DELIBERATIVE POLLING® ON ANTIMICROBIAL RESISTANCE

COUNTRY REPORT

COLOMBIA

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Stanford Deliberative Democracy Lab
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The Trinity Challenge

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Executive Summary

In collaboration with The Trinity Challenge, the Stanford Deliberative Democracy lab conducted a Deliberative Poll on Antimicrobial Resistance (AMR) with a focus on antibiotics. This poll was conducted to understand the opinions of citizens in six selected middle-income countries (MICs) regarding key policy proposals aimed at combating AMR.

Colombian citizens emerged from the AMR deliberative process with a strong emphasis on basic prevention and a call for robust policy frameworks. Their top priorities centered on ensuring clean water, sanitation, and hygiene, alongside maintaining high vaccination coverage. Fully 5 of Colombia's top 10 supported proposals focus on infection prevention measures like water access, sanitation, and immunization. This reflects a broad belief that preventing infections at the source is the most effective strategy to combat antimicrobial resistance (AMR). Additionally, Colombian participants uniquely elevated global and regulatory solutions into their top 10, signaling support for national and international policy action. Regarding antibiotic use in agriculture, participants favored professional oversight over punitive bans. They advocated for veterinarians to manage antibiotic use in livestock rather than blanket prohibitions, recognizing the practical needs of farmers. This nuanced stance stems from balancing public health caution with economic realism about Colombia's farming sector. Overall, the deliberative poll results in Colombia show a public mandate for bolstering fundamental public health infrastructure (water, sanitation, vaccines) and implementing expert-guided controls on antibiotic use, while remaining wary of measures perceived as unrealistic or unfair.

Top 5 Policy Proposals Supported by Participants in Colombia

Rank	Policy Proposal
1	Universal access to clean water & sanitation (WASH). Ensure every community and health facility has clean water and safe sanitation infrastructure.
2	Prioritize infection prevention nationally. Government should invest in and emphasize clean water, sanitation, and vaccination to reduce infectious disease burden.
3	Clean water for healthcare facilities. Provide dedicated funding so all hospitals and clinics have access to clean water for hand hygiene.

4	Include hygiene in school curriculum. Make hand hygiene and infection prevention part of the standard school curriculum from early education through graduation.
5	Universal childhood immunization. Scale up coverage of all WHO-recommended childhood vaccines to reach full immunization of all children.

After deliberation, Colombian participants almost unanimously endorsed these fundamental public health measures. Nearly all participants agreed that access to clean water, sanitation, and vaccination are "basic needs" and prerequisites for controlling infections. They also strongly supported educating citizens in good hygiene practices to prevent the spread of infections. Finally, participants favored regulatory oversight (such as veterinarian supervision of animal antibiotic use and standards for waste disposal) to combat AMR, rather than extreme bans that could be impractical.

Section I. Introduction and Methodology

A. Introduction

Colombia faces a growing challenge from antimicrobial resistance, with drug-resistant infections already causing over 20,000 deaths each year. On the health front, Colombia operates a mixed public–private healthcare system with near-universal insurance coverage, but quality of care and antibiotic stewardship vary between urban centers and rural areas. In wealthier cities, advanced hospitals coexist with better regulation, whereas in remote regions, clinics may lack basic resources, leading to inconsistent prescribing practices.

At the same time, Colombia's economy—while diversified—includes a substantial livestock and poultry sector that supports livelihoods across many departments. Cattle ranching and poultry farming remain economically and socially important, particularly in rural regions where animal health shocks can quickly translate into income loss and food insecurity. Within this context, antibiotics have historically been used not only to treat sick animals but also, at times, for disease prevention and productivity gains.

Participants frequently noted that without reliable clean water, sanitation, and vaccination, more advanced interventions would falter. These perspectives are rooted in Colombia's realities: recent improvements in public health have been jeopardized by lapses in vaccination coverage, and agricultural communities have firsthand experience with the risks of unsanitary conditions and animal diseases. Thus, at the start of the

deliberation, there was broad acknowledgement that AMR is a multidimensional problem touching public health, agriculture, and governance.

B. Deliberative Polling Methodology

Given Colombia's diverse population and regional contrasts, the deliberative poll was designed to ensure that voices from across society could weigh in on equal footing. For Colombia's deliberative poll, recruitment was handled by YouGov, a professional survey firm, using stratified random sampling of the adult population. The sample was divided into a treatment group that deliberated and a control group that did not deliberate but answered the same questions for comparison. In Colombia, 275 people participated in the deliberative event, while 185 people comprised the control sample. Participants reflected a broad cross-section of the country in terms of age, gender, region, and background.

The deliberative sessions were conducted in Spanish over a weekend in Q3 2024. The agenda included an introductory plenary with expert presentations on AMR, followed by several moderated breakout sessions organized by topic. Participants had access to balanced briefing materials in advance, translated into accessible language. Each breakout session featured small-group discussions where participants could exchange views and ask questions.The process in Colombia closely mirrored that of the other five countries in the global project, with adjustments for local context.

Section II. Participant Demographics

The Colombian deliberative poll successfully gathered a diverse cross-section of the country's population. Table 2 presents key demographics of the participants who took part in the deliberation (treatment group).

Distribution of Deliberation Participants by Gender

Gender	Amount	Percentage
Male	144	52.4%
Female	131	47.6%

Distribution of Deliberation Participants by Age

Age Group	Amount	Percentage

18–24	44	16.0%
25–34	82	29.8%
35–44	58	21.1%
45–54	49	17.8%
55+	42	15.3%

Distribution of Deliberation Participants by Education Level

Education Level	Amount	Percentage
Primary or less	16	5.8%
Secondary	161	58.6%
Post-secondary/Vocational	0	0.0%
Tertiary (Bachelor+)	98	35.6%

Distribution of Deliberation Participants by Urbanicity

Location	Amount	Percentage
Urban/Suburban	175	63.6%
Rural	100	36.4%

Participants were broadly representative of Colombia's population. The nearly even gender split and inclusion of young adults through seniors provided a balance of perspectives. Crucially, the inclusion of over one-third rural participants ensured that the

discussions reflected the realities of communities with more limited infrastructure, which proved important in debates on proposals like water access and farm hygiene.

Section III. Deliberation Analysis

A. Top 10 Policy Proposals in Colombia

In the post-deliberation survey, Colombian participants rated 45 policy proposals on a 0–10 scale (from “strongly oppose” to “strongly support”). These represent the initiatives that participants most robustly endorsed once they had discussed and learned about AMR.

Colombia Top 10 Proposals

1. Universal clean water & sanitation (WASH) (Infection prevention): Everyone should have access to clean water and safe sanitation (WASH) in their community and health system.
2. Prioritise infection prevention nationally (Infection prevention): National governments should prioritise infection prevention tools (clean water, safe sanitation and vaccination) to reduce the burden of infectious diseases.
3. Fund clean water for hand hygiene in facilities (Infection prevention): Specific government funding should go to healthcare facilities to ensure that all have access to clean water for hand hygiene.
4. Hygiene & infection prevention in school curriculum (Awareness and education): Hand hygiene and infection prevention should be part of the standard curriculum in schools from the start of schooling through to graduation.
5. Universal childhood immunization (Infection prevention): Immunization for WHO-recommended childhood vaccination should be scaled up towards universal/full coverage, to capture all children.
6. Campaigns on harms of unnecessary antibiotics (Awareness and education): Awareness campaigns should focus on the risks and harms of taking unnecessary antibiotics on humans, food security, and the environment.
7. Teach farm worker hand hygiene (Infection prevention): Farm workers should be taught hand hygiene.
8. Certification standards for antibiotic manufacturing waste (Making the best use of antibiotics): There should be national certification standards from the manufacture of antibiotics in all countries for safe waste/outflow disposal, with penalties if standards are not met.
9. Global target to reduce AMR deaths (Targets for antibiotics): There should be a global target to reduce human deaths from antibiotic resistance.

10. Veterinarian oversight for group antibiotic therapy in animals (Food security): Group prevention therapy with antibiotics for sick animals should be under the management of a veterinarian or allied professional.

B. Proposal Analysis

1. Universal Access to Clean Water and Sanitation (WASH)

Most participants supported universal clean water and sanitation, considering it the bedrock of infection prevention. Colombia has made progress expanding water access, but significant gaps remain in rural and peri-urban areas. During discussions, participants across backgrounds echoed that "water is a fundamental right" and that without clean water, other AMR measures would be undermined. As one participant bluntly noted, "if we still use unclean water, those programs…about vaccination and antimicrobials are useless." This sentiment was widely shared: safe water and sanitation were seen as non-negotiable prerequisites for controlling infectious disease.

2. National Commitment to Infection Prevention Tools

This proposal encapsulates a broad "prevention-first" policy approach, and it was the second-highest rated. During discussions, participants interpreted it as a mandate for the government to invest heavily in public health infrastructure and preventive programs. Many participants remarked that historically, healthcare in Colombia (as in many countries) has been reactive whereas this proposal calls for proactive prevention. One outcome of the discussions was a strong sense that preventive measures are cost-effective and morally sound. "Prevention tools should be at the center of our public health strategy," one participant stated, reflecting a common refrain. The only nuance raised was that prioritizing prevention shouldn't mean ignoring improvements in treatment or access to care. A few participants mentioned that while prevention is ideal, the government also needs to strengthen hospitals and antibiotic stewardship concurrently. However, they did not see this as a trade-off; rather, "we must do both, but start with prevention," as one person summarized.

3. Clean Water for Healthcare Facilities

Given Colombia's decentralized health system, participants felt the national government should earmark funding and possibly set standards so that every facility meets minimum WASH conditions.Support for this proposal was extremely high from the start and remained so. The discussion did uncover some concerns around feasibility: notably, cost and logistics. Some participants questioned whether remote or under-funded clinics could realistically be upgraded. "It's a very good proposal but a very difficult one to achieve…something like that requires a lot of personnel and resources," one

participant observed frankly. This viewpoint was acknowledged – indeed, ensuring water in every outpost clinic might entail drilling wells, water trucking, or infrastructure that costs money. However, rather than dampen support, it shifted the conversation to how to make it happen. This proposal's high ranking, alongside the general WASH proposal, underscores the public's expectation that the basics of hygiene be non-negotiable, especially in places of healing.

4. Hand Hygiene & Infection Prevention in School Curriculum
Proposal: Incorporate hand hygiene and infection prevention education into the standard school curriculum, from the start of schooling through high school graduation. This means teaching students about germs, proper hand-washing, vaccination, and general health hygiene as part of regular lessons.

The idea of integrating infection prevention lessons into schools clearly struck a chord once participants discussed its potential impact. Initially, some may not have considered it a top priority, but deliberation elevated it. Many participants realized that long-term change in public behavior starts with education of children. A participant who identified as a teacher passionately illustrated the gap: "There is no area, no specific subject in which one addresses those topics that are so important." Participants felt that if children grow up with these concepts instilled, society would see better compliance with hygiene and less misuse of antibiotics (like not demanding antibiotics for viral infections) in the future.

5. Scale Up Universal Childhood Immunization
Colombia historically had robust immunization programs (with high coverage for vaccines like polio and measles). In discussions, many participants brought up that vaccination coverage in Colombia had dipped in the past few years. They linked drops in vaccination to resurgences of diseases. "We eradicated polio and controlled many diseases" one participant said, summing up the pro-vaccine sentiment. Others noted that in some communities, logistical barriers (not opposition) were the main issue, hence the need to scale up outreach (mobile vaccination units, education for parents, etc.). In sum, the deliberation confirmed and slightly deepened an already strong public commitment to vaccination.

6. Awareness Campaigns on Unnecessary Antibiotic Use
This proposal saw a notable increase in support after deliberation (+0.31, $p<0.001$), ending with an overwhelming ~95% of participants in favor. It reflects participants' recognition that public education is critical to changing antibiotic use behaviors. Early in the poll, many participants shared anecdotes of how common it is in Colombia for

people to buy antibiotics over the counter or pressure doctors for them. The increase in the support score likely came from participants realizing just how important and effective this could be, once they considered examples. They may have initially thought it a "soft" measure compared to more concrete actions, but by the end they regarded it as essential to accompany all other policies. Indeed, a recurring theme was that even the best policies (like prescription rules or new regulations) won't work if people don't understand why they're needed. Awareness campaigns bridge that gap. "We have to create a culture of proper antibiotic use," one participant said, "through a lot of awareness [so] that it [antibiotic] is really used for what is needed, not to create a resistance." This quote captures the crux of the issue: people must internalize that taking antibiotics casually can contribute to a deadly problem.

7. Hand Hygiene Training for Farm Workers

After deliberation, almost 95% of Colombian participants supported implementing farm hygiene training programs. They saw it as a simple, common-sense measure that could have big payoffs in reducing disease among livestock and thus reducing the need for antibiotics on farms. Many participants from both urban and rural backgrounds found this idea intuitive. They drew parallels to food safety and personal health. Some farmers or those from farming communities chimed in that traditionally, small farms may not prioritize these practices due to lack of knowledge or seeing it as inconvenient. But they acknowledged that if given proper training and the reasons why, most farmers and workers would comply. One participant summarized the rationale well: "The most important thing is prevention – talking about vaccination [for animals], educating all farmers and ranchers about everything that has to do with [biosecurity]." This ties farm hygiene into the larger prevention narrative. It also links with proposal #10 (vet oversight), as both involve veterinary professionals and better practices on farms. They felt that as an agricultural country, Colombia must ensure farmworkers follow hygiene rules just as strictly as food industry workers do in processing plants. Implementing this proposal was seen as largely a matter of political will and outreach, not major expense, making its high support unsurprising.

8. Standards for Antibiotic Manufacturing Waste Disposal

This proposal taps into the environmental dimension of AMR, and Colombian participants showed exceptionally high support for it. In Colombia's case, deliberation clearly raised awareness of how environmental contamination with antibiotics can drive resistance. This realization drove support for strong regulation: participants felt that pharmaceutical companies must be held accountable for any pollution they cause. One memorable comment from the deliberation: a participant enumerated stakeholders, saying "all the actors are responsible…environmental engineers, veterinarians, the

government…" in ensuring these environmental protections. This highlighted the One Health perspective participants were adopting. The only slight concern raised was the feasibility for smaller manufacturers: Would strict regulations increase costs and potentially drug prices or drive some local producers out? A few participants asked about balancing regulation with keeping drug production local and affordable. The general response in the groups was that public safety overrides those concerns, and also that compliance costs are just part of doing responsible business. In essence, this proposal's popularity reveals that Colombian participants have a holistic understanding of AMR: they want a proactive stance to ensure antibiotic production doesn't inadvertently seed resistance in the environment.

9. Global Target to Reduce AMR Deaths

Ranking 9th, this proposal indicates Colombian participants' support for tackling AMR through international cooperation and goal-setting. This suggests that participants saw value in a global approach to AMR and felt that having a concrete target would help mobilize efforts similarly to how global targets have worked in areas like HIV, TB, or climate change. Some participants drew analogies to global health goals (like the WHO's goals on disease elimination or the UN Sustainable Development Goals). They felt that a clear target (for example, "halve AMR mortality by 2030") could galvanize funding, research, and political will. "When the world sets a goal, governments pay more attention," one participant noted, implying that it could elevate AMR on national agendas through international peer pressure or monitoring. Notably, Colombian participants brought an equity lens to this proposal. Several commented that global efforts often leave behind low-income countries; they insisted that any global target must come with support for countries like Colombia to meet it. One participant's recommendation was explicit: "In these global proposals it would be good if the low-income countries and the least developed countries were included first," because they have the highest infection burdens due to poverty, lack of water, etc.. This perspective highlights that Colombians want a global AMR goal to also address disparities. The consensus was hopeful: a global target would "put governments on notice," as one participant put it, and could spur improvements both internationally and within Colombia itself, by creating a shared objective to rally around.

10. Veterinarian Oversight for Animal Antibiotic Use

Colombian participants strongly agreed that veterinary oversight is essential to ensure responsible antibiotic use in livestock. Participants recognized that veterinarians have the expertise to decide when an antibiotic is truly needed for animals and to choose the correct drug and dose. During discussions, it became apparent that in many rural areas of Colombia, access to vets is limited.This proposal, therefore, was seen as a way to

formalize and improve current practices: if a vet or trained para-vet had to supervise, it would curb blanket and preventive use that is not justified. There was a general consensus that "only a professional should manage the doses and treatment" for group animal therapies. One participant said "I totally agree that a professional should be in charge of managing the correct doses of these antibiotics," capturing the prevailing sentiment. Participants were aware that one extreme would be banning antibiotics in farming entirely (particularly those critical for humans). In fact, there was a proposal about banning critically important antibiotics in food production that got far less support (only ~71% in Colombia), largely because participants felt a blanket ban is impractical and could harm livestock health. By contrast, veterinarian oversight was seen as the smart approach. Participants explicitly mentioned that professional control strikes the right balance between protecting public health and protecting farmers' livelihoods.

C. Distinctive Patterns in Colombia's Deliberation

The Deliberative Poll in Colombia revealed several distinctive patterns in participants' priorities and reasoning, some of which set Colombia apart from other countries in the project:

- Prevention Dominates, but with a Holistic Spread: Like the majority of the countries in this study, Colombia's participants heavily prioritized infection prevention proposals. Five of the top ten (and 7 of the top 12) proposals were prevention-related, underlining a prevention-first philosophy. However, unlike some countries where prevention crowded out other categories entirely, Colombians' top choices spanned across all categories (prevention, education, stewardship, global targets, food security). They did not solely fixate on one domain; instead, they crafted a well-rounded approach. This suggests Colombian participants appreciate a comprehensive strategy: they want improvements in infrastructure and behaviors at home, plus regulatory and global actions. It's noteworthy that two proposals of global scope (waste disposal standards and a global AMR target) made Colombia's top ten, whereas in other countries these often ranked lower. This pattern indicates Colombian deliberators were especially mindful of environmental and international facets of AMR.
- Support for Pragmatic Regulation over Bans: Colombian participants showed a nuanced stance on antibiotic use in agriculture. They overwhelmingly endorsed proposals that involve regulation and oversight but did not favor blanket bans or punitive approaches that seemed impractical. For instance, the idea of banning critically important antibiotics in food production had the lowest support among infection prevention proposals in Colombia (only ~71% post-support, which was

the lowest for any infection prevention idea in Colombia's results). Participants were skeptical of a ban's enforceability and impact on farmers. Instead, they preferred ensuring professionals control antibiotic use on farms (proposal #10) and improving practices to reduce need (proposal #7). This pattern shows Colombians balancing public health caution with economic realism. They want to curb misuse without undermining legitimate animal health needs or burdening small farmers unfairly. Compared to some countries where participants might have pushed harder for outright restrictions, Colombians leaned toward middle-ground solutions that can realistically be implemented.

In summary, Colombia's results are marked by a broad but interconnected set of priorities. The consistency of support across these areas suggests Colombian citizens have a mature understanding of AMR's complexity. They did not reduce it to a single issue but rather built a layered response. It's distinctive how they combined local pragmatism with global vision. Policymakers in Colombia can take from this that the public is ready to support a multi-faceted AMR action plan: one that invests in public health infrastructure and prevention, enacts strong but fair regulations, and actively participates in international initiatives.

Section IV: Knowledge Gains

In Colombia, deliberation produced clear but moderate knowledge gains: participants answered a higher share of the AMR knowledge questions correctly after the event, showing improvements across all six knowledge items and an average increase of roughly 5–6 percentage points in the percent correct across the six questions. Colombia was among the countries where participants improved on every knowledge question, indicating that the briefing materials and expert Q&A helped consolidate understanding of core AMR concepts. Consistent with this, most Colombian participants reported learning substantially from the process, reinforcing that deliberation functioned as an effective public education intervention alongside measuring policy preferences.

Section V: Political Efficacy

Colombia was one of four countries that increased agreement on all three positive efficacy statements ("Public officials care a lot about what people like me think," "I have opinions about policy issues that are worth listening to," and "I have the ability to create change in my community"). Only 29.6% agreed (pre-deliberation) that "Public officials care a lot about what people like me think," one of the lowest levels across countries. Colombia also had the lowest pre-deliberation agreement that "I have opinions about

policy issues that are worth listening to" (47.5%), well below the 67.6%–82.1% range observed in all other countries. Taken together, the Colombia results suggest deliberation helped participants translate low baseline trust into greater confidence in their own voice and potential for action.

Section VI: Demographic Differences

Overall, Colombians were relatively unified in their views across ages, genders, education levels, and regions. However, there are a few nuanced observations worth noting for each category:

A. Age

Among Colombian participants prior to deliberation, age was a significant predictor of mean ratings for 11 out of 45 proposals with an additional year of age associated with an increase of between 0.017 and 0.054 in mean rating. After deliberation, age was associated with increases between .021 and .035 for each additional year of age for five proposals, including three related to setting targets for antibiotics: "There should be global targets to address bacterial resistance to antibiotics, just like global targets for climate," "There should be a global target to reduce human deaths from antibiotic resistance," and "There should be a global target to stop the use of medically critical antibiotics in the food chain."

B. Gender

Prior to deliberation, women and men had significant differences in their average ratings for only one proposal. Both women and men supported the proposal, "Farm workers should be taught hand hygiene" but women had a higher average rating of close to 0.59. After deliberation, women and men tended to be closer together in their support for proposals. There were no significant differences between them.

C. Education

For Colombian participants, higher levels of education were not associated with higher average ratings for any of the proposals before deliberation. However, following deliberation, having a college education or higher was statistically significantly associated on average with a lower rating than having a high school education or lower for two proposals: "Governments in low- and middle-income countries should increase access to antibiotics to support all farmers for their animals, including those who have little access to veterinarians," by 0.65 points and "Antibiotic resistance should be

included as a cause of death on all national death certificates to enable collection of data on mortality" by 0.63 points on a scale of 0 to 10.

D. Rural vs. Urban

Urbanicity was not associated with statistically significant differences in urban and rural participants' average ratings of proposals in Colombia before or after deliberation.

Section VII. Event Evaluation

In the Event Evaluations section, participants rated each component on a 0–10 scale (0 = not valuable; 10 = most valuable). Colombia rated the four core components very highly: small group discussions (8.609), briefing materials (9.015), expert panel (9.108), and the event as a whole (9.026). Participants also rated agreement (0–10) with statements about whether the session exposed them to different perspectives, and Colombia again scored high: briefing materials presented a range of viewpoints (8.478) and experts presented a range of viewpoints (8.725). Colombia's mean agreement that they understood a lot more about other people's views after the discussions was 8.865, indicating strong perceived learning from deliberation. Finally, the report notes low concern about social pressure or platform manipulation: Colombia was among the lowest on the combined "platform tried to influence the group" / "felt pressured to agree" measures, with Colombia reported at 2.329.

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To find out more, please visit:
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