



THE UNIVERSITY OF ARIZONA

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College of Public Health

Behavior, Beliefs, and Bugs: Protecting Communities from Arboviral Diseases

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Social Science Methods Across the Mosquito-Borne Disease Intervention Pathway

Risk Perception & Awareness

- Surveys & KAP
- Key informant interviews
- Focus group discussions

Outputs:

- Knowledge gaps
- Trust

Behavioral Decision-Making

- Behavioral experiments
- Discrete choice
- Ethnography

Outputs:

- Barriers
- Tradeoffs

Exposure & Contact Patterns

- Time–activity studies
- Household observation
- Social Disparities mapping
- Community-based participatory surveillance

Outputs:

- Exposure and disease burden

Intervention Impact and Uptake

- Behavioral intervention trials
- Social network analysis
- Process evaluation

Outputs:

- Impact
- Adoption

Sustainability & Policy Impact

- Policy analysis
- Implementation science
- Mixed methods

Outputs:

- Durability
- Equity

Environmental & Spatial Integration: GIS

• Climate variability

• Vector ecology

Stepwise Framework for Assessing Current and Future Messaging

Understanding how the community engages in public health messaging and its impacts is a critical component of reducing arboviral disease risk

Existence

- Is there any vector messaging?
- Why is there no vector messaging?

Categorization

- What type of message is being conveyed?
- Bite prevention, source reduction, disease awareness etc.

Dissemination

- How is the message being delivered? What media are being used?

Reach

- How many people is the message reaching?
- How accessible is the messaging?

Understanding

- Do people understand the messaging? Why or why not?

Impact

- Does recipient knowledge, attitude or practices change after education?

Effects

- Is there a reduction in vector/disease indices?

Community Assessment Tool Development

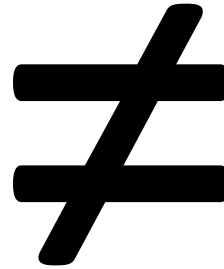
- Standardized tools to assess community-level knowledge, attitudes and practices are lacking
- Widely used but inconsistent



Main vectors of dengue are *Aedes aegypti* and *Aedes albopictus*

- Strongly disagree
 - Disagree
- Somewhat disagree
 - Neutral
- Somewhat Agree
 - Agree
- Strongly Agree

Chung et. al. 2022



What type of mosquito is carrier of dengue fever?

- Aedes
- Anopheles
- All types of mosquitoes
- Don't know

Hossain et. al. 2021

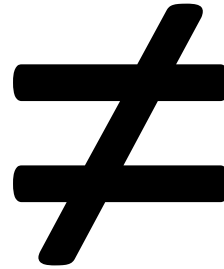
Example Knowledge Questions

How often do you do the following to keep mosquitoes from biting or reduce their numbers? (Often = **most times you go outside during** mosquito season) often sometimes never

Wear long sleeves/pants outside

- ☐ Often
- ☐ Sometimes
- ☐ Never

Pogrebra Brown et. al. 2019



How often do you practice the following measures to prevent mosquitoes **in your home/neighborhood?**

Wearing long-sleeved shirts and pants **when working outside?**

- ☐ Never
- ☐ Daily
- ☐ Weekly
- ☐ Biweekly
- ☐ Monthly
- ☐ Annually

Desjardin et. al. 2020

Example Practice Questions

Developing validated survey items



Domain Identification

Health department and vector control – most important messages

- Online contribution
- Aggregation into domains (5 mosquito and 6 tick)
- Review and prioritization of messages



Item Identification

Literature review, partner surveys

- 316 papers identified with KAP/ KAPP/ KAB surveys
- Additional 4 surveys from partners (CDC)
- Pull each survey item, categorize by knowledge, attitude, practice; disease; region; domain
- Develop based on frameworks of Health Belief Model and Risk Attitudes, Norms, Abilities, and Self-Regulation



Validation

Draft tool tested through series of steps

- Phase 2 Content Validity: Delphi method 20 experts will provide feedback on modules in 2 rounds, content validity ratio will be calculated
- Phase 3 Face Validity: 40 Cognitive Interviews, computer assisted survey interviewing with groups having different knowledge levels

Delphi Method

- Survey questions presented
- Feedback solicited on each item
- General overall thoughts on themes included and feedback on missing items

Please answer this question

2. Which season(s) are mosquitoes in your community most active? Select all that apply.

- Spring
- Summer
- Fall
- Winter
- Unsure/don't know

☐ Highly relevant

☐ Highly relevant but needs rewording

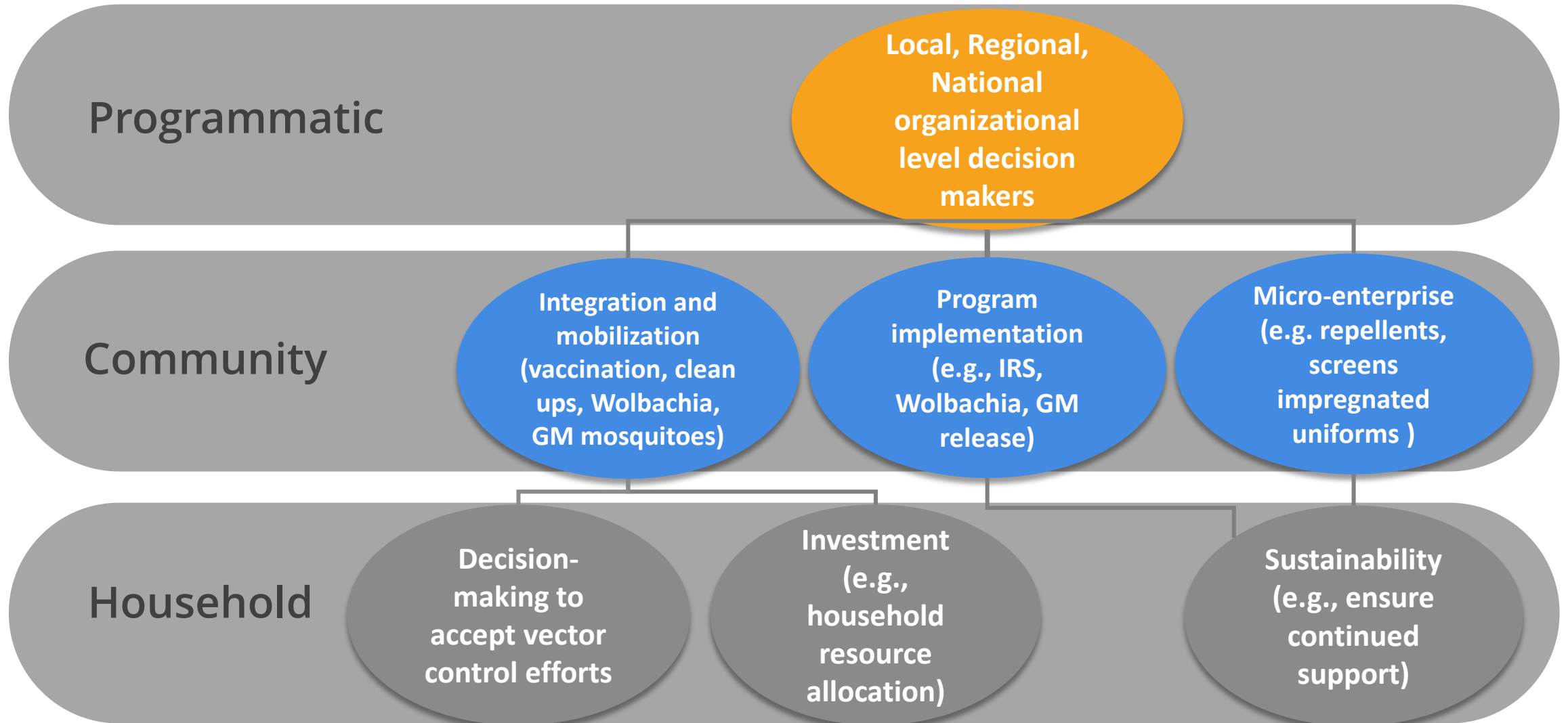
☐ Somewhat relevant

☐ Not relevant

Current status: ready for Round 2 – after responding 27 reviewers and approximately 975 comments

Finucane S, Renault A, Hayden MH, Ernst K, Yeo S (2025) Developing and validating modular surveys for vector-borne diseases: A study protocol. PLoS One 20(8):

Raising women's voices in decision-making



Collaborative processes

– Consensus Workshop

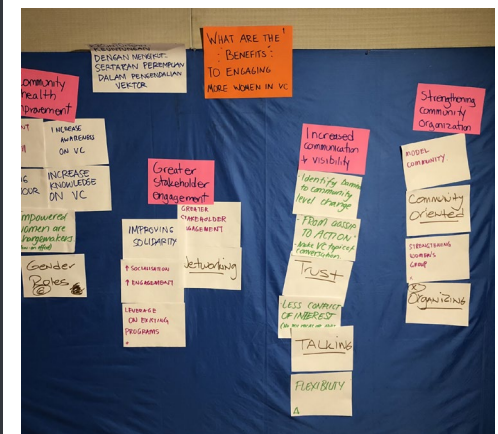


Stage 1: Individual brainstorm
Stage 2: Best ideas in pairs
Stage 3: One idea per sticky
Stage 4: Whole group clustering
Stage 5: Naming the theme

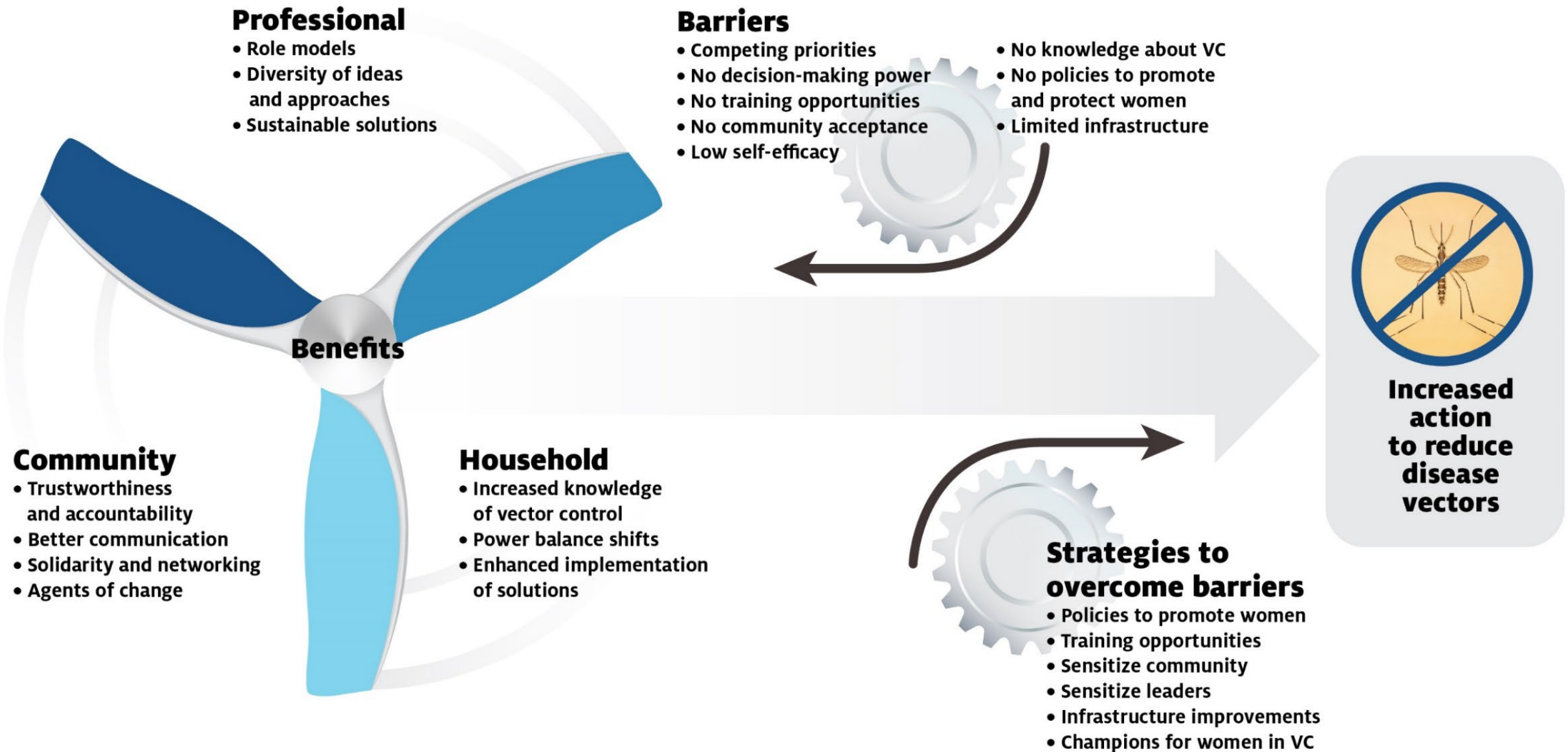
Technology of Participation by the
Institute of Cultural Affairs (ICA) –
developed to promote genuine
collaboration

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Women in vector control: Propelling communities to action

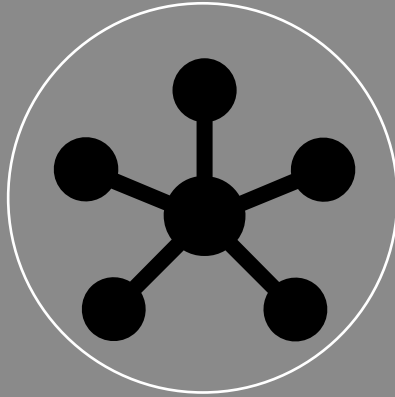


Strategies to normalize women's roles in vector control



Advocate for more women in decision-making through access to information

- Conduct a needs assessment on existing knowledge gaps
- Develop curriculum geared towards information access at the household level



Develop sensitization and advocacy materials

- Promote job ads
- School-based curriculum
- Community theater programs
- Use social and mainstream media platforms to disseminate messaging



Identify key community influencers and champions of women in vector control

- Sensitization workshops with key employers
- Commitment by govt. officials and private industry to enact gender equity policies
- Identify female leaders who can act as mentors and role models



Prioritize women's employment in vector control

- Develop key metrics
- Review and identify gaps in gender equity
- Develop female-centered training opportunities
- Require reporting of ratio of men and women who are employed in VC programs to funders

Funding acknowledgements:

Gates Foundation

Pacific Southwest Regional Center of Excellence in
Vector-Borne Diseases CDC Cooperative Agreement

Number 1U01CK000649

Questions?

Thank you!

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