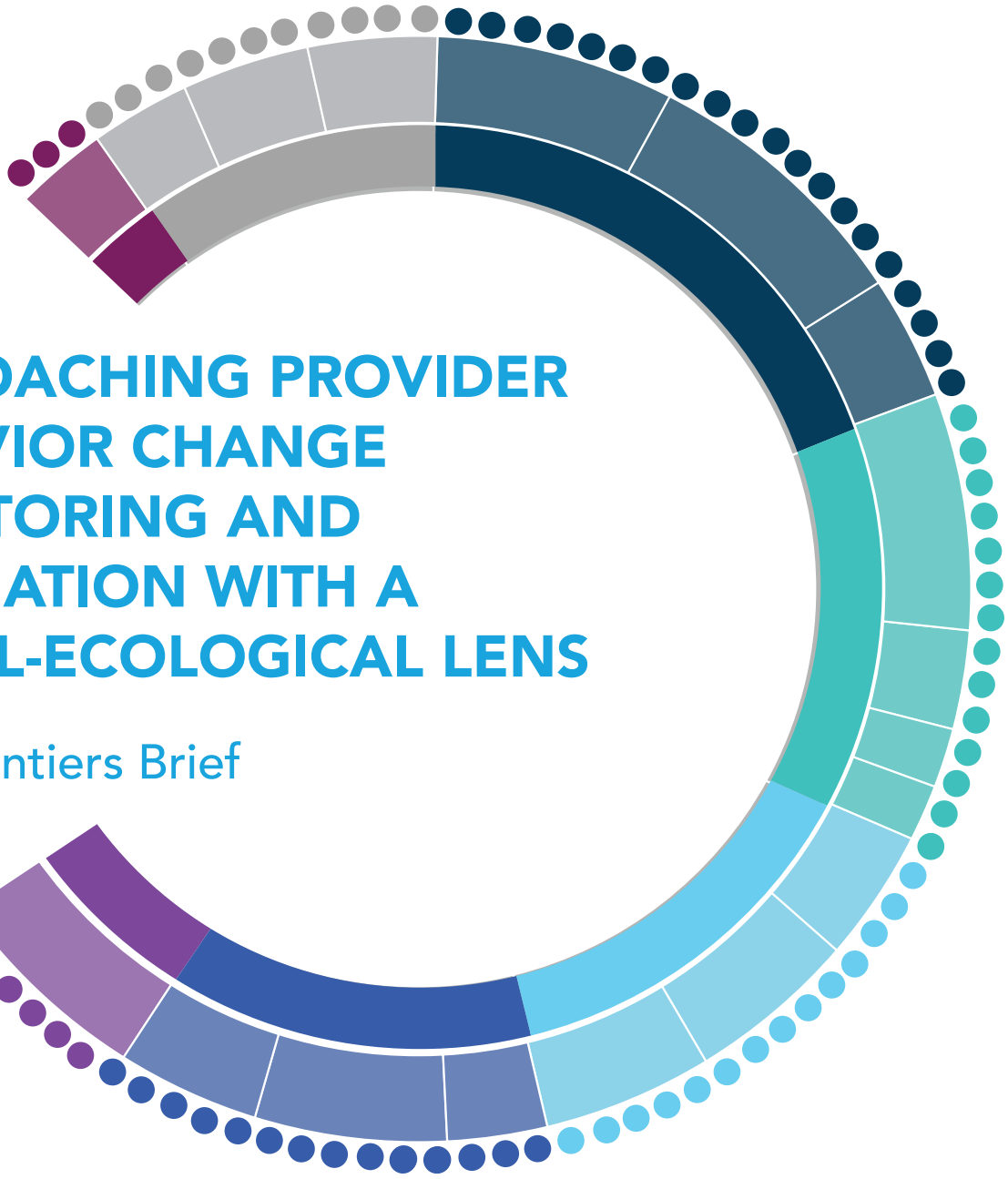


APPROACHING PROVIDER BEHAVIOR CHANGE MONITORING AND EVALUATION WITH A SOCIAL-ECOLOGICAL LENS

New Frontiers Brief

USAID
FROM THE AMERICAN PEOPLE

Breakthrough ACTION
FOR SOCIAL & BEHAVIOR CHANGE

This resource is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of Breakthrough ACTION and do not necessarily reflect the views of USAID or the United States Government.

ACKNOWLEDGMENTS

This brief is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of Breakthrough ACTION and do not necessarily reflect the views of USAID or the United States Government.

The authors gratefully acknowledge USAID staff and the following colleagues and partners for their technical review and valuable contributions to earlier drafts: Albert Casella (Breakthrough ACTION, Johns Hopkins Center for Communication Programs (CCP), Bethany Arnold (USAID, Public Health Institute), Hope Hempstone (consultant), María Elena Figueroa (Breakthrough ACTION, CCP), and Shani Turke (Jhpiego). They also acknowledge the researchers who conducted the desk review that informed content for this brief: Nandita Kapadia-Kundu (Breakthrough ACTION, CCP) and Elijah Olivas (Johns Hopkins University Bloomberg School of Public Health).

Finally, the authors extend acknowledgment to Julia Barrett for editing and proofreading and Mark Beisser for graphic design.

Recommended citation: Wilkins, D., Hancock, H., & Huffman, B. (2024). Approaching provider behavior change monitoring and evaluation with a social-ecological lens. Breakthrough ACTION.

ACRONYMS

CCP	Johns Hopkins Center for Communication Programs
CEI	Client Exit Interview
DHS	Demographic Health Surveys
EHR/EMR	Electronic Health/Medical Records
FGD	Focus Group Discussion
FP	Family Planning
HIC	High-Income Country
HIS	Health Information Systems
HMIS	Health Management Information System
IDI	In-depth Interview
LMIC	Low- and Middle-Income Country
M&E	Monitoring and Evaluation
PBC	Provider Behavior Change
PBE	Provider Behavior Ecosystem
PMA	Performance Monitoring for Action
RH	Reproductive Health
RMNH	Reproductive, Maternal, and Newborn Health
SBC	Social and Behavior Change
SMS	Short Message/Messaging Service
SRH	Sexual and Reproductive Health

PURPOSE

This brief builds on Breakthrough ACTON's suite of Provider Behavior Change (PBC) tools, which support the application of a social-ecological lens to the design and implementation of PBC interventions. This suite of tools consists of the Provider Behavior Ecosystem (PBE) Map and the Provider Behavior Change Toolkit. The map visualizes the complex interplay of factors that influence health care provider behavior across the ecosystem in which providers operate, and the toolkit provides a step-by-step process for the design and implementation of complexity-aware PBC interventions through multi-stakeholder partnership (Box 1). Although the tools focus on family planning and reproductive health (FP/RH) service delivery and use related examples, they can be applied more broadly to other health areas. This broader application is important given how commonly FP/RH providers offer services across health areas, especially in integrated service delivery.[1–3]

Box 1. Provider Behavior and Provider Behavior Change Interventions

Provider behavior refers to what providers do and do not do in their professional capacity. It includes behaviors before, during, or after an interaction with a client in the health facility or other service delivery setting.[4]

Provider behavior change interventions aim to positively shape and influence provider behavior by reducing barriers and challenges to behavior change and strengthening facilitators and opportunities for behavior change.[4]

As the title indicates, this brief explores the new frontiers of applying a social-ecological lens to the monitoring and evaluation (M&E) of PBC interventions (Box 2). It uses the organizing structure of the PBE Map to discuss insights, findings, and recommendations (Figure 1). This brief is designed for program planners and implementers working at the intersection of health systems strengthening, service delivery, and social and behavior change (SBC), or otherwise working to understand and improve provider behavior through PBC interventions.

Box 2. What is Monitoring and Evaluation?

Monitoring and evaluation is a continuous process throughout the life of a program or intervention for collecting and analyzing data for use in program planning and project management. Monitoring is integral to evaluation because the data enables accurate assessment of program impact.

Monitoring of a program or intervention involves the collection of routine data that measure changes in performance over time and progress toward achieving objectives. Its purpose is to inform decision-making regarding the effectiveness of programs and the efficient use of resources.

Evaluation "measures how well the program activities have met expected objectives and/or the extent to which changes in outcomes can be attributed to the program or intervention."[5]

To learn more, consult these resources: M&E Fundamentals: A Self-Guided Minicourse and How To Develop a Monitoring and Evaluation Plan.

BACKGROUND

Evidence from the SBC field underscores that individual behavior change is more likely to be sustained when supported by social and structural change.[6,7] Providers need the ecosystem in which they operate to be conducive to facilitating the behaviors that enable them to deliver high-quality, respectful care.[4,8,9] Previous efforts to leverage programmatic approaches to improve provider behavior and client health outcomes, including the Provider Behavior Change Implementation Kit, do not comprehensively account for the complexity of the providers' real-life situations. Applying a social-ecological lens helps program planners and implementers consider this reality. By embracing complexity, they can work to identify and measure structural, social, and behavioral determinants of provider behavior across the ecosystem. With this information, they can then determine what types and combinations of interventions and strategies positively influence provider behavior at each level of the ecosystem.[8]

PBC interventions that are designed and implemented using a social-ecological lens must be monitored and evaluated through the same lens. To better address the uncertain and changing nature of the ecosystem in which providers deliver health services, programs need to pair complexity-aware approaches with more traditional approaches for monitoring and evaluating PBC interventions (Box 3).[5]

Box 3. Complexity-Aware Approaches

Complexity refers to "situations in which there is lack of both strong expertise and agreement on what needs to be done. Complexity can result from either complex interventions or environments" (p. 5).[10]

Complexity-aware approaches "take into account the inherently unpredictable, uncertain, and changing nature of complex situations" (p. 5).[10] Examples of such approaches include causal link monitoring, contribution analysis, most significant change, pause and reflect, and sentinel indicators, among others.

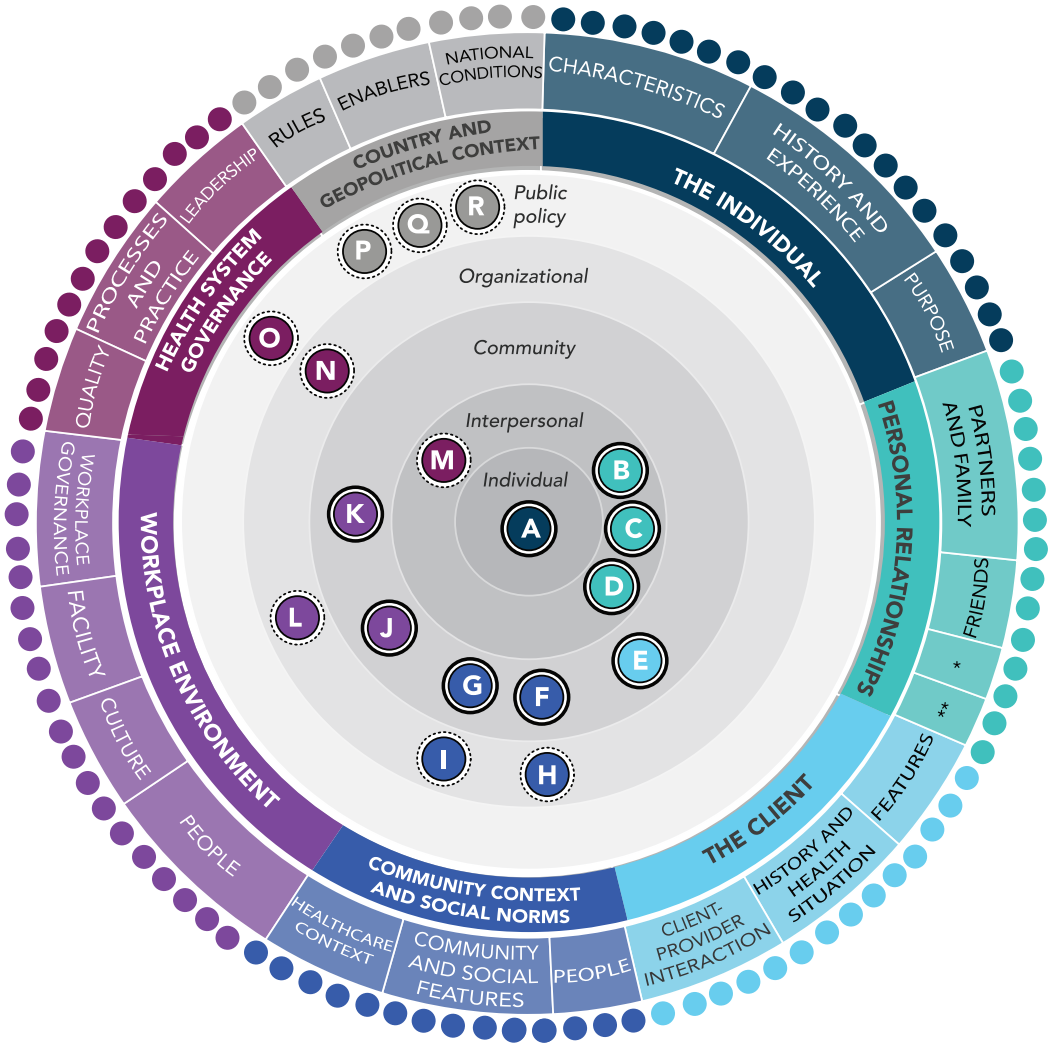
To learn more, consult: A Guide to Complexity-Aware Monitoring Approaches for MOMENTUM Projects.

GUIDING CONCEPTUAL FRAMEWORK

This brief uses the organizing structure of the PBE Map to bring more complexity awareness to the M&E of PBC interventions. The PBE Map is structured according to the socio-ecological model, which depicts the dynamic overlap and interactions between multiple levels of influence and factors (individual/intrapersonal, interpersonal, community, institutional, and societal) that can shape an individual person's behavior.[6,7,11,12] Additionally, the PBE Map integrates thinking from the behavioral drivers model, which maps drivers of behavior across the levels of the socio-ecological model.[7] Notably, the PBE map also embraces a person-centered approach to PBC, placing the provider at the center.[13] This deliberate placement emphasizes the importance of provider well-being and professional fulfillment and recognizes that PBC interventions must strive to generate and sustain the "necessary and sufficient conditions" that enable and support the behaviors that enable the providers' delivery of high-quality, respectful care.[13]

Drawing from both models, the PBE Map presents seven nested concentric levels that influence provider behavior: **The Individual Provider**, **Personal Relationships**, **The Client**, **Community Context and Social Norms**, **Workplace Environment**, **Health System Governance**, and **Country and Geopolitical Context** (Figure 1). To learn more about the ecosystem in which providers operate, consult the Provider Behavior Ecosystem Map and the accompanying brief and guide.

Figure 2: Provider Behavior Ecosystem Map



* Mentors, Colleagues, and Instructors
** Community Leaders

DEVELOPMENT PROCESS

To learn more about how PBC interventions are currently monitored and evaluated, Breakthrough ACTION conducted a desk review of relevant literature and held a technical consultation with practitioners and researchers from around the globe. The desk review, conducted in early 2023, synthesized findings from 70 peer-reviewed articles and gray literature documents. The aim of this desk review was to identify guidance for monitoring and evaluating PBC interventions in FP/RH and related health areas such as maternal, newborn, and child health. Next, Breakthrough ACTION held a technical consultation to gather additional insights and evidence from practitioners and researchers working to positively influence provider behavior around the globe. Twenty-five people participated in the consultation, representing diverse disciplines such as health systems strengthening, service delivery, and SBC. Participants shared their expertise and experience with monitoring and evaluating PBC interventions and brainstormed relevant approaches, methods, tools, and indicators for future consideration and use. This brief reflects insights and findings from the desk review and the technical consultation, as well as recommendations for PBC M&E.

CURRENT STATE OF PROVIDER BEHAVIOR CHANGE MONITORING AND EVALUATION

Insights and findings from the desk review and the technical consultation reveal significant variation in what is known and what is done to monitor and evaluate PBC interventions across the ecosystem. They also reveal notable gaps and challenges in the M&E of PBC interventions at each level of the ecosystem. Importantly, many of these gaps and challenges are not unique to PBC interventions. Challenges such as data triangulation and resource constraints also affect M&E efforts in other areas such as health systems strengthening and service delivery. To learn more about broader gaps and challenges with M&E, consult: Monitoring & Evaluation in Family Planning: Strengths, Weaknesses, and Future Directions.

Given the early stage of this work, the variation, gaps, and challenges are to be expected. This section details cross-cutting and PBE level-specific insights and findings on the current state of PBC M&E.

Cross-cutting insights and findings

- Most M&E work is concentrated at the following levels: **The Individual Provider**, **The Client**, and **Workplace Environment**. Little to no M&E work has been documented at the levels of **Personal Relationships**, **Community Context and Social Norms**, **Health System Governance**, and **Country and Geopolitical Context**.[14,15]
- Clear, consistent definitions of concepts, constructs, and variables related to PBC at each level of the ecosystem are lacking. Such definitions are necessary to develop indicators and frameworks and build complexity-aware M&E systems with relevant approaches, methods, and tools. Current limitations result in imprecise measurement and incomparable data and undermine the development of robust M&E plans and study designs for PBC interventions.[8,9,14]
- Knowing that provider behavior and its determinants are highly context specific and culturally responsive, practitioners and researchers struggle to find a balance between standardization of indicators and data collection tools and contextualization.[14]
- Specific provider behaviors and their determinants tend to be poorly identified and defined. Even when identification and definition are adequate, the behaviors and determinants are not prioritized in a systematic way, such as a Doer/Non-Doer analysis, that guides program planners and designers in focusing M&E efforts.[9]
- Provider behaviors that are disrespectful or abusive are normalized in some cultural contexts and therefore may not be included as measures in PBC M&E.
- Providers themselves are often not involved in PBC M&E, including M&E plan design, data collection and analysis, and related efforts. Their role is often limited to data collection, which can be quite burdensome given their heavy workloads.[14]
- Frameworks and systems are lacking for the collection and triangulation of data from multiple sources to assess PBC interventions across the ecosystem. Multi-stakeholder partnership in data collection, triangulation, and analysis is also lacking, which represents a significant barrier to monitoring and evaluating PBC interventions at each level of the ecosystem.[15]
- Complexity-aware approaches and methods are not adequately leveraged to monitor and evaluate PBC interventions, despite wide recognition of the complexity of PBC with its multi-level influences and factors.
- Commonly used PBC data collection approaches, methods, and tools such as self-assessment and direct observation are prone to biases that can lead to imprecise measurement.

- Qualitative data collection and analysis, although promising, are underutilized due to resource constraints, such as time and funding, around PBC interventions. Consequently, it can be difficult to monitor and evaluate normative change and linkages and pathways between multi-level influences and factors across the ecosystem.

PBE level-specific insights and findings

The Individual Provider

- Most focus is placed on measuring knowledge and skills of providers rather than actual behavior change.
- Individual norms, values, and beliefs are increasingly recognized as having an impact on how FP/RH providers deliver services. In particular, provider bias is a major barrier to FP/RH service delivery that undermines FP method choice.[16–19]
- Recent work proposes how to evaluate attitudes (such as Provider Authoritarian Attitude Scale), bias (such as Beyond Bias Model), and compassion (such as Compassion Measures Toolbox).

Personal Relationships

- Very little has been done to design, implement, monitor, and evaluate PBC interventions focused on the personal relationships that providers have with others, such as intimate partners, family members, friends, and colleagues.
- The lack of access to individuals with whom providers have personal relationships makes it difficult to develop relevant PBC interventions and to monitor and evaluate them in a systematic way.

The Client

- Most client-level studies focus on client experiences and client perceptions of providers. Providers rarely have access to information about client experiences and perceptions, which limits the potential of this information to influence PBC.[14]
- Very few studies establish causal linkages between changes in provider behavior and client outcomes in the area of FP/RH, despite evidence that the quality of client-provider interaction affects outcomes such as FP method uptake, continuation, and switching.[20,21]
- Donor-funded and government service delivery programs focus primarily on measuring client experiences, perceptions, and outcomes rather than assessing changes in provider behavior, which is a missed opportunity for evaluating PBC impact.[14]

Community Context and Social Norms

- Few community-level or normative interventions aim to change provider behavior, despite evidence that normative interventions are effective in changing clinical behavior in diverse service delivery contexts.[22] As a result, scant evidence is available regarding the impact of such interventions on provider behavior.
- Social accountability mechanisms have emerged as one way to connect community initiatives with PBC.[14]

Workplace Environment

- Most M&E efforts at the workplace environment level focus on providers' perceptions.[14] Fewer studies directly evaluate the impact of workplace-level interventions on provider behavior or assess causal relationships between workplace-level influences and factors and provider behavior.[23,24]
- Most normative interventions are implemented at this level and seek to change clinical behavior by exposing providers to the values, beliefs, attitudes, or behaviors of a reference group or person.[22] These interventions often evaluate clinical behavior as a primary outcome and client health outcomes as a secondary outcome. Evidence shows potential for scale-up to a large population of providers.

Health System Governance

- Most studies do not have an appropriate sample size for detecting statistically significant effects of large-scale, systems-level interventions on provider behavior.
- The systems-level lens is broadly missing from PBC M&E efforts, although some efforts link human resource management and guideline adherence with quality of services.[25,26]

Country and Geopolitical Context

- National-level studies with policy analyses exist, but few consider providers and PBC or even attempt to identify linkages and pathways to provider behavior.[14]
- The geopolitical context remains grossly underrepresented in PBC interventions and is missing entirely from M&E efforts.
- National or population-based studies, such as Performance Monitoring for Action (PMA) surveys, often do not include providers as a unit of measurement.

The desk review and technical consultation also sought to understand current and potential **approaches** and **methods** for monitoring and evaluating PBC interventions at each level of the ecosystem (Box 4).

Box 4. Defining Approach and Method

Approach and method are fundamental concepts for M&E design and implementation that are defined as follows.

An **approach** is more abstract and conceptual and refers to how an issue is perceived and understood. It can be theoretical, thematic, methodological, or chronological.

- Oftentimes the approach(es) for M&E design and implementation will follow those used in the same intervention; however, other approaches can and should be adopted to measure impact more accurately. Examples of methodological approaches include **complexity-aware approaches** (Box 3) and the **public health approach**, which "involves defining and measuring the problem, determining the cause or risk factors for the problem, determining how to prevent or ameliorate the problem, and implementing effective strategies on a larger scale and evaluating the impact."[27] Additionally, **quantitative and qualitative approaches** allow practitioners and researchers to gather, interpret, and triangulate data according to resource constraints. Where possible, mixed-methods approaches—mixing both quantitative and qualitative methods—is encouraged to achieve greater insights and enhance applicability.

A **method** is more concrete and specific and refers to what will be done to investigate an issue and how. It is always organized, structured, and systematic. Various examples of data collection and data analysis methods are provided in this brief (Table 1 and Annex 1).

Table 1 compiles PBC-related data collection methods and data analysis methods. The list is not exhaustive. It represents both what has been used and what might be used—as suggested by consultation participants—in an attempt to expand thinking around PBC M&E across the ecosystem. The table also identifies the relevant level in the ecosystem. Refer to **Annex 1** for a more detailed version of this table.

Table 1. Measurement Across the Provider Behavior Ecosystem: Data Collection and Data Analysis Methods

Name	Ecosystem Level
Data Collection Methods	
Client exit interviews	**Individual Provider**, **Client**, **Workplace Environment**
Digital data mechanisms	**Individual Provider**, **Client**, **Workplace Environment**, **Health System Governance**
Direct observation	**Individual Provider**, **Client**, **Workplace Environment**
District action monitoring	**Health System Governance**
Facility assessments	**Workplace Environment**, **Health System Governance**
Facility audits	**Workplace Environment**, **Health System Governance**
Feedback boxes	**Individual Provider, Client**, **Community Context and Social Norms**, **Workplace Environment**
Focus group discussions	**Individual Provider**, **Personal Relationships**, **Client**, **Community Context and Social Norms**, **Workplace Environment**, **Health System Governance**, **Country and Geopolitical Context**
In-depth interviews	**Individual Provider**, **Personal Relationships**, **Client**, **Community Context and Social Norms**, **Workplace Environment**, **Health System Governance**, **Country and Geopolitical Context**
Incident investigations	**Individual Provider**, **Client**, **Workplace Environment**, **Health System Governance**
Mystery clients	**Individual Provider**, **Client**, **Workplace Environment**
National quality improvement checklists	**Workplace Environment**, **Health System Governance**
Population-based surveys	**Client**, **Health System Governance**, **Country and Geopolitical Context**
Provider hotlines	**Individual Provider**, **Workplace Environment**
Provider performance reviews	**Individual Provider**, **Workplace Environment**, **Health System Governance**
Provider self-assessments	**Individual Provider**
Social accountability mechanisms	**Individual Provider**, **Community Context and Social Norms**
Social listening and social monitoring	**Individual Provider**, **Personal Relationships**, **Client**, **Community Context and Social Norms**, **Workplace Environment**, **Country and Geopolitical Context**
Social network analysis	**Personal Relationships**, **Community Context and Social Norms**
Supervision checklists	**Workplace Environment**, **Health System Governance**
Vignettes	**Individual Provider**, **Client**, **Workplace Environment**
Data Analysis Methods	
Cost-benefit analysis	**Health System Governance**, **Country and Geopolitical Context**
Discourse and rhetoric analysis	**Health System Governance**, **Country and Geopolitical Context**
Doer/non-doer analysis	**Individual Provider**

Name	Ecosystem Level
Donor/funding stream analysis	**Health System Governance**, **Country and Geopolitical Context**
Electronic medical record analysis	**Workplace Environment**, **Health System Governance**
Geospatial analysis of policy	**Health System Governance**, **Country and Geopolitical Context**
Most significant change	**Individual Provider**, **Client**, **Community Context and Social Norms**, **Workplace Environment**, **Health System Governance**
Positive deviance analysis	**Individual Provider**, **Personal Relationships**, **Community Context and Social Norms, Workplace Environment**
Public policy analysis	**Health System Governance**, **Country and Geopolitical Context**

CHARTING NEW FRONTIERS IN PROVIDER BEHAVIOR CHANGE MONITORING AND EVALUATION

Still in its early stage, the application of a social-ecological lens to the M&E of PBC interventions deserves more focus and attention. This section outlines cross-cutting and PBE level-specific recommendations for advancing and strengthening the application of this lens to PBC M&E going forward.

Cross-cutting recommendations

Leverage and triangulate existing data. Identify what data already exists or is routinely collected at each level of the ecosystem and manage continuous access to data sources. Given resource constraints, program planners and designers must be creative in gathering and triangulating existing data from multiple sources. Data triangulation will also help illuminate linkages and pathways across multi-level influences and factors that can be integrated into PBC M&E efforts. To this end, it can be useful to adopt complexity-aware approaches and methods that are more likely to gather data across multiple levels of the ecosystem. For example, conducting journey mapping with providers and clients can illuminate how issues and challenges experienced at these two levels connect with higher levels, such as **Workplace Environment**, **Health System Governance**, and **Country and Geopolitical Context**.[28–30]

Develop and validate frameworks, indicators, and tools. It is essential to develop and validate frameworks, indicators, and tools that strike a balance between standardization and contextualization. Frameworks, indicators, and tools developed in high-income country (HIC) contexts are disproportionately represented in M&E efforts; more development and validation in low- and middle-income country (LMIC) contexts are necessary to improve their accuracy and applicability. For example, measures around compassionate care[31] and cultural competence[32] are more abundant in HICs than in LMICs, which invites more exploration and translation of these critical elements of high-quality, respectful care across diverse LMIC contexts. Additionally, an intersectionality framework should be integrated into PBC M&E and then applied to all levels of the ecosystem. At the levels of The Individual Provider, The Client, and Community Context and Social Norms, the framework can be applied to gain understanding of how intersecting identities shape and influence the provider-client interaction and any relationship to the surrounding community context with its social and gender norms.[33,34] The framework can also be applied to examining how guidelines and practices at the levels of Workplace Environment, Health System Governance, and Country and Geopolitical Context affect providers differently according to their intersecting identities, generating unfair advantages for some and disadvantages for others.[33,35]

New frameworks, indicators, and tools should be built on existing materials and be applicable to specific program goals and objectives. Moreover, promoting shared definitions for key concepts, constructs, and variables within PBC M&E will strengthen data collection and analysis. **Box 5** provides examples of indicators, indices, and scales that can be applied to PBC M&E efforts across the ecosystem. For a more detailed (although not exhaustive) collection of illustrative indicators, see this sheet.

Box 5. Potential Indicators, Indices, and Scales Across the Provider Behavior Ecosystem

The Individual Provider

- Gender Attitudes Scale: A scale that examines providers' attitudes towards gender roles and norms and their perceptions of male and female clients attending reproductive, maternal, and newborn health (RMNH) services. This scale has been used in conjunction with the RMNH Quality of Care Scale (below) to examine associations between gender attitudes and support for quality of care.[36]
- Provider Authoritarian Attitude Scale: A scale that measures authoritarian attitudes related to provider attitudes toward clients, their professional roles, and client gender roles.[37]

Personal Relationships

- Multidimensional Scale of Perceived Social Support: A 12-item scale that measures providers' perceptions of support from three sources: family, friends, and intimate partners.[38]
- Watts Connectedness Scale: A scale that measures "connectedness" as a construct: connectedness to self, others, and the world.[39]

The Client

- Jefferson Scale of Patient Perception of Physician Empathy: A scale that assesses clients' perceptions of empathy in client-provider interaction.[40,41]
- RMNH Quality of Care Scale: A scale that evaluates providers' experience of RMNH service provision and quality of care, as well as clients' experiences and perceptions regarding access to RMNH services and quality of care.[36]
- Social Support Index: An index that assesses the type and amount of support provided to pregnant women by partners, family members, women companions, and community members.[42]

Community Context and Social Norms

- Impact of Social Norms Interventions: An indicator that measures PBC following social norms interventions by calculating the percentage of providers observed complying with target behavior after intervention.[22]

Workplace Environment

- Availability of inputs: Basic FP/RH equipment and supplies: An indicator that measures the availability of basic FP/RH equipment and supplies (e.g., insertion device, stethoscope, speculum, sphygmomanometer, thermometer, weighing scale).[14,43]
- Perceived Supervisor Support Scale: A scale that measures the belief held by an employee that their supervisor is committed to them, values their continued employment, and is generally concerned about their well-being.[44]
- NEAR Organizational Compassion Scale: A scale that explores how compassion is demonstrated and perceived across an organization using the NEAR construct (noticing, empathizing, assessing, responding).[45,46]

Health System Governance

- Provider perception of quality of medical education and training: An indicator that measures provider perception by calculating the percentage of providers who perceived deficiencies in medical education and training among providers surveyed.[47]
- Human Resource Management and FP Quality Indices: A collection of indices for evaluating human resource management (FP training in past year, in-person supervision in past six months, and existence of a written job description) and quality of FP service delivery (reproductive history taking, physical examination, prevention of sexually transmitted infections, and method-specific contraceptive counseling).[26]

Country and Geopolitical Context

- Alignment and harmonization with international FP/RH service delivery regulations: An indicator that measures the number of international health regulations (relevant to FP/RH service delivery) to which a country is signatory.[14]
- National healthcare spending on FP/RH service delivery: An indicator that measures the percentage of national healthcare spending allocated to FP/RH service delivery.[14]

Involve providers and other key stakeholders in the development and testing of M&E approaches, methods, and tools. Provider engagement in M&E is fundamental for the success of PBC interventions. Stronger provider engagement in the M&E process supports closer alignment with the reality of service delivery in all its complexity. In addition to provider engagement, multi-stakeholder partnership is strongly recommended. can reveal unique experiences and perspectives around PBC interventions and advance awareness and understanding of linkages and pathways between multi-level influences and factors across the ecosystem, especially between lower and higher levels. Involving stakeholders that can represent each level of the ecosystem can further support exploration of these linkages and pathways.

Learn and adapt from other areas. Valuable insights and learnings can be gleaned from related areas, such as health systems strengthening with its focus on quality improvement. In addition to providing examples of relevant M&E approaches and methods, they offer frameworks, tools, and indicators that can be applied or adapted to PBC M&E. New and emerging technologies from other areas can also be used to enhance M&E efforts with more efficient and accurate data capture. For example, electronic health records (EHRs), District Health Information Software 2 (DHIS2), mobile health applications, or data collection software such as ODK (formerly Open Data Kit) or KoboCollect can streamline data entry, reduce errors, and facilitate data sharing.

Strengthen partnerships, localization, and advocacy for sustained investment in PBC M&E across the ecosystem. Mapping and engaging diverse partners and stakeholders in data collection, triangulation, and analysis are necessary for PBC M&E across the ecosystem. Routine data collection and sharing within health systems require sustained partnerships between diverse partners and stakeholders, including government officials, private sector actors, implementing partners, community members, health care professionals, and health care providers. These partnerships also present opportunities to strengthen localization through capacity-strengthening activities around M&E efforts such as data collection, analysis, and use. Program planners and designers may need to advocate for dedicated resources for M&E efforts, especially in the case of more time- and resource-intensive studies needed to examine causal relationships between PBC interventions, provider behavior, and client outcomes. Advocacy efforts may also include making the case for M&E at different levels of the ecosystem.

PBE level-specific recommendations

The Individual Provider

An important first step is expanding and refining individual-level PBC M&E beyond the narrow focus on knowledge and skills. M&E efforts should also delve into attitudes, perspectives, self-efficacy, autonomy, and skills application in providers' professional capacity. Specifically, programs could test the Provider Authoritarian Attitudes Scale in new health care settings[37] or apply the Kirkpatrick Model to better assess results from training initiatives.[48] Another need is to better assess the gender competency of individual providers and invite them into the assessment process.[49] Tools such as A Provider Self-Assessment Tool to Measure Gender Competency for Family Planning Services allow providers themselves to explore their awareness and knowledge of gender as it relates to client-provider interactions and service delivery more broadly.[49]

Similar to clients, providers also experience challenges in navigating health systems and services. The Breakthrough RESEARCH Power Framework can be used to understand how domains of power are differentially experienced based on a specific provider's position and function within the health system.[50] Additionally, journey mapping is a novel methodology more often used to understand client experiences that can also be applied to examine provider experiences.[28–30] Additionally, this methodology can support identifying linkages and pathways between multi-level influences and factors as providers visualize the service delivery process and identify issues and challenges across the levels of the ecosystem.

Personal Relationships

Providers are people, first and foremost. As such, they are influenced and affected by personal relationships with intimate partners, family, friends, colleagues, and others. Given the absence of M&E work at this level, future efforts should prioritize exploring how PBC interventions can better account for personal relationships and how they affect provider behavior. Identifying and addressing the personal relationships that most influence provider behavior can create opportunities to better support providers in their professional capacity. The Breakthrough RESEARCH Power Framework is one such valuable tool, serving to categorize and comprehend the complex gender and power dynamics between providers and others, such as colleagues, clients, and community members.[50,51] Similarly, social network analysis or network mapping can yield valuable insights into the specific individuals and mechanisms through which personal relationships affect provider behavior.[52]

The Client

To better understand how clients' characteristics and interactions with providers affect provider attitudes, biases, communication styles, and recommendations, it is essential to expand measurement at the client level. We must move beyond simply measuring satisfaction or understanding client perspectives, and experiment with approaches to link changes in provider behavior to changes in client behavior and outcomes. Programs can consider creative ways to build on existing client feedback mechanisms to better capture how feedback affects provider behavior. The consultation highlighted several potential approaches for collecting client feedback and tracking it over time, including the Most Significant Change Method and digital methods such as interactive voice response or short message/messaging service (SMS). Data should be shared with providers to enhance awareness and encourage behavior change, which will foster a reciprocal feedback mechanism.

The importance of assessing provider compassion to improve provider-client interactions was another notable finding from the research and consultation. We recommend exploring tools within the Compassion Measures Toolbox, and applying them in various health care settings.[53] The toolbox offers options for providers, clients, and organizations, including compassion measures, with references for measurement and testing.

Community Context and Social Norms

Social and gender norms are more frequently addressed in the SBC field than in health systems strengthening and service delivery. SBC approaches, methods, and tools can be applied or adapted to assess PBC interventions addressing social and gender norms and other community-level influences and factors. For example, social

listening and social monitoring can be used to monitor and evaluate the effects of community-level and normative interventions on provider behavior.[54] Program planners and designers could leverage qualitative methods such as vignettes to monitor and evaluate how interventions addressing this level influence provider behavior, or they could more systematically gather data during community dialogue processes. Community Score Cards have also demonstrated significant promise and can be used to track changes in provider behavior as a chosen metric.[55]

Workplace Environment

A need exists for complexity-aware M&E systems and study designs that permit the evaluation of workplace-level influences and factors on provider behavior over time. Time-motion study methodologies can be leveraged to assess how long it takes an individual to complete a task to an established degree of quality, which supports workload distribution.[56]

In addition to other issues and challenges in service delivery, providers regularly experience stress, anxiety, fatigue, and distress that not only negatively affect their well-being and resilience but can also lead to burnout if left unchecked. Existing tools such as Building Health Worker Resilience: A Toolkit to Protest Against Burnout on the Front Lines, which includes a measures library and an evidence library, can be consulted to inform development and/or selection of methods, approaches, tools, and indicators that directly assess the degree to which PBC interventions at this level support providers in navigating and reducing their negative emotional experiences and in adopting and sustaining resilient behaviors.[57] As this tool and others are consulted, relevant indicators can be applied to PBC M&E, such as the Maslach Burnout Inventory,[58,59] Provider Effort: Caseload per Health Provider,[43] and Provider Effort: Provider Absenteeism.[43] Additional indicators that can be considered include those gauging the degree to which providers feel supported by different colleagues, including administrators, supervisors, staff, and other providers, as well as teamwork performance across these groups.

Another important goal is to identify opportunities to integrate these indicators into routine data collection at this level. Health facility assessments such as the Service Provision Assessment present a strategic opportunity to better integrate assessment of provider well-being and resilience and teamwork. Clinical supervision observation and checklists are another example of routine data collection that can be used to assess provider-related indicators.

Health System Governance

To address the gap in M&E efforts at the health system governance level, program planners and implementers must develop M&E systems and study designs to capture system-level data in a more timely and accurate manner. Complexity awareness is integral to understanding how large-scale, system-level interventions can affect provider behavior. Additional research is needed to develop frameworks that will support the selection of the most appropriate approaches, methods, tools, and indicators for M&E at this level. A practical starting point for indicators could be to measure the uptake and use of national-level guidelines, such as clinical practice guidelines, and assess their influence on provider behavior, perhaps by mapping guidelines to specific behaviors and then assessing the prevalence of these behaviors and the degree of adherence to them. Another approach could be to survey providers regarding issues and challenges they experience in service delivery as a result of systemic issues[47] or build on current human resource management efforts (Box 6).

Health management information systems (HMIS) and health information systems (HIS) collect health-related data from government-run facilities and can be better utilized in M&E efforts at this level. These systems are already consulted and used to improve system-level decision making and quality improvement among governments and their partners. PBC M&E efforts should strive to incorporate existing HMIS and HIS data and align their data collection timelines to the greatest extent possible. To ensure the effective use and application of HMIS and HIS data, staff training and capacity strengthening can be provided to program staff, partners, and stakeholders, such as health facility administration managers and district health teams. The Health Information System (HIS) Stages of Continuous Improvement (SOCI) Toolkit can be used to assess national-level HIS.

Box 6. Linking Health System Governance Factors to Quality of Services

Thatte and Choi[26] explored the effects of human resource management on the quality of FP and sexual and reproductive health (SRH) services in Kenya. Their study measured the quality of service provision by assessing the interactions initiated or engaged in by providers, thus assessing individual-level behavior, while using characteristics of the management atmosphere as predictor variables. Thatte and Choi constructed indices for quality in four different areas of FP/SRH service provision—reproductive history taking, physical examination, prevention of sexually transmitted infections, and method-specific contraceptive counseling—and then operationalized them through data on FP consultations available from the 2010 Kenya Service Provision Assessment. Quality scores were then analyzed as functions of three binary predictor variables concerning human resources management: FP training in the past year, in-person supervision in the past six months, and the existence of a written job description. While most of the human resource management/quality pairs were not significantly associated, the construction of indices using data available from secondary sources is a robust and transferrable approach for the measurement of FP/SRH service provision.

Country and Geopolitical Context

Abstract contextual factors, such as national stewardship of health systems strengthening, are well suited for policy analysis. The alignment of policy analysis with provider behavior can be improved through the utilization of national-level datasets on provider behavior, rather than relying solely on evaluations of a limited number of providers or facilities within a country. Furthermore, program planners can leverage existing national and population-based surveys (e.g., DHS, PMA) for collecting data on providers, their behavior, and client-provider interactions. These surveys can provide a wealth of information and insights, allowing for a more comprehensive understanding of how national-level influences shape provider behavior and the quality of service delivery.

CONCLUSION

The reality of service delivery is vastly complex, and applying a social-ecological lens to PBC interventions acknowledges that complexity. As program planners and implementers continue to apply this lens to the M&E of PBC interventions, they will become increasingly knowledgeable and skilled in identifying structural, social, and behavioral determinants of provider behavior; clarifying linkages and pathways between multi-level influences and factors; and developing and adapting complexity-aware approaches, methods, indicators, and tools for monitoring and evaluating PBC interventions at each level of the ecosystem. Charting new frontiers in the M&E of PBC interventions means embracing complexity and learning our way forward through capacity strengthening, partner and stakeholder engagement, and sustained advocacy and investment.

REFERENCES

1. High Impact Practices in Family Planning (HIP). (2021). *Family planning and immunization integration: Reaching postpartum women with family planning services.* USAID. https://www.fphighimpactpractices.org/briefs/family-planning-and-immunization-integration/

2. Hoppes, E., Rademacher, K. H., Wilson, L., Mahajan, T. D., Wilson, K., Sommer, M., Solomon, M., & Lathrop, E. (2023). Strengthening integrated approaches for family planning and menstrual health. *Global Health, Science and Practice, 11*(5), Article e2300080. https://doi.org/10.9745/GHSP-D-23-00080

3. Newmann, S. J., Zakaras, J. M., Tao, A. R., Onono, M., Bukusi, E. A., Cohen, C. R., Steinfeld, R., & Grossman, D. (2016). Integrating family planning into HIV care in western Kenya: HIV care providers' perspectives and experiences one year following integration. *AIDS Care, 28*(2), 209–213. https://doi.org/10.1080/09540121.2015.1080791

4. Breakthrough ACTION. (2021). *Provider behavior ecosystem system map guide*. https://breakthroughactionandresearch.org/wp-content/uploads/2022/01/Provider-Behavior-Ecosystem-Map-Guide.pdf

5. MEASURE Evaluation. (2017). *Complexity-aware methods*. https://www.measureevaluation.org/resources/publications/fs-17-217/at_download/document

6. Kincaid, D. L, Figueroa, M. L, Storey, D., & Underwood, C. (2020). A socio-ecological model of communication for social and behavioral change. USAID, Breakthrough ACTION. https://breakthroughactionandresearch.org/wp-content/uploads/2020/12/socio-ecological-model-of-communication-for-sbc.pdf

7. Petit, V. (2019). *The behavioural drivers model: A conceptual framework for social and behaviour change programming. UNICEF*. https://www.unicef.org/mena/reports/behavioural-drivers-model

8. Breakthrough RESEARCH. (2023). *How to measure provider behavior change impact*. https://breakthroughactionandresearch.org/wp-content/uploads/2023/01/BR_HowTo_MeasurePBC_Brief.pdf

9. Hancock, H., Carlson, O., Hempstone, H., Arnold, B., Hoffmann, K., Gul, X., & Spielman, K. (2023). Six recommendations for provider behavior change in family planning. *Global Health, Science and Practice, 11*(Supplement 1), Article e2200495. https://doi.org/10.9745/GHSP-D-22-00495

10. MOMENTUM Knowledge Accelerator. (2020). *A guide to complexity-aware monitoring approaches for MOMENTUM projects*. https://usaidmomentum.org/resource/a-guide-to-complexity-aware-monitoring-approaches-for-momentum-projects/

11. Bronfenbrenner, U. (1992). Ecological systems theory. In R. Vasta (Ed.), *Six theories of child development: Revised formulations and current issues* (pp. 187–249). Jessica Kingsley Publishers.

12. Forbes, V. C. B, Dickinson, K. J. M., & Hulbe, C. L. (2022). Applying a social-ecological systems lens to patterns of policy, operational change, and gender participation in a large Aotearoa New Zealand organisation. *Journal of the Royal Society of New Zealand, 52*(5), 539–568, https://doi.org/10.1080/03036758.2021.2012489

13. Kriz, J. (2013). Person-centred approach and systems theory. In J. H. D. Cornelius-White, R. Motschnig, & M. Lux (Ed.), *Interdisciplinary handbook of the person-centered approach: Research and theory* (pp. 261–276). New York.

14. Breakthrough ACTION. (2023). *Consultative workshop: Enhancing provider behavior measurement*. July 26–27, 2023.

15. Dougherty, L., Mathur, S., Gul, X., Spielman, K., Tripathi, V., Wakefield, C., & Silva, M. (2023). Methods and measures to assess health care provider behavior and behavioral determinants in reproductive, maternal, newborn, and child health: A rapid review. *Global Health, Science and Practice, 11*(Supplement 1): Article e2200407. https://doi.org/10.9745/GHSP-D-22-00407

16. Aziz, M. M., & El-Gazzar, A. F. (2023). Provider bias and family planning in Upper Egypt: A simulated client approach. *The Journal of the Egyptian Public Health Association, 98*(1), Article 19. https://doi.org/10.1186/s42506-023-00144-6

17. Camber Collective. (2018). *Provider bias: Provider survey and segmentation findings*. https://thecompassforsbc.org/project-examples/beyond-bias-provider-survey-and-segmentation-findings

18. Pathfinder International. (2022). *Beyond bias practical "how-to guide."* https://www.pathfinder.org/publications/beyond-bias-practical-how-to-guide/

19. Solo, J., & Festin, M. (2019). Provider bias in family planning services: A review of its meaning and manifestations. *Global Health, Science and Practice, 7*(3), 371–385. https://doi.org/10.9745/GHSP-D-19-00130

20. Dehlendorf, C., Krajewski, C., & Borrero, S. (2014). Contraceptive counseling: Best practices to ensure quality communication and enable effective contraceptive use. *Clinical Obstetrics and Gynecology, 57*(4), 659–673. https://doi.org/10.1097/GRF.0000000000000059

21. Kopp, D. M., Rosenberg, N. E., Stuart, G. S., Miller, W. C., Hosseinipour, M. C., Bonongwe, P., Mwale, M., & Tang, J. H. (2017). Patterns of contraceptive adoption, continuation, and switching after delivery among Malawian women. *PLoS One, 12*(1), Article e0170284. https://doi.org/10.1371/journal.pone.0170284

22. Cotterill, S., Tang, M. Y., Powell, R., Howarth, E., McGowan, L., Roberts, J., Brown, B., & Rhodes, S. (2020). Social norms interventions to change clinical behaviour in health workers: A systematic review and meta-analysis. *Health Services and Delivery Research, 8*(41). https://doi.org/10.3310/hsdr08410

23. Tessema, G. A., Streak Gomersall, J., Mahmood, M. A., & Laurence, C. O. (2016). Factors determining quality of care in family planning services in Africa: A systematic review of mixed evidence. *PLoS One, 11*(11), Article e0165627. https://doi.org/10.1371/journal.pone.0165627

24. Nacev, E. C., Greene, M. Z., Taboada, M. P., & Ehrenthal, D. B. (2022). Factors influencing provider behavior around delivery of preconception care. *Maternal and Child Health Journal, 26*(7), 1567–1575. https://doi.org/10.1007/s10995-022-03411-8

25. Naimoli, J. F., Parker, K. A., & Heiby, J. (2014). The centrality of behavior change in health systems development. *Global Health, Science and Practice, 2*(1), 132–133. https://doi.org/10.9745/GHSP-D-13-00170

26. Thatte, N., & Choi, Y. (2015). Does human resource management improve family planning service quality? Analysis from the Kenya Service Provision Assessment 2010. *Health Policy and Planning, 30*(3), 356–367. https://doi.org/10.1093/heapol/czu019

27. Satcher, D., & Higginbotham, E. J. (2008). The public health approach to eliminating disparities in health. *American Journal of Public Health, 98*(9 Suppl), S8–S11. https://doi.org/10.2105/ajph.98.supplement_1.s8

28. Davies, E. L., Pollock, D., Graham, A., Laing, R. E., Langton, V., Bulto, L., & Kelly, J. (2022). Reporting of patient journey mapping in current literature: A scoping review protocol. *JBI Evidence Synthesis, 20*(5), 1361–1368. https://doi.org/10.11124/JBIES-21-00226

29. Davies, E. L., Bulto, L. N., Walsh, A., Pollock, D., Langton, V. M., Laing, R. E., Graham, A., Arnold-Chamney, M., & Kelly, J. (2023). Reporting and conducting patient journey mapping research in healthcare: A scoping review. *Journal of Advanced Nursing, 79*(1), 83–100. https://doi.org/10.1111/jan.15479

30. Sijm-Eeken, M., Zheng, J., & Peute, L. (2020). Towards a lean process for patient journey mapping—A case study in a large academic setting. *Studies in Health Technology and Informatics, 270*, 1071–1075. https://doi.org/10.3233/SHTI200326

31. Sinclair, S., Russell, L. B., Hack, T. F., Kondejewski, J., & Sawatzky, R. (2017). Measuring compassion in healthcare: *A comprehensive and critical review. The Patient, 10*(4), 389–405. https://doi.org/10.1007/s40271-016-0209-5

32. Ahmed, S., Siad, F. M., Manalili, K., Lorenzetti, D. L., Barbosa, T., Lantion, V., Lu, M., Quan, H., & Santana, M. J. (2018). How to measure cultural competence when evaluating patient-centred care: A scoping review. *BMJ Open, 8*(7), e021525. https://doi.org/10.1136/bmjopen-2018-021525

33. Byeon, Y. J. J., Sellers, S. L., & Bonham, V. L. (2019). Intersectionality and clinical decision making: The role of race. *The American Journal of Bioethics, 19*(2), 20–22. https://doi.org/10.1080/15265161.2018.1557289

34. Harrison, R., Walton, M., Chauhan, A., Manias, E., Chitkara, U., Latanik, M., & Leone, D. (2019). What is the role of cultural competence in ethnic minority consumer engagement? An analysis in community healthcare. *International Journal for Equity in Health, 18*(1), Article 191. https://doi.org/10.1186/s12939-019-1104-1

35. Wilson, Y., White, A., Jefferson, A., & Danis, M. (2019). Intersectionality in clinical medicine: The need for a conceptual framework. *The American Journal of Bioethics, 19*(2), 8–19. https://doi.org/10.1080/15265161.2018.1557275

36. Doyle, K., Kazimbaya, S., Levtov, R., Banerjee, J., Betron, M., Sethi, R., Kayirangwa, M. R., Vlahovicova, K., Sayinzoga, F., & Morgan, R. (2021). The relationship between inequitable gender norms and provider attitudes and quality of care in maternal health services in Rwanda: A mixed methods study. *BMC Pregnancy and Childbirth, 21*(1), Article 156. https://doi.org/10.1186/s12884-021-03592-0

37. Breakthrough RESEARCH. (2022b). *Using the provider authoritarian attitude scale*. https://breakthroughactionandresearch.org/wp-content/uploads/2022/09/BR_ProviderAttitudes_TechRef_Brief.pdf

38. Zimet, G. D., Powell, S. S., Farley, G. K., Werkman, S., & Berkoff, K. A. (1990). Psychometric characteristics of the Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment, 55*(3-4), 610–617. https://doi.org/10.1080/00223891.1990.9674095

39. Watts, R., Kettner, H., Geerts, D., Gandy, S., Kartner, L., Mertens, L., Timmermann, C., Nour, M. M., Kaelen, M., Nutt, D., Carhart-Harris, R., & Roseman, L. (2022). The Watts connectedness scale: A new scale for measuring a sense of connectedness to self, others, and world. *Psychopharmacology, 239*(11), 3461–3483. https://doi.org/10.1007/s00213-022-06187-5

40. Hojat, M. (2016). *Empathy in health professions education and patient care*. Springer International.

41. Kane, G. C., Gotto, J. L., Mangione, S., West, S., & Hojat, M. (2007). Jefferson scale of patient's perceptions of physician empathy: Preliminary psychometric data. *Croatian Medical Journal, 48*(1), 81–86.

42. Mamo, A., Abera, M., Abebe, L., Bergen, N., Asfaw, S., Bulcha, G., Asefa, Y., Erko, E., Bedru, K. H., Lakew, M., Kurji, J., Kulkarni, M. A., Labonté, R., Birhanu, Z., & Morankar, S. (2022). Maternal social support and health facility delivery in Southwest Ethiopia. *Archives of Public Health (Archives belges de sante publique), 80*(1), Article 135. https://doi.org/10.1186/s13690-022-00890-7

43. World Bank. (2021). Service Delivery Indicators Health Survey 2018—Harmonized public use data. https://doi.org/10.48529/nkdc-s217

44. Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology, 71*(3), 500–507. https://doi.org/10.1037/0021-9010.71.3.500

45. Mandliya, A., & Pandey, J. (2023). The development and validation of multidimensional workplace compassion scale: Linking its conceptualization and measurement. *Frontiers in Psychology, 14*, Article 1142309. https://doi.org/10.3389/fpsyg.2023.1142309

46. Simpson A. V., & Farr-Wharton B. (2017). *The NEAR organizational compassion scale: Validity, reliability and correlations*. Creative Disruption: Managing in a Digital Age. RMIT, Melbourne, Australia. https://api.semanticscholar.org/CorpusID:55920011

47. Hassa, H., Ayranci, U., Unluoglu, I., Metintas, S., & Unsal, A. (2005). Attitudes to and management of fertility among primary health care physicians in Turkey: An epidemiological study. *BMC Public Health, 5*, Article 33. https://doi.org/10.1186/1471-2458-5-33

48. Kirkpatrick, D., & Kirkpatrick, J. (2006). *Evaluating training programs: The four levels.* Berrett-Koehler Publishers.

49. Andrinopoulos, K., McGuire, C., Namisango, E., Dako-Gyeke, P., Reisz, T., & Wisniewski, J. (2023). *A provider self-assessment tool to measure gender competency for family planning services.* USAID Data for Impact Project, UNC-Chapel Hill. https://www.data4impactproject.org/publications/gender-competency-tool-guidance/

50. Breakthrough RESEARCH. (2022a). *Expressions of power in health care providers' experiences and behavior.* https://breakthroughactionandresearch.org/wp-content/uploads/2022/03/BR_PBC_Power_Brief.pdf

51. Sripad, P., Peterson, S., Idrissou, D., Kamanga, M., Kezembe, A., Ndwiga, C., Okondo, C., Ranjalahy, A.N., Stevanovic-Fenn, N., Warren, C.E., Brady Zieman, B., & Mathur, S. (2023). Applying a power and gender lens to understanding health care provider experience and behavior: A multicountry qualitative study. *Global Health, Science and Practice, 11*(Supplement 1), Article e2200420. https://doi.org/10.9745/GHSP-D-22-00420

52. Smit, L. C., Dikken, J., Schuurmans, M. J., de Wit, N. J., & Bleijenberg, N. (2020). Value of social network analysis for developing and evaluating complex healthcare interventions: A scoping review. *BMJ Open, 10*(11), Article e039681. https://dop.org/10.1136/bmjopen-2020-039681

53. Rao, S., Harris, D., Addiss, D., & Sinclair, S. (2023). Compassion Measures Toolbox (p. 11). Focus Area for Compassion & Ethics (FACE), The Task Force for Global Health (TFGH), Compassion Research Lab. https://drive.google.com/file/d/1sKA0RL95OxkR0QTYH7DApyWOHn8CEU1h/view

54. Breakthrough RESEARCH. (2020). *Informing social and behavior change programs: Using social listening and social monitoring. Breakthrough RESEARCH Programmatic Research Brief.* Population Council. https://breakthroughactionandresearch.org/wp-content/uploads/2020/09/BR_Brief_SocList_Mntrng.pdf

55. CARE. (2023). *Community score card.* https://www.care.org/our-work/health/strengthening-healthcare/community-score-card-csc/

56. Kalne, P. S., & Mehendale, A. M. (2022). The purpose of time-motion studies (TMSs) in healthcare: A literature review. *Cureus, 14*(10), Article e29869. https://doi.org/10.7759/cureus.29869

57. Johnson & Johnson Center for Health Worker Innovation. (2021). The resilience collaborative. https://trc.community/

58. Dyrbye, L. N., Meyers, D., Ripp, J., Dalal, N., Bird, S. B., & Sen, S. (2018). A pragmatic approach for organizations to measure health care professional well-being. *NAM Perspectives.* Discussion Paper, National Academy of Medicine, Washington, DC. https://doi.org/10.31478/201810b

59. Williamson, K., Lank, P. M., Cheema, N., Hartman, N., Lovell, E. O., & Emergency Medicine Education Research Alliance (EMERA). (2018). Comparing the Maslach burnout inventory to other well-being instruments in emergency medicine residents. *Journal of Graduate Medical Education, 10*(5), 532–536. https://doi.org/10.4300/JGME-D-18-00155.1

ANNEX

Annex 1 – Monitoring and Evaluation Across the Provider Behavior Ecosystem: Data Collection and Data Analysis Methods

The table lists and defines methods, identifies the relevant levels of the ecosystem, and provides uses and considerations for PBC M&E. The table lists methods that were mentioned during the consultation or uncovered in the literature review process. This information is intended to be used as a starting point for program designers and implementers to consider methods they could use to monitor and evaluate their PBC interventions. It begins to answer the "what" question, but more work is needed to answer the "how" and determine practical applications.

Name	Ecosystem Level	Description	Uses and Considerations
		Data Collection Methods	
Client exit interview (CEI)	**Individual Provider, Client, Workplace Environment**	This is an interview with clients after they receive care from providers. Topics and issues explored during the interview will vary and often explore the client's perspectives and experiences with care, such as perception of quality and accessibility of care.	These interviews are useful for gathering routine data on the client-provider interaction and the quality, accessibility, and other elements of service delivery from the client perspective. Clients may not always be willing and available to participate in CEIs. It is important to triangulate these data with data gathered from other groups (e.g., providers) to fully assess the client-provider interaction and service delivery.
Digital data mechanisms	**Individual Provider, Client, Workplace Environment, Health System Governance**	This collection of techniques uses digital technologies to gather data from individuals and groups (e.g., providers, clients). Examples of digital technologies include mobile phones and tablets. Specific techniques for data collection include interactive voice response, telephone calls, video calls, chatbots, and SMS/ text messages.	These mechanisms can be used to gather information from different individuals and groups (e.g., providers, clients) regarding client-provider interactions, staff and provider wellbeing and performance, workplace support and resources, client health outcomes, and other topics and issues of interest. Ensuring the security, privacy, and protection of data is critical. It is important to consider the limitations of digital data collection according to context, such as digital accessibility and literacy among the intended population. For example, individuals with the most access to mobile phones and high-speed internet may not be representative of the general population. For surveys conducted via telephone or interactive voice response, limiting the number of questions (up to 12 maximum) can increase the likelihood of a detailed responses from respondents.

Name	Ecosystem Level	Description	Uses and Considerations
Direct observation	**Individual Provider, Client, Workplace Environment**	Trained individuals observe providers during service delivery (e.g., client-provider interactions) and note their adherence to established and documented policies, procedures, processes, and practices. This observation can be done with or without checklists by different individuals (e.g., other providers, clients, community members, facility staff, Ministry of Health officials).	Observations are prone to bias as the awareness of being observed can influence behavior, consciously or unconsciously. One potential strategy to reduce bias is to have anonymous peer "champions" do observation. Because one round or day of observation does not generate sufficient data to draw conclusions, it is recommended to do observation at several sites (10%–20% of all sites) at different time points.
District action monitoring	**Health System Governance**	A type of monitoring that considers how the actions of district health offices influence provider behavior and related issues. For example, tracking harmonization and alignment of provider job descriptions with established guidelines, actions for retaining staff, and health worker data collection and use.	This monitoring can help clarify linkages between district-level actions and provider behavior and support the assessment of district-level interventions. Working with district staff can build and strengthen institutional capacity around data collection and use to inform decision making and resource allocation.
Facility assessment	**Workplace Environment, Health System Governance**	This assessment evaluates the different qualities of the facility, such as staff capacity, infrastructure capacity, and equipment capacity according to established and documented policies, procedures, processes, and practices.	It uses quantitative and qualitative data collection to assess strengths and areas for improvement, as well as facilitators and barriers. Existing assessment tools can be reviewed for use or adaptation to the specific context. More provider-specific items could potentially be added to existing tools to assess changes in provider behavior over time (e.g., DHS Service Provision Assessment).
Facility audit	**Workplace Environment, Health System Governance**	This audit provides a comprehensive review of policies, procedures, processes, practices, and performance at the facility.	Audits can vary according to the topic or issue of interest. For example, a clinical facility audit measures a clinical outcome or process against well-defined standards. Audits are well suited to evaluating the level of compliance of an individual, group, or facility to applicable requirements, as well as facilitators and barriers.

Name	Ecosystem Level	Description	Uses and Considerations
Feedback box	**Individual Provider, Client, Community Context and Social Norms, Workplace Environment**	A method to collect anonymous feedback through boxes placed in strategic locations and advertised to individuals and groups of interest. Individuals submit feedback by placing something (e.g., stickers, tokens, checklist, written feedback) in the box.	It is important to communicate summary findings to facility units and personnel and support feedback uptake to improve service delivery. For example, supportive supervision visits can be used to review feedback and identify opportunities for improvement. Clients should also be informed of summary findings and how feedback is being used to improve service delivery (e.g., debrief meeting with client advisory board). Using feedback boxes at different time intervals can support monitoring and tracking patterns and trends over time. These boxes can be used before, during, and after a PBC intervention to identify changes in provider behavior.
Focus group discussion (FGD)	**Individual Provider, Client, Personal Relationships, Community Context and Social Norms, Workplace Environment, Health System Governance, Country and Geopolitical Context**	A semi-structured small group discussion among key stakeholders (four to eight individuals). Participants usually share similar background or characteristic related to the topic or issue of interest (e.g., professional role, past experience). They can be recruited from similar or diverse groups (e.g., providers, clients, community members, facility staff, Ministry of Health officials, policymakers) to provide different perspectives and experiences.	FGDs require well-trained qualitative interviewers that can navigate group dynamics. Data from FGDs can provide detailed and nuanced understanding of a phenomenon. A high-quality FGD requires a well-trained facilitator who can keep participants engaged. Data collection and analysis can be time and resource intensive. Gathering data through multiple FGS can help mitigate social desirability bias.
In-depth interview (IDI)	**Individual Provider, Personal Relationships, Client, Community Context and Social Norms, Workplace Environment, Health System Governance, Country and Geopolitical Context**	A one-on-one interview about the participant's perspectives and experiences with a topic of interest. IDIs often use a discussion guide to structure the interview and cover relevant information. Participants can be recruited from similar or diverse groups (e.g., providers, clients, community members, facility staff, Ministry of Health officials, policymakers) to provide different perspectives and experiences.	IDIs require well-trained qualitative interviewers, as qualitative questions are often open-ended. Data from IDIs can provide detailed and nuanced understanding of a phenomenon. Often, IDIs strengthen quantitative data because qualitative data help a program understand how and why something is happening. Gathering data through multiple IDIs can help mitigate social desirability bias.

Name	Ecosystem Level	Description	Uses and Considerations
Incident investigation	**Individual Provider, Client, Workplace Environment, Health System Governance**	This type of investigation aims to identify and correct the root causes of an issue. It is a way of learning from real-life incidents in the service delivery context and communicating lessons learned for the benefit of all facility personnel.	Incidents could be compiled, aggregated, and meta-analyzed for patterns and trends to determine the frequency and intensity of incidents and clarify linkages with specific provider behaviors.
Mystery client	**Individual Provider, Client, Workplace Environment**	A method that trains individuals to act as clients and attempt to access services at specific facilities. These individuals then report on their experiences, often completing a survey or interview.	This method can be used to further investigate issues and concerns raised by clients with service delivery, especially with client-provider interactions. This method can be combined with others to expand understanding of particular issues and concerns. Findings should be communicated to facility units and personnel so improvements can be made.
National quality improvement checklist	**Workplace Environment, Health System Governance**	This method uses a nationally approved checklist to quickly determine the extent to which a facility or provider is compliant with established guidelines and standards for quality performance.	These checklists are best suited to capture snapshots of how a facility or provider is performing at different time points. More provider-specific items could potentially be added to existing checklists to assess changes in provider behavior over time.
Population-based survey	**Client, Health System Governance, Country and Geopolitical Context**	This survey collects data on key health indicators at the national and subnational levels. Examples of large-scale surveys include the DHS, PMA, and Multiple Indicator Cluster Surveys.	These large-scale surveys typically focus on client measures (with the exception of the DHS Service Provision Assessment). More targeted surveys can incorporate provider-specific measures. Implementation is time and resource intensive.
Provider hotline	**Individual Provider, Workplace Environment**	A hotline is a direct phone line set up to receive calls or texts from individuals (e.g., providers) seeking information and support with particular issues or concerns. Hotlines are staffed by trained individuals.	Detailed call logs completed by trained individuals can be used to monitor and track the information and support requested by callers and delivered by hotline staff over time. Data collected can be triangulated with other data sources to understand facilitators and barriers to PBC from the perspective of providers.

Name	Ecosystem Level	Description	Uses and Considerations
Provider performance review	**Individual Provider, Workplace Environment, Health System Governance**	This review assesses the work performance of individuals (e.g., providers) work performance against established standards and requirements. It is usually takes place between the individual and their immediate supervisor. Assessment results are often used to inform decision making and resource allocation around internal support and capacity strengthening.	These reviews are conducted at different time points to monitor and track performance over time. Existing performance review templates can be adapted to incorporate more assessment of communication and interpersonal skills and other skills and competencies that are critical to provider behavior. Tools such as scorecards can be used to compile, aggregate, and meta-analyze performance review data across facilities.
Provider self-assessment	**Individual Provider**	This assessment invites individuals (e.g. providers) to evaluate their work performance in written or oral speech. The self-assessment questions reflect established standards and requirements.	Self-assessments can be prone to several types of bias such as overestimation. It is important to combine this method with others when possible. These assessments can be conducted as part of periodic meetings with supervisors, reviewing results from these and other data sources (e.g., CEIs, feedback boxes). This method can empower providers to own the process around their own behavior change and identify facilitators and barriers.
Social accountability score cards	**Individual Provider, Community Context and Social Norms**	These score cards reflect the standards and requirements developed by community members to assess the quality, efficiency, and accountability of service delivery. It considers different elements of service delivery such as staff capacity, infrastructure capacity, and equipment capacity.	As a citizen-driven accountability approach, it is important to allocate sufficient resources to train and support community members in conducting this process and engaging with local government officials and facility units and personnel. Data can be used to monitor and track changes in provider behavior over time, especially around a PBC intervention.

Name	Ecosystem Level	Description	Uses and Considerations
Social listening and social media monitoring	**Individual Provider, Personal Relationships, Client, Community Context and Social Norms, Workplace Environment, Country and Geopolitical Context**	These methods track communication about a particular topic or issue via online sources such as news outlets, blogs, and social media platforms. Social listening tracks the number of mentions and conversation content related to a campaign, initiative, or product. Social media monitoring tracks audience engagement with and reactions to shared messages related to a campaign, initiative, or product.	Information can be used to understand beliefs, attitudes, and behaviors among individuals and groups. Ensuring the security, privacy, and protection of data is critical. It is important to consider the limitations of digital data collection according to context, such as digital accessibility and literacy among the intended population. Data collected is not generalizable to the general population.
Supervision checklist	**Workplace Environment, Health System Governance**	This method involves identifying specific items (e.g., tasks, materials, supplies, equipment) and assessing the degree to which an individual, group, or facility meets all established standards and requirements.	Checklists can be used to document changes in different elements of the facility (e.g., staff capacity, infrastructure capacity, equipment capacity) over time. They can also be integrated into different data collection opportunities (e.g., supportive supervision visits).
Vignette	**Individual Provider, Client, Workplace Environment**	This method engages individuals and groups (e.g. providers, clients) in reviewing and discussing short descriptions of situations or people to elicit their judgment about the hypothetical scenario as a way to explore different service delivery settings.	Vignettes can be used to elicit perceptions, opinions, beliefs, attitudes, as well as explore norms and behaviors. They are well suited to exploring sensitive topics or issues. This method is cost effective. Data collected is not generalizable to the general population.
Data Analysis Methods[1]			
Cost-benefit analysis	**Health System Governance, Country and Geopolitical Context**	It compares the costs and benefits of an intervention in monetary terms. It expresses health and behavioral outcomes in monetary units.	These analyses can be used to explore linkages between the equipment availability and provider behavior. They can also help determine how best to allocate resources to improve provider behavior and expand impact.

[1] The methods listed represent those revealed through the desk review and technical consultation process related to PBC. Other methods such as regression, thematic analysis, decomposition analysis, path analysis, and segmentation analysis, were not explicitly mentioned but could have application for PBC M&E.

Name	Ecosystem Level	Description	Uses and Considerations
Discourse and rhetoric analysis	**Health System Governance**, Country and Geopolitical Context	This analysis examines patterns and trends in real-world language use around a topic or issue of interest. It considers all elements of the discursive and rhetorical situation (e.g., audience, purpose, channel, context). Data sources include interviews, speeches, public policies and legislation, and other examples of written and oral speech.	These analyses can reveal connections between public policies and legislation and provider behavior. The potential exists for assessing provider behavior before and after introduction of new or revised policy or legislation.
Barrier analysis (also Doer/Non-Doer)	**Individual Provider**	This analysis uses survey responses from groups of individuals that perform a specific behavior (the 'doers') and those who do not perform said behavior (the 'non-doers') to determine the most important determinants of that behavior. It calculates the percentage of responses to specific questions and identifies statistically significant differences. Responses with a 15-point difference or higher indicate the most significant determinants of the specific behavior(s).	These analyses are best suited to the formative research phase to improve understanding of the factors influencing provider behavior before designing the PBC intervention. It is critical to recruit enough individuals across both groups (at least 45 in each). It can be difficult to recruit enough 'doers' for the analysis.
Donor/funding stream analysis	**Health System Governance**, Country and Geopolitical Context	This analysis seeks to understand donor ideologies, priorities, mandates, strategies, and policies, as well as resource allocation to specific geographies, initiatives, and health areas.	These analyses can identify gaps and abundance in resource allocation for PBC-focused initiatives. It can also uncover how donors influence health priorities, policies, procedures, processes, and practices that influence provider behavior.
Electronic medical record analysis	**Workplace Environment**, **Health System Governance**	It uses routine health facility data from electronic medical records as its source. Programs may describe the data and test whether there has been a change in key outcomes over time (controlling for exposure to the program).	This method can be used to examine linkages between provider behavior and client health outcomes through triangulation. Advantages include reduced costs since data is already collected, large sample sizes, and adaptability. Disadvantages include limitations related to working with existing data, lack of EMRs in certain countries, and lack of data completeness or availability.

Name	Ecosystem Level	Description	Uses and Considerations
Geospatial analysis	**Community Context and Social Norms**, **Health System Governance**, **Country and Geopolitical Context**	This analysis uses data visualization for systematic policy analysis and scenario modeling. It can visualize the geographic density and distribution of facilities, services, providers, and staff, at various levels (e.g., national, regional, district, local) according to existing public policies and legislation.	This method can reveal issues regarding provider working conditions and service accessibility. It can also clarify linkages between public policies and legislation and provider behavior, as well as facilitators and barriers. Training in geographic information systems, computer-based tools, is necessary to conduct these analyses.
Most significant change	**Individual Provider**, **Client**, **Community Context and Social Norms**, **Workplace Environment**, **Health System Governance**	This participatory process engages individuals and groups in collecting and selecting the stories that they find to represent the most significant change following an intervention. Participants can be recruited from similar or diverse groups (e.g., providers, clients, community members, facility staff, Ministry of Health officials, policymakers) to provide different perspectives and experiences.	This complexity-aware method can measure outcomes at different levels of the social-ecological model. Findings are not generalizable to the general population. The method can be time and resource intensive. Special attention needs to be given to capturing and interpreting negative change.
Positive deviance analysis	**Individual Provider**, **Personal Relationships**, **Community Context and Social Norms**, **Workplace Environment**	This analysis aims to identify individuals and groups that demonstrate exceptional performance on particular measures (the 'positive deviants') and then understand what allows them to achieve this elevated level of performance.	This method may be most useful during formative research so that behavioral and social influences can be considered when designing the PBC intervention. In service delivery settings, the 4Ds framework (Define, Determine, Discover, Design) has been used to monitor and evaluate the effectiveness of interventions informed by positive deviance analysis.
Public policy analysis	**Health System Governance**, **Country and Geopolitical Context**	This analysis assesses the content, implementation, and impact of public policies and legislation on a topic or issue of interest. This method typically compares several policies and laws to identify the most effective and efficient ones for responding to issues.	This analysis has relevant application for PBC M&E. More work is needed to understand how public policy and legislation can affect provider behavior. This analysis offers potential for understanding more structural determinants of provider behavior.

Name	Ecosystem Level	Description	Uses and Considerations
Social network analysis	**Personal Relationships**, **Community Context and Social Norms**, **Workplace Environment**, **Health System Governance**, **Country and Geopolitical Context**	This analysis examines the patterning of relationships among individuals, groups, organizations, and information in a particular context. It uses data about individuals and relationships to understand how the structure and its properties relate to the outcome of interest.	Usually done as a participatory process, this analysis helps to establish a systems lens and reveal hidden influences on the outcome of interest. It can be used to show how health officials, staff, and providers across the health system are connected to one another, or how information flows within a community, among other relationships. It can be conducted before and after a PBC intervention to show changes in the patterning of relationships. Challenges with this method include defining the network and being susceptible to self-selection bias. It often uses data visualization to communicate complex data relationships and data-driven insights, so training in relevant computer-based tools is necessary to conduct analyses.

ANNEX 2 – MONITORING AND EVALUATION ACROSS THE PROVIDER BEHAVIOR ECOSYSTEM: RESOURCES

The table lists resources that can be used for PBC M&E and identifies the relevant levels of the ecosystem.

Name	Ecosystem Level
Categorizing and Assessing Comprehensive Drivers of Provider Behavior for Optimizing Quality of Health Care (Framework for Unpacking Provider Practices)	**Individual Provider**, **Community Context and Social Norms**, **Workplace Environment**, **Health System Governance**, **Country and Geopolitical Context**
Client Exit Interview (CEI) Tool	**Client**
Community Score Card (CSC)	**Individual Provider**, **Community Context and Social Norms**, **Workplace Environment**, **Health System Governance**
Compassion Measures Toolbox	**Individual Provider**, **Client**, **Workplace Environment**,
Compassion Measures Calculator	**Individual Provider**, **Client**, **Workplace Environment**, **Health System Governance**
Defining and Advancing a Gender-Competent Family Planning Service Provider: A Competency Framework and Technical Brief	**Individual Provider**
District Health Information Software 2 (DHIS2)	**Health System Governance**

Name	Ecosystem Level
Expressions of Power in Health Care Providers' Experiences and Behavior (Power Framework)	**Individual Provider, Personal Relationships, Workplace Environment, Health System Governance**
Improving Provider-Client Communication: Reinforcing IPC/C Training in Indonesia with Self-Assessment and Peer Review	**Individual Provider, Personal Relationships, Workplace Environment**
Kirkpatrick Model	**Individual Provider**
Liverpool Brief Assessment System for Communication Skills	**Individual Provider**
Malaria Service Delivery Assessment Tool	**Individual Provider, Client, Community Context and Social Norms, Workplace Environment, Health System Governance**
Management and Leadership Survey; Workplace Climate Survey (Evaluation of Management and Leadership Course for district health managers in Zambia)	**Individual Provider, Workplace Environment, Health System Governance**
Measures Library from Building Health Worker Resilience: A Toolkit to Protect Against Burnout on the Front Lines	**Individual Provider, Personal Relationships, Workplace Environment, Health System Governance**
Perceived Person-Centeredness of Family Planning Services Tool (Annex 6)	**Individual Provider, Client**
Quality of Contraceptive Counseling Scale	**Individual Provider, Client**
Quality of Family Planning Counseling Scale	**Individual Provider, Client**
Safe Childbirth Checklist	**Individual Provider, Workplace Environment**
Schwartz Center Compassionate Care Scale	**Individual Provider**
Social Norms Exploration Tool (SNET)	**Personal Relationships, Community Context and Social Norms**
Standardized Assessment for Evaluation of Team Skills	**Workplace Environment**
Survey of Perceived Organizational Support (SPOS)	**Workplace Environment**
A Tool for Self-Assessment of Communication Skills and Professionalism in Residents	**Individual Provider**
User Guide for the Community Health Worker Coverage and Capacity Tool	**Workplace Environment, Health System Governance**
Vitalk Chatbot	**Individual Provider, Workplace Environment**
Work Productivity and Activity Impairment Questionnaire	**Individual Provider, Workplace Environment**