

## Breaking down the 2022-2023 funding rounds

CARB-X received applications from around the world on three themes:



### Oral therapeutics

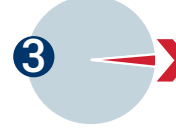
Oral therapeutics are essential to treat infections globally. Several factors drive the need for new oral therapeutics:



1/3 of the oral antibiotics on the WHO Essential Medicines List are marked as "Watch" due to a risk of resistance.



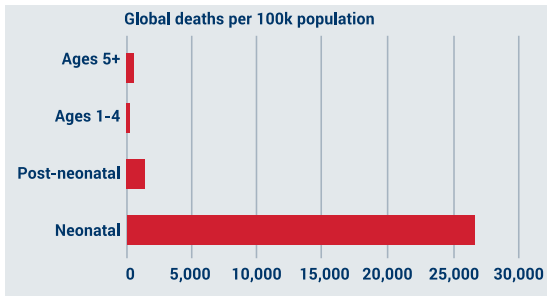
Of the 15 new antibiotics approved by the FDA in the last decade, only 1/3 have an oral option.



Of the 61 therapeutic programs supported by CARB-X since inception, 5 pursued an oral option, and only 2 are progressing.



### Vaccines for neonatal sepsis



Neonates are 69 times more likely to die from sepsis than children in the 5+ age bracket.

Infections that cause neonatal sepsis are particularly burdensome in low- and middle-income countries (LMICs).

CARB-X requires neonatal sepsis vaccines to target top causative agents in LMICs where commercial indications would also be possible for high-income countries (HICs).



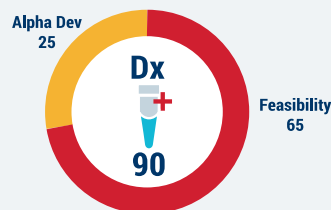
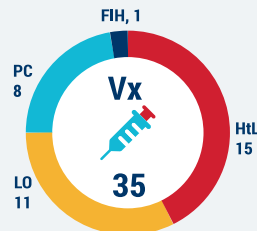
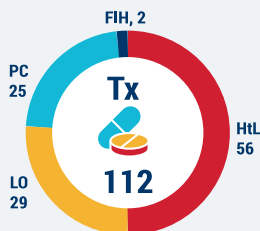
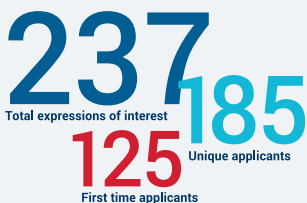
### Gonorrhea products

Ceftriaxone is the only antibiotic left that can effectively treat drug-resistant strains of gonorrhea.

CARB-X requested all gonorrhea products—vaccines, rapid diagnostics and oral therapeutics—address drug-resistant strains with a focus on thinly-covered but important pathogens and syndromes.

### Breaking down the omnibus solicitation

CARB-X received 237 expressions of interest. Among them, 185 were unique applicants, and 125 applied to CARB-X for the first time. Here's how the applications break down by theme and stage:

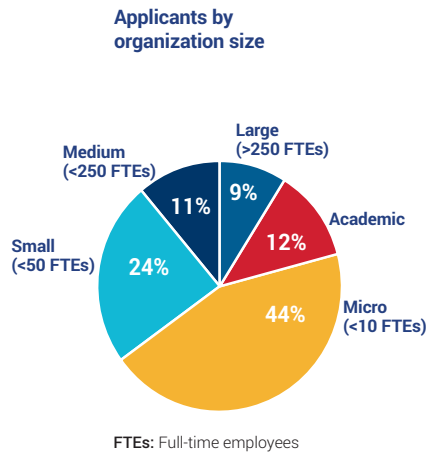


Tx: Oral therapeutics  
Vx: Vaccines for neonatal sepsis  
Dx: Rapid diagnostics for gonorrhoea  
FIH: First-in-human  
PC: Pre-clinical  
LO: Lead optimization  
HIL: Hit-to-lead  
Alpha Dev: Alpha Development

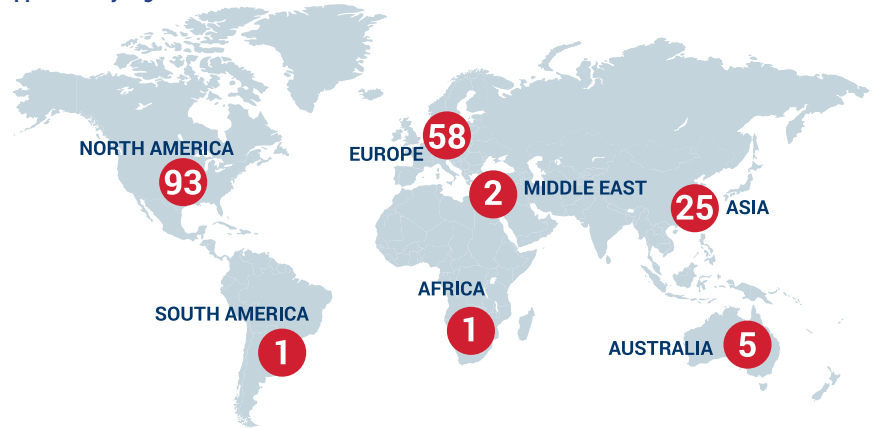
# Demographics and trends

## Applicant demographics

CARB-X received applications from 185 groups—from small to large companies and academic institutions—based in countries around the world



## Applicants by region



## Trends

### 1. Rapid diagnostics expanded during the COVID-19 pandemic.

Developers built rapid tests to detect the SARS-CoV-2 virus. This resulted in a significant increase in the number of diagnostic products in use by customers, near point-of-care diagnostics, and fully established commercial and reporting infrastructures. As the pandemic winds down, product developers are poised to capitalize on their investments by embracing new sample types and pathogens, including *N. gonorrhoeae*.

### 2. More than half of the therapeutics applicants are in the hit-to-lead stage.

This is consistent with the dearth of oral therapeutics in the clinical and preclinical pipelines, and the barriers that product developers face as they attempt to advance oral therapeutics to patients. CARB-X aims to help these programs advance to the clinical stage and replenish the pipeline with new oral therapeutics.

### 3. CARB-X received 35 expressions of interest from the vaccine community, who understand that there is a need for targeting pathogens of interest.

In 2021, the World Health Organization analyzed the pipeline of bacterial vaccines. Few are in clinical development for pathogens of interest. These include:

- 1 for *K. pneumoniae*
- 5 for ExPEC
- 11 for *S. aureus*
- 0 for *A. baumannii*
- 1 for *N. gonorrhoeae*

Historically, the pathogen *S. aureus* has posed challenges for vaccine developers, which has resulted in a high number of failed attempts. This is why CARB-X sought new approaches to develop an effective vaccine that can target *S. aureus*.



# CARB-X

Combating Antibiotic-Resistant Bacteria

CARB-X is funded in part with federal funds from the U.S. Department of Health and Human Services; Administration for Strategic Preparedness and Response; Biomedical Advanced Research and Development Authority; under agreement number: 75A50122C00028. CARB-X is also funded by awards from Wellcome (WT224842), Germany's Federal Ministry of Education and Research (BMBF), the UK Global Antimicrobial Resistance Innovation Fund (GAMRIF) funded by the UK Government Department of Health and Social Care (DHSC), and the Bill & Melinda Gates Foundation. The content of this fact sheet is solely the responsibility of the authors and does not necessarily represent the official views of any CARB-X funders.