them) may profoundly influence their mental models of their roles as providers. These mental models can, in turn, influence their motivation to complete certain tasks. As a result, there may be great potential for behavioral science to inform solutions to increase motivation, even when structural changes are not possible.

Provider motivation might, for example, explain a midwife's willingness to devote the time to counseling a new mother on PNC or encouraging breastfeeding, especially if she views these as tasks outside of her core duties that can or should be done by a volunteer. It might also explain a CHW's decisions about how much of their time doing outreach and testing for HIV they dedicate to the hardest-to-reach populations.

A third transversal theme is providers' **navigation of referral systems and coordination** and information sharing between providers within and outside a facility. This interaction is integral to carrying out many of the behaviors described in this report. Providers' willingness and ability to interact effectively with other providers may be influenced by mental models of their own and other providers' roles, by their comfort navigating referrals, and in some cases by patients' mental models of who can and should provide certain services.

Interaction and referrals are particularly important and particularly challenging in the case that coordination between facility-based providers and community volunteers is necessary. This happens whenever one portion of the continuum of care is provided in the community and the other in a facility or when community-based volunteers rely on information from the facility (or vice versa). For example, follow-up with HIV-positive patients who have stopped treatment may be carried out by a volunteer who seeks out the patient in the community based on information provided by the facility and then refers the patient back to the facility to continue care. This relies on providers in the community and facility holding consistent views of their respective roles and dedicating effort to ensuring that there is good coordination and continuity from the patient's perspective.

Uptake of new technology or clinical guidelines by providers is a final transversal theme that describes

providers' willingness to adopt new resources, protocols, and guidance and use them consistently and appropriately. Status quo bias predicts a general resistance to change, but several other behavioral barriers may also help to explain the seemingly paradoxical behavior of providers when presented with new tools that can help them provide care more efficiently or effectively. Providers may react negatively to new technology or guidelines if they contradict mental models of the provider's role or of what appropriate care entails or if providers do not fully understand the implications of these new practices for patient outcomes. In other cases, a provider may procrastinate in taking the steps needed to assimilate new practices as he "tunnels" on the more immediately pressing needs of the patient in front of him.

Hesitance to take up new technology might be seen in a provider's failure to adhere to new guidelines for viral load monitoring of HIV-positive patients that she is less comfortable applying or in failure to counsel patients on the latest best practices related to infant nutrition that she does not fully understand or accept. A provider might fail to apply new guidelines for essential newborn care if she perceives some inconsistency with her prior training or if she views some of the tasks she is asked to carry out as better suited to other providers.

Spillover effects

Potential spillover effects are present in three different manifestations:

Facilitating movement along the treatment continuum, for example by helping patients to progress from HIV counseling and testing to treatment or ensuring that women who attend ANC return to the facility for birth and PNC. Solutions that address barriers arising early in the continuum or relating directly to transition between different stages of care may be particularly relevant to ensure continuity of care.

Creating another touchpoint with the health system through which providers can offer different types of health services, such as offering HIV testing to a young woman who comes to the facility for family planning or counseling a new mother on birth spacing and family planning when she brings her child for vaccinations. Creating additional touchpoints may be most valuable for patients who have limited contact with the health care system (such as youth) or where there are critical health

care needs that patients do not always proactively seek out (such as HIV testing).

Increasing comfort or confidence to seek care for other needs or at later times by offering respectful and patient-centered care that empowers patients to access the health care system for later needs. A positive experience during and immediately after childbirth may cause a woman to more quickly seek care for a sick child months or years later; it may also increase her willingness to visit the facility for subsequent pregnancies.

Behaviors with the most potential for cross-cutting lessons and impact

There are cross-cutting aspects to each of the behaviors we examined in this review, but the potential for cross-cutting insights and applications is particularly great for certain behaviors. For each of the 27 behaviors described in Section 3, we estimated the applicability of common hypothesized barriers, transversal themes, and spillover effects. We classified the following seven behaviors as having the highest potential for cross-cutting applications: at least four common hypothesized barriers shared with multiple behaviors across health areas, at least three relevant transversal themes, and the high likelihood of at least two spillover effects.

TABLE 3: EXAMPLES OF CROSS-CUTTING DIMENSIONS FOR THE SEVEN BEHAVIORS WITH HIGHEST POTENTIAL FOR CROSS-CUTTING INSIGHTS

BEHAVIOR	COMMON HYPOTHESIZED BARRIERS	TRANSVERSAL THEMES	SPILLOVER EFFECTS
Provider initiates appropriate HIV care immediately after a diagnosis is confirmed	<p>Provider doesn't receive salient feedback on effectiveness of referrals and uses faulty heuristics to assess her performance</p> <p>Mental models of what appropriate treatment entails limit what the provider feels she is "able" to do</p>	<p>Biased assumptions about who is most likely to follow through</p> <p>Motivation needed to exert the effort to counsel resistant or confused patients</p> <p>Adoption of new treatment guidelines or comfort treating certain types of patients</p>	<p>Treatment adherence</p> <p>Testing of partners</p> <p>Touchpoint with facility to provide other care</p>
Provider performs voluntary assisted partner notification services	<p>Provider avoids an uncomfortable conversation about patient's sexual history</p> <p>When attention is focused on the patient at hand, provider may not be cued to consider testing and care of others</p>	<p>Biased assumptions about which method of notification is most appropriate for a particular patient</p> <p>Adoption of new guidelines for assisted notification (rather than passive referral)</p>	<p>Testing and treatment of partners</p> <p>Treatment adherence for both partners</p>
Provider encourages four or more ANC visits	<p>Provider's mental model of her role may not include convincing patients to seek care</p> <p>When tunneling on immediate clinical advice, it is easy to overlook future needs</p>	<p>Biased assumptions about who needs ANC most or who is least likely to come</p> <p>Coordination between community-based and facility-based providers</p>	<p>Facility-based delivery</p> <p>Later care-seeking, including for PNC, family planning, care for children, and care for next pregnancy</p>
Provider follows best practices during facility-based delivery	<p>Provider tunnels on needs that she perceives as most urgent and deprioritizes respectful care</p> <p>Steps that do not involve using equipment or documentation are less salient and easy to skip</p>	<p>Biased views of what type of care certain mothers deserve</p> <p>Uptake of new clinical guidelines that are perceived as inconsistent with training or supervision</p>	<p>Later care-seeking for other needs, including for PNC and family planning</p> <p>Facility-based delivery for next pregnancy</p>
Provider gives essential newborn care immediately after facility-based birth	<p>Mental model of the function of the checklist means that certain steps are viewed as optional</p> <p>After a healthy delivery, provider may underestimate how critical newborn care is</p>	<p>Motivation to perform tedious tasks when there's no oversight of compliance</p> <p>Uptake of guidelines that may be perceived as inconsistent with practical experience</p>	<p>Good practices for child nutrition</p> <p>Later care-seeking for other needs</p>
Provider encourages PNC check-up within two days of birth	<p>Tunneling on immediate needs of the mother and baby leads provider to overlook future care-seeking</p> <p>Provider may avoid broaching the topic if it means confronting the mother's resistance to return</p>	<p>Coordination and referrals between community-based and facility-based providers</p>	<p>Good practices for child nutrition</p> <p>Vaccinations</p> <p>Family planning counseling</p> <p>Touchpoint with facility to provide other care</p>
Provider encourages full completion of timely vaccinations for children under two years old	<p>Provider doesn't receive salient feedback on performance, making it easy to assume that performance is adequate</p> <p>Facility-based providers may have a mental model of their role as only administering the vaccine, not encouraging follow-up</p>	<p>Biased assumptions about who needs vaccination most or is least likely to seek it out</p> <p>Outreach by community-based workers and coordination with facility about who has not completed</p>	<p>Family planning counseling</p> <p>Counseling on warning signs</p> <p>Touchpoint with facility to provide other care</p>

5 Gap Analysis

This gap analysis distills the availability and strength of evidence for provider-facing interventions among priority health areas described in Section 3. These interventions include SBC interventions but also other interventions that sought to affect provider behavior after initial clinical skills were in place. Overall, the evidence on these interventions is scant. The interventions that have been studied to date and are included in this review include some behavioral angle or application but do not necessarily use the explicit lens of behavioral economics in their design or evaluation. This more comprehensive approach to compiling interventions allows for the identification of gaps where there are opportunities to develop new interventions informed by behavioral economics and also where there may be promise to enhance existing interventions with behavioral economics approaches regardless of whether or not they were initially conceived as SBC interventions.

The wide variety of provider-facing interventions encountered in this review fall into several general categories informed by a taxonomy of intervention types:²⁸⁷

- **Training and education** interventions reinforce or supplement providers' existing knowledge. While they are common (and frequently recommended by global entities such as the WHO) and some have demonstrated efficacy, the evidence of their impact on provider behavior is mixed. Targeted, repetitive interventions with applied and interactive components where accompanying media and appropriate setting have been carefully considered appear to be most effective.²⁸⁸ While training as a format is not typically viewed as a behavioral economics intervention, different workshops, especially values clarification or mindset interventions, do build on behavioral science research, and training messaging could be enhanced by behavioral economics. Examples of this category cited in the review include provider training on youth-friendly services or training on ART adherence.
- **Managerial approaches** involve supportive supervision, mentorship, or peer support or the implementation of audits, targets, monitoring, or feedback to improve performance. These have been implemented more frequently and have shown more success than other intervention types. While these interventions have often been viewed as health systems strengthening interventions, behavioral economics often employs similar approaches with a more behavioral lens, and some of these approaches do build on behavioral science research. Examples of this category cited in the review include the clinical mentorship program to support adherence to the SCC or targets and accompanying feedback for viral load tests.
- **Institutional process improvements** include checklists or case sheets to enhance provider behaviors across facilities or groups, and **individual process improvements** target individuals' performance through microplanning devices, job aids, and targeted reminders. The limited evidence available for these types of interventions suggests that they are promising, although they have not been implemented or studied as frequently as others. Many of these interventions build on principles from behavioral economics or have been employed by behavioral economics practitioners. Examples of this category cited in the review include job aids for family planning counseling or self-administered provider guides for ICMI.
- **Supplementary patient-facing materials** furnish assistance to providers primarily when they counsel, explain, or otherwise convey information to patients. Few of the programs identified in our review employed these materials. Behavioral economics may employ such approaches when it is clear that patient-side factors affect provider behaviors, and this format may address patient barriers. Examples of this category cited in the review include brochures on condom usage post-counseling or leaflets on pregnancy risk to support spacing.
- **Financial incentives** reward providers for a desired behavior. Few of the programs identified in our review linked financial incentives with the specific provider behaviors of focus, although there is a broader body of evidence on financial incentives for health care providers showing mixed results.²⁸⁹ Behavioral economics may employ incentives as a means to drive behavior change. Examples of this

category cited in the review include performance incentives to increase ANC coverage and facility-based delivery.

For each behavior, we assessed the availability and strength of evidence for existing interventions targeting the behavior. Because our literature review was not comprehensive, we assessed analytical quality according to a simple heuristic.^f Seventeen of the behaviors described in Section 3 have moderate or strong promise for behavioral economics solutions. Further research would be fruitful for all of these behaviors, but consideration of the availability and strength of existing evidence hints at where and how further research may be particularly valuable.

Where existing evidence is **limited or mixed** (see Table 4), research will be particularly valuable to investigate the behavioral barriers at play and to explore and test the potential of behavioral economics approaches. Where evidence is **promising** (see Table 5), further research could be particularly valuable to deepen understanding of the intervention types that show early promise (most have not been evaluated for persistence of positive effects). Further research in these areas could contribute to refinements of interventions from a behavioral economics angle to increase their effectiveness in improving provider behavior.

TABLE 4: INTERVENTIONS WITH LIMITED OR MIXED EVIDENCE OF IMPACT ACROSS ALL INTERVENTION TYPES THAT MAY PARTICULARLY BENEFIT FROM RESEARCH TO DEVELOP BEHAVIORAL ECONOMICS SOLUTIONS

HEALTH AREA	PROVIDER BEHAVIOR
FPRH	Provider counsels women in unions on spacing
FPRH	Provider counsels on condom use
HIV	Provider performs voluntary assisted partner notification services
HIV	Provider communicates results of HIV monitoring to patients
MNCH	Provider encourages full completion of timely vaccinations for children under two years old
Malaria	Provider conducts microscopy or RDT
Malaria	Provider prescribes quality-assured ACT with right dosage

^fWe consider randomized control trials and observational analyses not at risk from selection bias, uncontrolled confounding and other biases as rigorous, while pre-post tests, descriptive analyses, and others do not meet this standard.

TABLE 5: INTERVENTIONS WITH PROMISING SUGGESTION OF IMPACT THAT WARRANT FURTHER EXPLORATION TO ENHANCE EFFECTIVENESS WITH BEHAVIORAL ECONOMICS

HEALTH AREA	PROVIDER BEHAVIOR	INTERVENTIONS WITH INITIAL PROMISE
FPRH	Provider counsels sexually active adolescents on modern contraceptive use	Managerial approaches: multi-pronged approach that includes data reviews, citizen report cards, job aids, and a mentorship program
HIV	Provider initiates testing and counseling in a health facility	Institutional process improvement: supervisory checklist Financial incentives: pay-for-performance scheme related to multiple outcomes
HIV	Provider delivers community-based services according to best practices	Managerial approaches: data monitoring system paired with individualized follow-up
HIV	Provider ensures accurate testing	Training and education initiatives: training of lay providers Managerial approaches: performance standards and checklists combined with supportive supervision
HIV	Provider initiates appropriate HIV care immediately after a diagnosis is confirmed	Managerial approaches: educational outreach accompanied by supervision Institutional process improvement: toolkit including a checklist and authorization letters; 2-part referral forms; ART eligibility screening tool
HIV	Provider regularly monitors viral loads	Managerial approaches: clinical mentorship programs
HIV	Provider counsels if viral loads are not ideal	Individual process improvement: algorithm to guide adherence sessions
Nutrition	Provider encourages breastfeeding within one hour after delivery	Training and education initiatives: training on skills to support mothers during early breastfeeding Institutional process improvement: comprehensive program involving institutional breastfeeding policy, training, and providing support for mothers; checklist and coaching to encourage breastfeeding
Nutrition	Provider encourages exclusive breastfeeding for six months	Training and education initiatives: training on skills and communication combined with messaging and community mobilization Individual process improvement: counseling cards and technical reference guides combined with training
Nutrition	Provider counsels on minimum meal frequency and nutritious, age-appropriate foods	Training and education initiatives: course on complementary feeding Managerial approaches: supportive supervision following self-administered surveys
MNCH	Provider gives relevant information to caregivers on signs, symptoms, and appropriate treatment of immediate risks (such as acute respiratory infections and diarrheal disease)	Managerial approaches: supervisory system (including regular reporting) and peer support groups following training Training and education initiatives: training of CHWs combined with provision of medical supplies
MNCH	Provider encourages four or more ANC visits	Institutional process improvement: performance teams to identify and address gaps
MNCH	Provider encourages facility-based delivery	Managerial approaches: quarterly supervision combined with training Institutional process improvement: performance teams to identify and address gaps Individual process improvement: using birth plans with patients
MNCH	Provider follows best practices during facility-based delivery	Managerial approaches: quarterly supportive supervision combined with training Institutional process improvement: checklist combined with coaching visits; audits and feedback mechanisms; provider recognition; changes to clinical environment
MNCH	Provider gives essential newborn care immediately after facility-based birth	Training and education initiatives: trainings in essential newborn care and resuscitation Managerial approaches: coaching combined with checklist implementation Institutional process improvement: checklist combined with coaching
MNCH	Provider encourages post-natal check-up within two days of birth	Individual process improvement: using birth plans and discussing birth preparedness with patients
Malaria	Provider counsels pregnant women and mothers on the importance of sleeping under an ITN and provides IPTp	Training and education initiatives: retraining on delivery, timing, and dosage of IPTp Managerial approaches: supportive supervision combined with community mobilization

6 Conclusion: The Path Forward

Using these insights for research and impact

Our aim is for insights from this review to be used to inform two types of critical decisions about programming and research on provider behavior change:

- **Designing and adapting programs to maximize impact**, adapting proven solutions to new contexts, employing lessons from the literature to address different challenges, and making strategic decisions about where and how to intervene for maximum impact on health outcomes.
- **Shaping the research agenda to fill critical gaps in understanding of provider behavior**, choosing research projects with an eye toward generating novel and broadly applicable insights, and considering how the results can be applied across contexts, behaviors, and health areas so that the impact of provider-facing behavioral interventions continues to grow.

Considerations for future research

Given the nascent stage of both research and practice in this field, our primary focus is on shaping the research agenda to develop a more robust evidence base. This review provides a first step toward identifying priority research areas based on five considerations:

- 1. Potential for behavioral economics solutions.** For nearly all of the provider behaviors included in this review, there is potential for behavioral economics to impact health outcomes by increasing the likelihood that a provider performs an action or improving the way in which they do so. However, certain behaviors show particularly great potential for behavioral economics solutions because the provider behavior has a strong link to health outcomes and because there is a promising angle from which an intervention might improve provider behavior. Section 3 (Evidence for Behavioral Economics Solutions) identifies 11 such behaviors for which the promise of behavioral economics' approaches focused on providers is particularly great.
- 2. Limited existing research or early promise of impact.** Although none of the provider behaviors or intervention types discussed in this review have been fully explored, the evidence for behavioral economics interventions is particularly sparse for certain provider behaviors. For other behaviors, the evidence suggests that there may be positive impact from behavioral economics interventions, but how and under what circumstances those interventions influence provider behavior is not yet fully understood. In both of these areas, further research will be particularly valuable to uncover new solutions. Section 5 (Gap Analysis) identifies seven such provider behaviors for which the need for additional research is particularly great.
- 3. Shared hypothesized barriers and transversal themes with other behaviors.** Certain behaviors share a particularly large number of hypothesized behavioral barriers with other behaviors, which may manifest in similar ways for other decisions and actions in other health areas. Research that sheds light on how cues in one context hold back provider behavior is likely to be broadly relevant, as it generates insights into how similar barriers might arise elsewhere for a different provider or in another behavior. Section 4 (Cross-Cutting Insights and Applications) identifies seven such provider behaviors that are particularly likely to generate cross-cutting insights.
- 4. Potentially great spillover effects on other health behaviors and outcomes.** Some provider behaviors are particularly likely to result in spillover effects for other health behaviors and outcomes, for example by creating additional touchpoints between individuals and the health system or by offering care at a crucial moment in a way that encourages future care-seeking behavior for other needs. Research that informs a solution to improve these particularly impactful provider behaviors is likely to have far-reaching direct and indirect consequences for health outcomes. Section 4 (Cross-Cutting Insights

and Applications) identifies seven such provider behaviors with high potential for spillover effects.

- 5. The context is conducive to behavioral economics solutions.** Behavioral solutions hold the most promise in certain contexts, such as those where the provider behavior is not currently being performed optimally (with consequent effects for health outcomes) and where the primary barriers are not structural. Section 3 describes potentially relevant structural considerations for each provider behavior, which should be investigated within the context in which research is conducted.

Example: application to formative research in Zambia

ideas42 used the insights generated through this review to select a focus area for formative research on provider behavior change in Zambia. This research, conducted through the Breakthrough RESEARCH project, entails using ideas42's behavioral mapping methodology combined with qualitative fieldwork to refine and validate hypotheses about the relevant behavioral barriers at play. This research will inform our design of a solution to improve provider behavior.

Our research project was scoped according to the five considerations outlined above, which led us to focus on the following behavior: Provider follows best practices during facility-based delivery (Section 3.1).

- 1. Potential for behavioral economics solutions.** Providers' compliance with good practices during delivery has great potential to improve health outcomes for mothers and infants. Because these behaviors happen at a discrete point in time and do not rely heavily on client intermediation or specialized equipment and supplies, there are promising angles through which providers' behavior may be influenced by behavioral interventions.
- 2. Limited existing research or early promise of impact.** Although there is evidence of positive impact on providers' compliance with good practices during delivery from certain types of interventions (such as trainings), there is limited evidence on other types of interventions. There is particularly little evidence on interventions to promote respectful care, suggesting that formative research in this

area has potential to contribute meaningfully to the knowledge base.

- 3. Shared hypothesized barriers and transversal themes with other behaviors.** Insights uncovered through research on this behavior are likely to be applicable to other provider behaviors across a range of health areas. For example, this research may generate broadly applicable insights into how providers perceive tradeoffs between urgent clinical needs and respectful care, the influence of provider bias on how different types of patients are treated, and how providers make (and remember) choices about new clinical guidelines.
- 4. Potentially great spillover effects on other health behaviors and outcomes.** The experience during childbirth is likely to have a particularly strong impact on how the mother perceives the health system and quality of care at the facility she attends. A positive, respectful experience may lead her to be more likely to return for PNC and to be quicker to seek care for a sick child months or years later; it may also increase her willingness to visit the facility for subsequent deliveries.
- 5. The context is conducive to behavioral economics solutions.** Despite the country's relatively high rates of facility-based birth (67%),²⁹⁰ maternal^g and neonatal^h mortality in Zambia are high. Although progress has been made in reducing both in recent years, they remain substantially higher than Sustainable Development Goal targets.^h Some of the leading causes of maternal and neonatal mortality, including hemorrhage, infection, and asphyxia, are avoidable with adherence to good clinical practices during and immediately following birth.²⁹³ However, there is evidence of gaps in adherence to recommended clinical practices during routine and emergency obstetric care in Zambia.^{294,295} There is also evidence that providers skip tasks even when the necessary supplies and equipment are available (i.e., that structural barriers are not always relevant).²⁹⁵ Moreover, there is evidence that providers frequently fail to provide respectful care during facility-based delivery.^{296–298} This suggests that the Zambian context

^gThe 2015 maternal mortality rate in Zambia was 224 per 100,000 live births.^{291,292}

^hSDG target for maternal mortality is under 70 per 100,000 live births by 2030.²⁹¹ SDG target for neonatal mortality is under 12 deaths per 1,000 live births by 2030.²⁹²

is very appropriate for behavioral interventions to improve compliance with good clinical practices and respectful care during facility-based delivery, with consequent benefits for maternal and neonatal health.

Connecting research to impact

The aims of shaping research and maximizing impact are interconnected. As carefully scoped and designed research fills gaps in understanding of behavioral economics approaches to provider behavior change, these lessons can translate to improvements in programming.

FIGURE 2: CONNECTING RESEARCH TO IMPACT

SHAPE THE RESEARCH AGENDA	TO	MAXIMIZE IMPACT
1. Explore behaviors for which there is a promising angle for behavioral economics solutions	Gain insight into the behavioral aspects of the problem	Match behavioral economics solutions to behavioral problems
2. Explore behaviors where there are gaps in research and/or show early promise of impact	Measure the impact of new solutions on provider behavior and health outcomes	Adapt solutions with proven success
3. Target behaviors sharing hypothesized barriers and themes with other behaviors	Unpack the specific barriers and themes within behaviors	Extrapolate learnings from one provider behavior to others
4. Consider potential spillover effects on other health behaviors and outcomes	Measure spillover effects from improving a provider behavior	Choose programmatic focus to maximize overall impact
5. Identify a conclusive context for BE solutions (i.e., challenges are not primarily structural)	Validate behavioral and structural aspects of the context	Design for both behavioral and structural barriers

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4301 Connecticut Ave., NW | Suite 280
Washington, DC 20008
+1 202 237 9400
breakthroughactionandresearch.org