

U.S. Department of Health & Human Services



Center for
Scientific Review

3 Step Prize Review: Antimicrobial Resistance Diagnostics Challenge

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The Antimicrobial Resistance Diagnostic Challenge

- Federal prize competition – not a grant or a contract
- Challenge competition allows federal agencies to crowdsource ideas from public to address issues that affect people, communities, and industries
- Since 2010, the U.S. government has run nearly 1,000 challenges and offered \geq \$250 million in cash prizes for the best ideas.
- ❑ **AMR Diagnostic Challenge prize is \$20 million - the largest prize announced so far**

ALL CHALLENGES



Agency for Healthcare Research and Quality

Department of Health and Human Services

Visualization Resources of Community-Level...

Can you develop a visualization tool to enhance the research and analysis of community-level health services?

\$220,000 IN PRIZES

Open Until: 06/07/2019



Department of Health and Human Services

DEBUT (Design by Biomedical Undergraduate...

NIBIB is challenging undergraduate students to develop engineering solutions to unmet clinical needs!

\$45,000 IN PRIZES

Open Until: 05/31/2019



Department of Health and Human Services

Shape of Health: An Obesity Prevention Game

Create an interactive video game with focus on obesity prevention or weight control for women or girls.

\$200,000 IN PRIZES

Open Until: 03/31/2019



National Institute on Drug Abuse

Department of Health and Human Services

2018 "\$100,000 for Start a SUD Startup" Challenge

Test the premise of research ideas that can be fostered into biotech startups

[VIEW THIS CHALLENGE](#)

Closed On: 01/15/2019



Department of Health and Human Services

KidneyX: Redesign Dialysis Phase 1

Redesign the future of kidney care

\$2,625,000 IN PRIZES

Closed On: 02/28/2019



Department of Health and Human Services

NCATS Rare Diseases Are Not Rare! Challenge

Share innovative ways to communicate to educate people about rare diseases through social media or art

\$5,000 IN PRIZES

Closed On: 10/31/2018



Remote Pregnancy Monitoring

Department of Health and Human Services

Remote Pregnancy Monitoring Challenge

Propose tech ideas to help connect pregnant women with prenatal care

[VIEW THIS CHALLENGE](#)



Preventing Opioid Misuse in Pregnant Women & New Moms

Department of Health and Human Services

Addressing Opioid Use Disorder in Pregnant...

Find solutions to help pregnant women & new moms with opioid use disorder.

[VIEW THIS CHALLENGE](#)

3-D ROC 2020



National Eye Institute

Department of Health and Human Services

NEI 3-D Retina Organoid Challenge 2020: Reduction...

Build your vision of the future

\$1,000,000 IN PRIZES

Goal and Structure of the Challenge

Goal: innovative, rapid, POC diagnostic test(s) to combat the development and spread of drug resistant bacteria. - Joint effort between NIH (NIAID) and BARDA – launched as a 3-step competition

Step 1	Conceptual	Sept 8, 2016 – March 27, 2017
Step 2	Prototype Analytical Data	March 28, 2017-Dec 3, 2018
Step 3	Performance Testing in CLIA Labs	Dec 4, 2018-July 31, 2020

- **Step 1: \$50K /semi-finalist – max 20 awards (10 awardees)**
- **Step 2: \$100K /semi-finalist – max 10 awards (5 awardees)**
- **Step 3: \$18.5M for maximum of 3 awardees**

Review: Unusual Attributes

- Letter Of Intent is Required
- Submissions not through grants. gov
- Compressed timeline:
 - 3-4 weeks to finalize roster & make review assignments
 - Pre-recruitment of panel expertise
 - 4 weeks for reviewers to generate critiques
 - 2 weeks: generate summary statements & reports
 - Team of several SROs
- Emphasis on review criteria – all reviewers provide criterion scores
- Solver does not receive scores or summary statement

Guide to Step 2 AMR Challenge Criterion Scores*

Criteria	1	2	3	4	5	6	7	8	9
		STRONG			MODERATE			WEAK	
Innovation	Technical Innovation			Using Established Technologies in New Ways			Minimal/No Evidence of New Technology or Concepts		
Clinical Significance	Distinction of Viral vs. Bacterial and/or Addressing Multiple AMR Pathogens = High Impact, Highly Impactful in Antibiotic Stewardship			Higher Threat Level [†] =Better Score, Moderately Impactful in Antibiotic Stewardship			Unlikely to Address Any Challenge Goals, Minimally Impactful in Antibiotic Stewardship		
Diagnostic Performance and Feasibility	Sensitivity-LOD/Specificity Superior to Existing Methods, Claims Based on Sound Principles Supported by Convincing Data, Mature Prototype			←	Performance Displays Moderate Advancement Over Existing Methods, Some Concerns Related to Claims, Prototype in Late Stages of Development		→	Little/No Advancement Over Existing Methods, Doubts Related to the Claims Made, Prototype in Early Stages of Development	
Sample Matrix/Setting and Ease of Use/Throughput	Easy to Collect and Process Samples, Minimally Invasive, Simple Method to Perform, Easily Fits in Existing Clinical Workflow, High Throughput			←	Samples Somewhat Invasive, Moderate Processing, Moderate Training to Cope with Technology, Need to Modify Existing Clinical Workflow, Moderate Throughput		→	Sample Collection and Processing Concerns, Difficult to Implement Technologically Complex Method, Unable to Assess Simultaneous Samples	
Arrows within the Moderate category indicate that these are considerations that could lead to a stronger or a weaker view									
* Goal is to discriminate merit with reviewers using a consistent approach to scoring									
† CDC's Antibiotic-Resistant Threats in the United States									

CSR Contributions

- Open eligibility to submit a Step 2 solution (Not limited to Step 1 Winners)
 - COI concern: reviewers not eligible to submit solutions
 - Independent assessment of each criterion
 - Step 2
 - Replace prototype submission with photos & video
 - 8 Criteria → Reduced to 4 with revision of solution format
 - Designed Letter of Intent to prepare for conflicts and needed expertise
- Step 1: Suggested (not approved) to provide solvers with summary statement

Step 3: Performance Testing in CLIA Certified Laboratories

- Prototype submission deadline: January 3, 2020
 - Up to 5 submissions at Step 3
- CLIA-certified independent lab testing: by April 2020
- Technical Evaluation Panel Meeting: May/June 2020
- Awardee(s) announcement: July 31, 2020

Acknowledgement: Team work

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SRO – EMNR

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IMB

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