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CASE STUDY

Building Resilience Through Behavioral Insights: Lessons Learned from the Zoonotic Behaviors Survey in Liberia and Côte d'Ivoire

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Acronyms

CCP	Johns Hopkins Center for Communication Programs
GHS	Global Health Security
PZDs	Priority zoonotic diseases
RCCE	Risk communication and community engagement
SBC	Social and behavior change
ZBS	Zoonotic Behaviors Survey
ZDs	Zoonotic diseases

Introduction and Context

In the complex realm of global health, the concept of health system resilience serves as a guiding principle, emphasizing the ability of health entities, organizations, and communities to navigate crises effectively. Resilience hinges on fostering collaboration across sectors, breaking down traditional silos to create and implement robust preparedness and response strategies. Against this backdrop, Breakthrough ACTION, a global social and behavior change (SBC) project funded by USAID and led by the Johns Hopkins Center for Communication Programs (CCP) in partnership with a consortium of organizations, has been at the forefront of enhancing global health security through evidence-informed risk communication and community engagement (RCCE) interventions.

Operating across 19 countries, Breakthrough ACTION leverages One Health platforms to strengthen health systems and enhance their resilience in the face of emerging infectious disease threats. Diseases that spread between animals and humans, known as zoonotic diseases (ZDs), account for three-fourths of all emerging infectious diseases. Breakthrough ACTION's efforts focus on preventing, detecting, and responding to these diseases as well as addressing other challenges, such as antimicrobial resistance, that threaten global health security.

Human behaviors are at the core of zoonotic disease outbreaks, driving spillover events and accelerating transmission. These same behaviors, however, offer powerful opportunities for prevention. By addressing risky interactions with animals, promoting proper hygiene, and improving vaccination uptake, communities and health systems can disrupt pathways that lead to outbreaks. Yet, without robust behavioral data to guide interventions, health systems are often left in a reactive state, responding to outbreaks rather than preventing them.

Behavioral data is a critical, yet underutilized, resource in zoonotic disease prevention. Effective RCCE—a cornerstone of global health security—depends on understanding the knowledge, attitudes, and behaviors of at-risk populations. However, the lack of standardized behavioral indicators in many settings has hindered efforts to design, monitor, and evaluate interventions.

To address this gap, Breakthrough ACTION developed the Zoonotic Behaviors Survey (ZBS), an innovative tool designed to standardize the measurement of behaviors and behavioral determinants associated with priority zoonotic diseases (PZDs). The ZBS provides actionable data to inform preparedness and prevention programs, establishing a baseline for understanding behaviors related to zoonotic disease risks. Its objectives include:

- Providing baseline insights into knowledge, attitudes, and behaviors related to zoonotic disease prevention.
- Establishing indicators to monitor RCCE activities and evaluate the effectiveness of SBC interventions.
- Informing preparedness, detection, and response programs for diseases

such as rabies, anthrax, Avian Influenza, mpox, Lassa fever, and Marburg fever.

The ZBS was piloted in Côte d'Ivoire and Liberia, two countries with robust global health security (GHS) programs and significant zoonotic disease challenges. Both nations have adopted the One Health approach, integrating human, animal, and environmental health systems to address emerging infectious disease threats. By leveraging the modular design of the ZBS, countries can rapidly adapt and deploy the survey, enabling timely data collection during public health emergencies.

Moreover, the survey is designed to be tailored to national and regional needs. For example, in Côte d'Ivoire, the ZBS aligns with national strategies targeting diseases like rabies and viral hemorrhagic fevers, while in Liberia, it supports the One Health Platform's efforts to strengthen community engagement and preventive behaviors.

By integrating socio-behavioral insights into global health security frameworks, the ZBS strengthens local resilience, supports RCCE strategies, and provides a replicable model for other countries. Every country should establish a baseline for their PZDs to inform routine prevention efforts, enabling them to adapt quickly during heightened disease threats.

Man tending to his goats. Credit: Breakthrough ACTION.

Survey Development Process

The ZBS was developed through a rigorous, collaborative, and iterative process designed to ensure clarity, cultural relevance, and adaptability. The survey incorporated insights from six years of qualitative research on PZDs across seven countries and was developed with input from both internal and external experts. A key feature of the development process was cognitive interviewing, conducted in Côte d'Ivoire and Liberia, which allowed researchers to refine survey questions based on how participants interpreted and responded.

Key adaptations included:

- Simplifying complex terms, such as replacing "susceptible" with locally understood language.
- Incorporating culturally specific expressions and disease names, such as using colloquial phrases to describe zoonotic transmission risks (e.g., "bat eat I eat").
- Adding response options to better capture the diversity of behaviors across communities.

The survey was further validated through expert reviews and consultations with One Health stakeholders, including ministries of health, agriculture, and the environment. These efforts ensured that the ZBS could be quickly adapted to different country contexts, making it a scalable tool for global application.

One Health orientation of the Advocacy, Communication, and Training Technical Working Group, composed of stakeholders from health, agriculture, and environment in Choma, Zambia. Credit: Breakthrough ACTION.

Behind-the-scenes shot from *Drôle de Marché* (Strange Market), a francophone mini-series modeling bird flu and rabies preventive behaviors. Credit: Cori Fordham/Breakthrough ACTION.

Key Findings

The ZBS provided critical insights into the knowledge, attitudes, and practices of communities in Côte d'Ivoire and Liberia regarding zoonotic disease prevention. The survey revealed that while awareness of diseases like rabies was relatively high, diseases such as Marburg fever and mpox were less well-known. This baseline understanding is essential for designing RCCE strategies that focus on raising awareness where needed and emphasizing preventive behaviors.

Key findings included:

- **Barriers to Adoption:** Challenges such as cost and accessibility hindered the uptake of preventive measures like animal vaccination, despite participants recognizing their importance.
- **Determinants of Behavior:** Trust in public health authorities and perceived social norms emerged as critical factors influencing behaviors. For example, communities often relied on peers and local leaders when deciding whether to adopt preventive measures.
- **Actionable Insights:** The survey identified "low-hanging fruit" behaviors—those that could be easily adopted with minimal intervention—and behaviors with significant cultural or socioeconomic barriers, requiring more tailored approaches.

These findings underscore the importance of building trust, tailoring messages to specific audiences, and addressing structural barriers to maximize the effectiveness of RCCE efforts.

Key Insights from Implementing the ZBS in Liberia

The ZBS pilot in Liberia offered nuanced insights into the behavioral drivers of zoonotic disease prevention and response. Self-efficacy stood out as a critical factor, with higher confidence levels associated with specific demographic characteristics, such as age, education, and urban residency. Importantly, gender also influenced behavior: women were more likely to vaccinate dogs and thoroughly cook meat, while men were more inclined to keep animals away afrom eating and sleeping areas. This highlights the need for gender-sensitive interventions tailored to the unique roles and responsibilities within households.

Attitudes toward the effectiveness (response efficacy) and importance of behaviors significantly influenced hygiene practices and emergency responses, such as wearing protective equipment or accepting the burial of sick animals. Perceived risk also played a role, particularly in food preparation behaviors, emphasizing the need for messaging that connects practical actions to personal and community safety.

Crucially, the study found that messaging focusing directly on behaviors—such as washing an animal bite for 15 minutes—was often more impactful than disease-specific education. While understanding diseases like rabies remains essential for care-seeking behaviors, broader communication campaigns should highlight actionable, simple steps to increase adoption. Additionally, descriptive norms strongly influenced behaviors like handwashing, while injunctive norms were more relevant for emergency actions, such as avoiding ritual washing of bodies or wearing masks in crowded areas.

Community trust emerged as a foundational element, with schools, health workers, and scientists viewed as the most reliable sources of information. However, trust levels varied by education, with more educated individuals showing lower trust overall, pointing to the need for diverse, context-specific messengers. By fostering collective responsibility through trust-building and leveraging social norms, public health programs in Liberia can create a stronger foundation for zoonotic disease prevention and response. These insights demonstrate the value of combining structural support, targeted messaging, and trust-building for effective, scalable interventions.

Strengthening community engagement related to rabies prevention in Liberia. Credit: Breakthrough ACTION.

Key Insights from Implementing the ZBS in Côte d'Ivoire

The ZBS in Côte d'Ivoire unveiled critical nuances in behavioral determinants and practices tied to zoonotic disease prevention. A significant proportion of the population displayed awareness of zoonotic diseases, with 70% recognizing the potential for animal-to-human transmission. However, detailed knowledge remained limited, as only rabies, avian flu, Ebola, and COVID-19 were widely identified. This highlights the need for targeted RCCE strategies to expand awareness of lesser-known diseases, such as Marburg fever and mpox.

The survey revealed stark gaps in preventive behaviors, such as low uptake of protective practices when handling animals or their waste. For instance, only 4.2% of respondents used protective equipment during cleanup, and fewer than 15% washed their hands after contact with pets or wild animals. While 82.2% reported washing hands after handling raw meat, practices like avoiding meat from visibly ill or unknown sources were adopted by fewer than 10% of respondents. These findings emphasize the importance of simplifying preventive behaviors and embedding them in daily routines.

In Abidjan, Côte d'Ivoire, congregants practice preventive measures against COVID-19 in a mosque. Credit: Breakthrough ACTION.

Similar to the findings from Liberia, community trust and self-efficacy emerged as pivotal determinants of behavior. Trust in health providers was relatively high (62%), yet reliance on local leaders and peer networks underscored the influence of community-level dynamics in decision-making. Structural barriers, including the cost and accessibility of animal vaccinations, impeded adoption despite widespread recognition of their benefits. For example, only 20.7% of respondents vaccinated their dogs annually, and less than 15% sought advice from animal health agents.

To address these barriers, RCCE interventions should emphasize trust-building measures, such as engaging community influencers and integrating culturally resonant messaging. The findings also underscore the need for systemic changes, including subsidies for vaccines and improved access to veterinary services, to enable sustainable behavior adoption. This dual approach—leveraging behavioral insights and structural interventions—can maximize the impact of zoonotic disease prevention strategies in Côte d'Ivoire and beyond.

Impact on Public Health Programming

The ZBS has transformative potential for public health programming. It equips health professionals with actionable data to design interventions tailored to specific community needs, enabling a more efficient allocation of limited resources. By identifying key behavioral drivers, such as social norms and trust, the survey informs culturally relevant and behaviorally effective RCCE strategies.

The ZBS also establishes standardized behavioral indicators, contributing to stronger monitoring and evaluation frameworks. Metrics such as the "percent of individuals adopting at least one target prevention behavior" provide a quantifiable measure of SBC intervention success. This data enables governments, donors, and implementing partners to track progress, refine strategies, and strengthen global health security.

Furthermore, the modular design of the ZBS allows for rapid adaptation during emergencies, ensuring timely data collection and response. For example, the survey can be tailored to specific diseases and geographic regions, providing critical insights for RCCE programs targeting localized outbreaks.

Lessons Learned and Recommendations

The ZBS highlights several key lessons for future behavioral surveillance efforts:

- **Cultural and Linguistic Adaptations:** Surveys must be tailored to local contexts to ensure accurate and reliable data collection.
- **Local Engagement:** Engaging local stakeholders from the outset builds trust and ensures the survey aligns with national priorities.
- **Scalability:** The modular design of the ZBS facilitates adaptation to new diseases, regions, and data collection modalities, such as phone and web-based surveys.

Future surveys should build on these lessons by incorporating flexible sampling methods and emphasizing community feedback to enhance engagement and relevance.

Conclusion

The ZBS exemplifies the value of behavioral data in zoonotic disease prevention, providing a blueprint for integrating socio-behavioral insights into public health programs. By identifying key drivers of behavior, addressing barriers, and supporting tailored interventions, the ZBS strengthens global health security and enhances the resilience of health systems.

As a replicable and scalable tool, the ZBS offers a critical resource for other countries seeking to improve their preparedness and response to zoonotic and epidemic-prone diseases. Investing in the ZBS is an investment in proactive, data-driven public health, ensuring communities are better prepared to prevent and respond to future outbreaks.