



Communicating Antimicrobial Resistance with the Public:

Effective Strategies and Considerations during a Pandemic

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Agenda:

- What We Know: Brief update on latest formative research data
- What We've Done: Overview of CDC communications on AR
- What's Next: How to keep moving the needle

What We Know

From nationally representative and convenience surveys and in-depth interviews

U.S. consumers have a general understanding of AR and antibiotics.

A quarter understand AR refers to germs developing resistance.*

Since 2015, we've seen a continuous, positive shift in understanding that any antibiotic use impacts its future effectiveness.†

Half are familiar with the term antimicrobial resistance. ^^

72% of Spanish-speaking participants know to only use antibiotics as prescribed. ^

Since 2020, more people correctly identify illnesses that antibiotics can treat and identify infection risks of health care and travel. °

* PNView 360+ (Porter Novelli or PN), 2022 | † PN FallStyles, 2015, 2017, 2019, 2021 | ~ CDC Companion Animal Owners & AR, 2021 |

^ CDC Drug-Resistant Gonorrhea, 2021 | ^ PN Estilos, 2020 | ° PN Summer/Youth Styles, 2020, 2022

What We Know (continued)

From nationally representative and convenience surveys and in-depth interviews

With improvements over time, gaps remain.

As of 2017, 66% of people indicated that it's people that develop resistance.**

By 2022, 44% believe that people can develop resistance to antibiotics. This misunderstanding crosses over into beliefs about companion animals.*[~]

Despite awareness of the issue, a third believes AR refers to something protective, antibacterial, or some sort of disinfectant.*

"A product with antimicrobial resistance helps to prevent the spread of germs. They are commonly found on the phone cases and other surfaces and supposedly reduce the amount of bacteria that grow and live [there]."

9% of participants save antibiotics for a recurring infection, 7% save them in case of an emergency.*

Varying disparities of knowledge, attitudes, and beliefs across races and ethnicities.†

* PNView 360+ (Porter Novelli or PN), 2022 | ** PN FallStyles, 2017 | † PN FallStyles, 2015, 2017, 2019, 2021 | [~] CDC Companion Animal Owners & AR, 2021 | [^] CDC Drug-Resistant Gonorrhea, 2021 | ^a PN Estilos, 2020 | ^o PN Summer/Youth Styles, 2020, 2022

What We Know: Education as a barrier

In all surveys, education is the most significant predictor of audience's knowledge of AR.

Among parents, those with bachelor's degrees or higher agreed significantly more than those with lower education levels that if another person takes antibiotics when they don't need them today, that could hurt how well antibiotics work for them in the future. °

In 2021, data show that as education level increases...

- AR knowledge increases
- Correct knowledge of the relationship between antibiotics and COVID-19 increases
- Motivation for practicing safe behaviors in response to the threat of AR increases
- Understanding of vaccines as they relate to AR increases ⊛

What We Know: Consumers & antibiotic use

- What works well
 - Engaging messaging on social channels (i.e., Facebook, Instagram, Twitter)
 - Easy to read, attractive materials that provide relevant, actionable information
 - Tailoring materials to specific target audience
 - Consumers seek and trust antibiotic info from HCPs, pharmacists, Google and WebMD
- What doesn't work well
 - Stock imagery
 - Programmatic ads via paid media
- Message updates following the pandemic
 - Clarified antibiotics DO NOT treat viruses, like the one that causes COVID-19
 - Updated popular Viruses vs. Bacteria Chart to include COVID-19 (see right)
 - Increased posting on our CDC channels to promote antibiotic use messaging related to COVID-19

The tweet from @CDCgov states: "Feeling sick? Remember: #Antibiotics do NOT treat viruses, like those that cause colds, #flu, or #COVID19. Ask your HCP about the best treatment to help you feel better: bit.ly/3rKkb7M."

The chart, titled "Viruses or Bacteria: What's got you sick?", is a table with the following data:

Common Respiratory Infections	Common Cause			Are Antibiotics Needed?
	Virus	Virus or Bacteria	Bacteria	
Common cold/runny nose	✓			No
Sore throat (except strep)	✓			No
COVID-19	✓			No
Flu	✓			No
Bronchitis/chest cold (in otherwise healthy children and adults)*		✓		No*
Middle ear infection		✓		Maybe
Sinus infection		✓		Maybe
Strep throat			✓	Yes
Whooping cough			✓	Yes

* Studies show that in otherwise healthy children and adults, antibiotics for bronchitis won't help patients feel better.

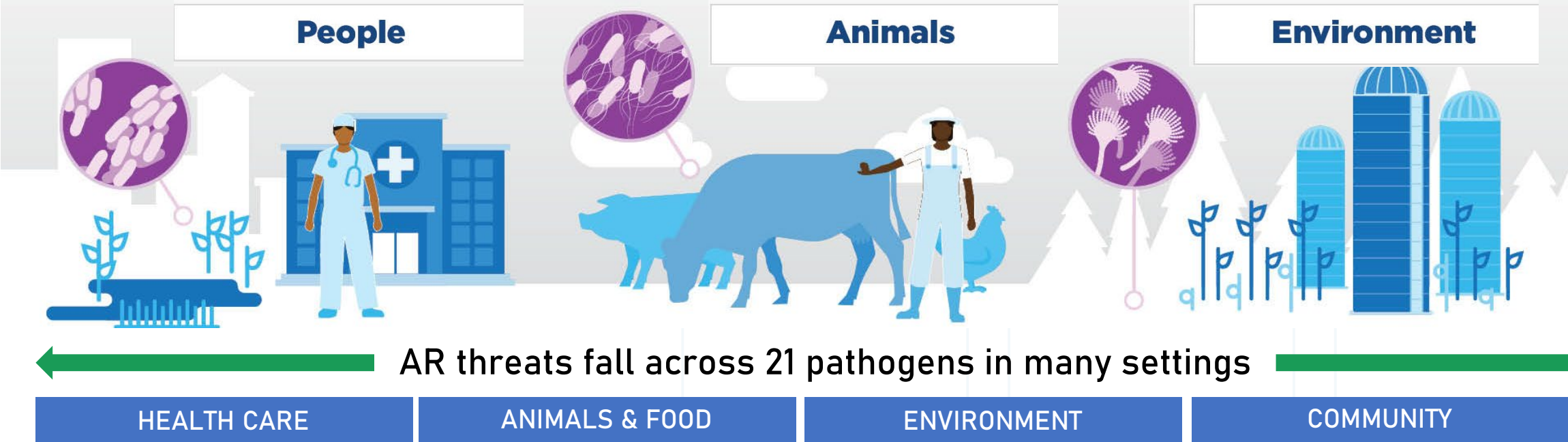
To learn more about antibiotic prescribing and use, visit www.cdc.gov/antibiotic-use.

The tweet was posted at 3:30 PM on Feb 8, 2022, and has 123 Retweets, 21 Quote Tweets, and 180 Likes.

What We Know: Other themes

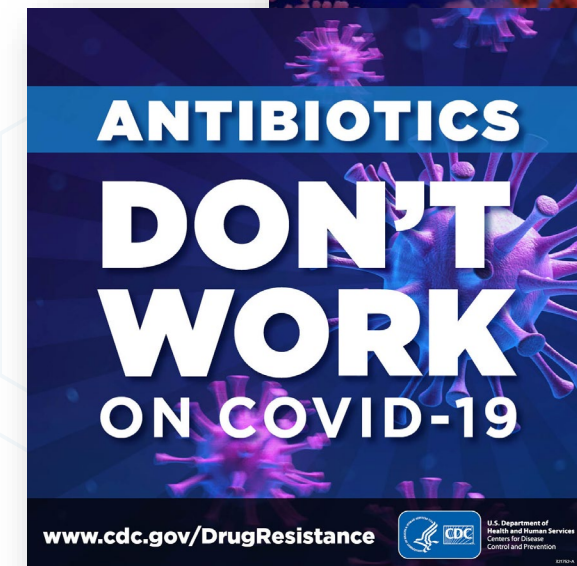
- **Mistrust of the government**
 - “After two years of [government official] and CDC misinformation it’s going to be hard to plead next reasonings for any vaccine”
 - “What ever the government is offering don’t do it”
 - “I don't trust the mainstream medical profession, especially in the wake of deaths following COVID-19 vaccinations”
- **Financial concerns**
 - “We do [save antibiotics] cuz we're a low-income family and can't always afford to go to the Dr so we save them for when we are sick”
 - “I have saved antibiotics that somehow got left over. It’s sometimes real hard to get a appointment to see the doctor not to mention a office visit cost... It’s very expensive if you get sick, you could lose everything you own, I know because it happened to me.”
- **Personal responsibility (or not)**
 - Many consumers believe AR is the responsibility of scientists and medical researchers
 - Not top of mind since the threat doesn’t feel imminent
 - “Too big” of a problem for one group or person

What We've Done: One Health approach to AR communications



What We've Done: Leveraging various channels

- Media & Health Depts: Coordinate often with media and local partners to push information about AR-related outbreaks, especially those related to food and health care
- Social media: Launched a graphic and resource heavy Twitter account in 2021, @CDC_AR
- Web: Rewrote and reorganized 50+ pages of materials, including adding sections specific to the general public
- All materials are drafted in plain language and shared with partners who are trusted by the audiences:
 - Shifting language to “antimicrobial resistance” (instead of antibiotic)
 - Released AR/COVID-19 Impact Report (2022)
 - Disease-specific messaging tailored to audiences who are most at risk (e.g., drug-resistant gonorrhea, drug-resistant tuberculosis)
 - Increased messaging about antibiotic use during the pandemic – we MUST balance this with prevention messaging



What We've Done: Be Antibiotics Aware (BAA) tactics

- Target audiences: Consumers and Healthcare Professionals (HCPs)
- Results (November 2017-December 2022):
 - 480+ million reached via public service announcements (PSAs)
 - 136+ million reached via paid media with 903K+ URL clicks on paid ads
 - Consumers: 83+ million reached with 572K+ URL clicks
 - HCPs: 26+ million reached with 163K+ URL clicks
 - 37+ million visits to the CDC antibiotic use website
 - 7.6+ million people reached via blog tour
 - 3+ million organic social media engagements
 - 1.3+ million materials downloaded
 - 154K+ materials ordered from CDC-INFO
 - 120K+ URL clicks on Adobe campaign emails
 - 118K+ partner toolkit visits
 - 4K+ CDC articles placed



**BE
ANTIBIOTICS
AWARE**
SMART USE, BEST CARE

Viruses or Bacteria
What's got you sick?
Swipe for checklist

Learn more at cdc.gov/antibiotic-use.

Paid Ads

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Materials

Viruses or Bacteria
What's got you sick?

Antibiotics are often prescribed when they are not needed for respiratory infections. Antibiotics are only needed for treating certain infections caused by bacteria. Viral illnesses cannot be treated with antibiotics. When an antibiotic is not prescribed, ask your healthcare professional for tips on how to relieve symptoms and feel better.

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Why does taking antibiotics lead to antibiotic resistance?

Any time you take antibiotics, they can cause side effects and contribute to the development of antibiotic resistance. Antibiotic resistance is one of the most urgent threats to the public's health.

Always remember:

- Antibiotic resistance does not mean the body is becoming resistant to antibiotics & means bacteria are developing the ability to defeat the antibiotics designed to kill them.
- When bacteria become resistant, antibiotics cannot fight them, and the bacteria multiply.
- Some resistant bacteria can be harder to treat and can spread to other people.

More than 2.8 million antibiotic-resistant infections occur in the United States each year, and more than 35,000 people die as a result.

What is the right way to take antibiotics?

If you need antibiotics, take them exactly as prescribed. Never save your antibiotics for later use or share them with family or friends.

Taking antibiotics only when needed helps keep us healthy now, helps fight antibiotic resistance, and assures that these life-saving drugs will be available for future generations.

Talk with your healthcare professional if you have any questions about your antibiotics, including how they could interact with other medications you are taking, or if you develop any side effects.

What are the side effects?

Common side effects range from minor to very severe health problems and can include:

- Rash
- Diarrhea
- Nausea
- Dizziness
- Yeast infections

Get immediate medical help if you experience:

- Severe diarrhea—it could be a symptom of a C. diff infection, which can lead to severe colon damage and death.
- Severe and life-threatening allergic reactions, such as wheezing, hives, shortness of breath, and anaphylaxis (which also includes feeling that your throat is closing or choking, or your voice is changing).

To learn more about antibiotic prescribing and use, visit www.cdc.gov/antibiotic-use or call 1-800-CDC-INFO.

Antibiotics Aren't Always the Answer.

What's Next: Communicating AR to the general public

- “Message blitz” planned to begin Fall 2022 to evaluate messaging about antibiotic use and sepsis with pre/post assessments of audience, including general public
- Assessment in progress to determine if a domestic or global AR campaign could be effective and beneficial, including testing messaging/creative that:
 - Emphasizes personal responsibility in combination with support for the uptake of recommended actions ([Austin, Jin, Liu, Kim, 2021](#))
 - Frames AR as an issue that goes beyond human health with responsibility placed on society instead of individuals ([Thornber, Pitchforth 2021](#))
 - Only successful with support and collaboration with partners who are trusted by the audiences
- Refreshing Be Antibiotics Aware materials for more audiences, including outpatient settings and nursing home residents
- Continuing to push prevention messaging to balance misconceptions found in formative research
- Additional resources and partners who can help scale up messaging and tactics to match the threat

Stay up to date with the latest AR information and events



www.cdc.gov/DrugResistance



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