U.S. Department of Health and Human Services

ASPR
ADMINISTRATION FOR STRATEGIC PREPAREDNESS AND RESPONSE

BARDA
BIOMEDICAL ADVANCED RESEARCH AND DEVELOPMENT AUTHORITY

Cracking the Code: Advanced Development and Licensure of the Elusive Broad Spectrum Antiviral Drug

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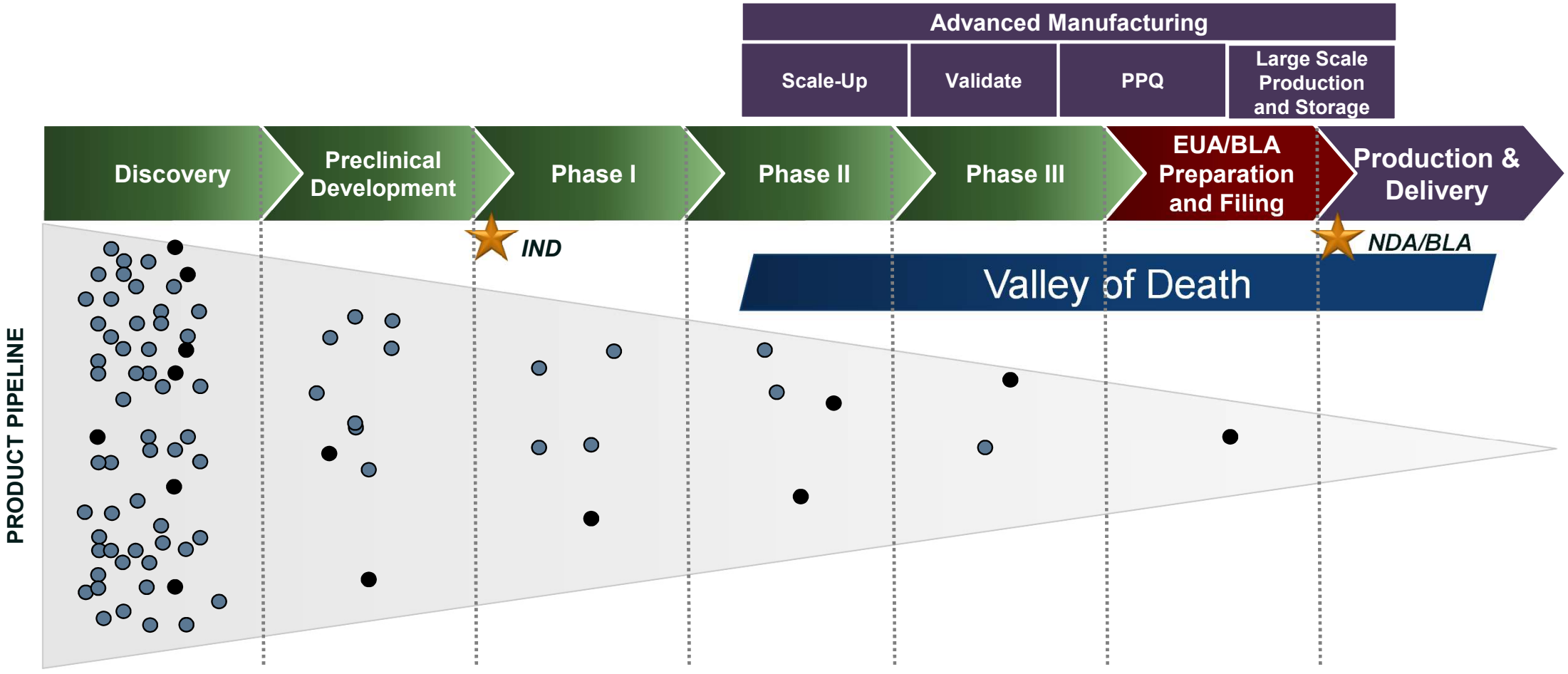
Broad Spectrum Antiviral Therapeutics: A Key Tool for Pandemic Preparedness
(Brussels, Belgium); 22-23 November 2022

Unclassified

BARDA's Medical Countermeasure Development Pipeline

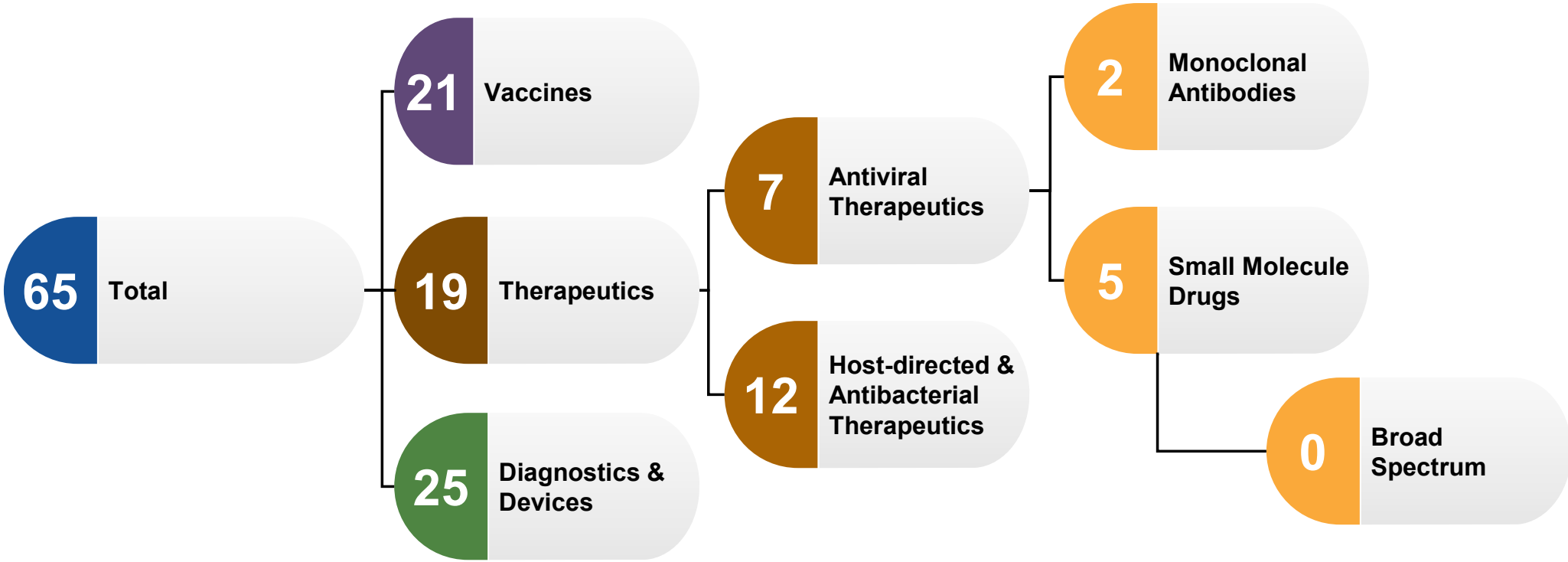


The BARDA Model

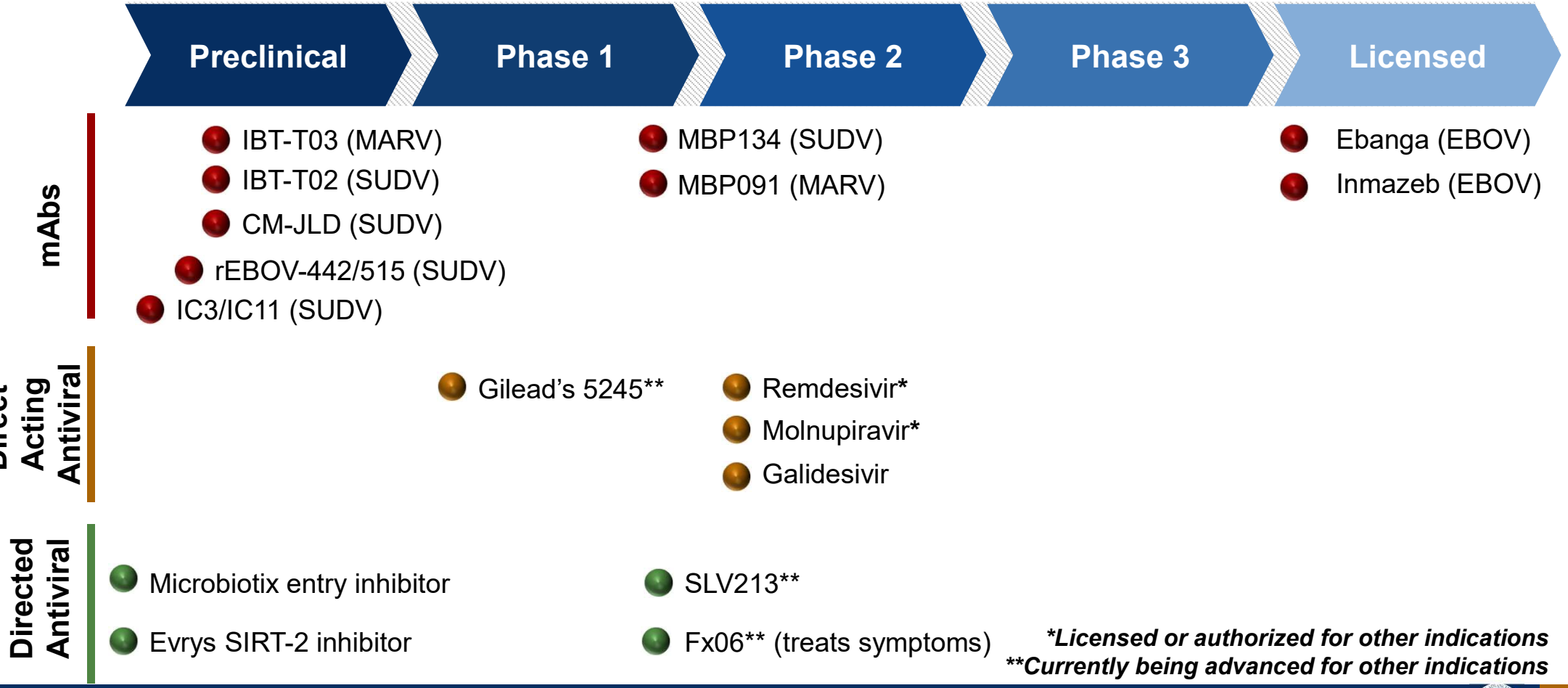
BARDA develops and makes available medical countermeasures (MCMs) by forming unique public-private partnerships to drive innovation off the bench to the patient to save lives.

- **Flexible, nimble authorities**
- **Multi-year funding**
- **Cutting edge expertise**
- **Facilitate partnerships**
- **Promote innovation**

BARDA Supported MCM Approvals/Clearances



Filovirus Therapeutics Landscape

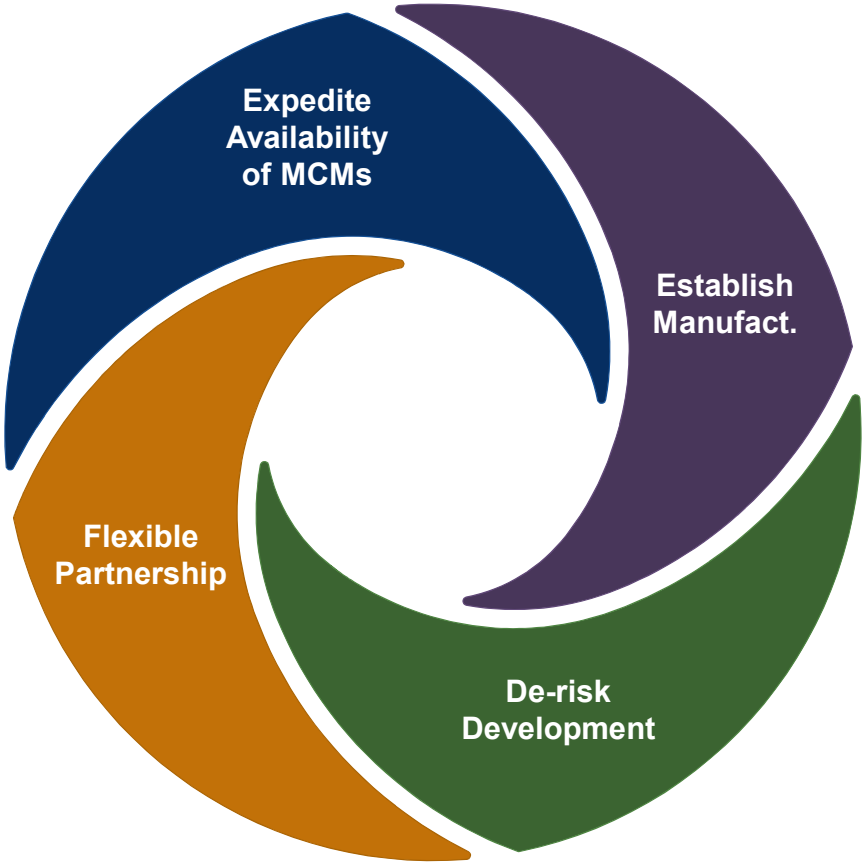


Licensed or authorized for other indications
****Currently being advanced for other indications***

BARDA 2020 COVID-19 Medical Countermeasure Development Strategy

Pivot existing, proven technologies to expedite availability of MCMs that detect, treat, and prevent COVID-19

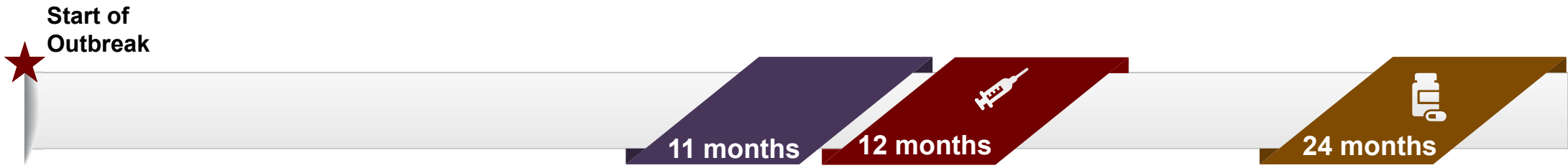
Leverage flexible partnerships



Establish domestic-based manufacturing capabilities for COVID-19 MCMs

De-risk development through advanced purchase agreements

Developing New Products to COVID-19: Timeline to EUA in United States



- Eleven months to develop/receive EUA for a new COVID-19 monoclonal antibody
- Twelve months to develop/receive EUA for a mRNA COVID-19 vaccine
- Twenty-four months to develop/receive EUA for a new COVID-19 oral antiviral

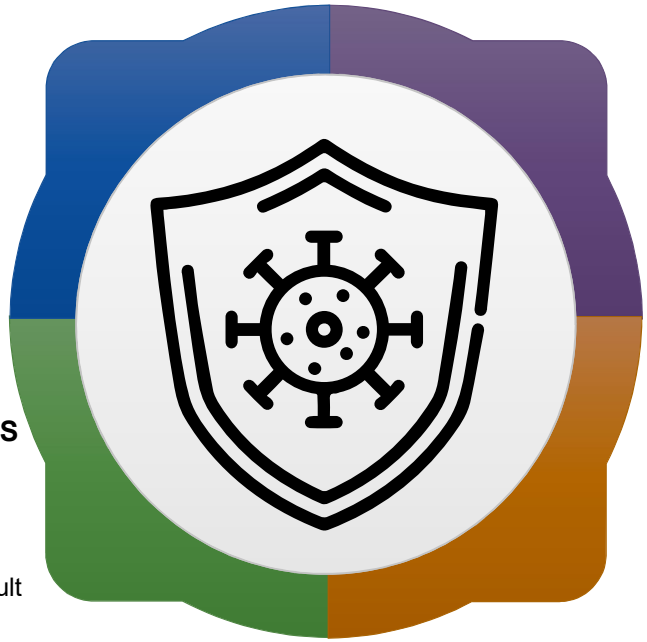
Challenges to Advanced Development of Broad-spectrum Antiviral

LACK OF ADVANCED DEVELOPMENT FUNDING

» For full value of $1B in Early Research & Development you need $11-12B for Advanced Development*

LACK OF PLATFORM APPROACH FOR RAPID DEVELOPMENT

» Developing and screening of candidates takes to long



EFFICACY TRIALS FOR REGULATORY APPROVAL TO IMPROVE USE AND ACCESS

» Protocol design: Identifying correct population & I/E criteria
» Different regulatory agencies have different requirements for approval
» For viruses that cause sporadic outbreaks, difficult to complete a trial before the outbreak ends
» Challenging to execute and to get additional efficacy data post approval

DOWN-SELECTING CANDIDATES FOR EFFICACY TRIALS

» Challenges with differences in therapeutic windows between animal species
» Difficult to mimic human disease course in many non-clinical models
» Wide range of disease manifestations within a virus family make bridging between viruses difficult-added barrier for 'broad spectrum' candidate (pox virus family as example)

*Farid SS, Baron M, Stamatis C, Nie W, Coffman J. Benchmarking biopharmaceutical process development and manufacturing cost contributions to R&D. MAbs. 2020;12(1):1754999. Doi: 10.1080/19420862.2020.1754999. PMID: 32449439.

Benefits of Regulatory Approval to Response and Access

- Licensed monoclonal antibody, vaccines and diagnostics for Ebola and licensed vaccine for monkeypox, shipment occurs immediately
- 70 days to update prototype COVID vaccine to bivalent formulation to include variant strain
- Five months to repurpose a therapeutic that was in Phase 3 for another indication to receive EUA to treat COVID-19
- Eleven months to develop/receive EUA for a new COVID-19 monoclonal antibody
- Twelve months to develop/receive EUA for a mRNA COVID-19 vaccine
- Twenty-four months to develop/receive EUA for a new COVID-19 oral antiviral

Challenges with Efficacy Trials for Anti-Virals Targeting Viruses that Cause Sporadic Outbreaks

PROTOCOL DESIGN

- Needs to target the right population- particularly stage of disease and con-meds
- Design needs to support maximum drug use post-approval. To many variables with inadequate power / design leaves gaps in optimal utilization and can negatively impact equitable access

REQUIREMENTS FOR REGULATORY APPROVAL

- Need to understand alignment and differences between regulatory agencies on approaches to indications broader than a single virus
- Need to take these considerations into account when selecting viral targets

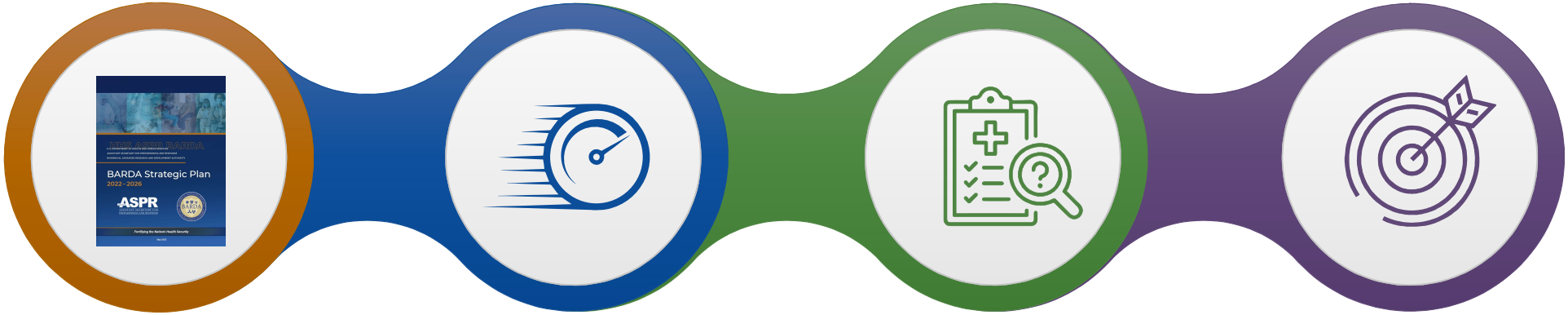
TRIAL PREPAREDNESS: SPORADIC OUTBREAKS

- Needs funding, operational infrastructure and IRB approval pre-outbreak
- multi-country: cultural, equities, access, and other issues will need to be addressed.
- Process to rapidly enroll individuals from across a broad geographical location (not just adding sites).

TRIAL EXECUTION: PATIENT CENTERED TRIALS

- New approaches to patient access to accelerate and increase enrollment
- Leverage non-traditional partners for care closer to the patient
- Look at better integration of technology to collect more data but with fewer 'in person' to improve product utilization

BARDA's Strategic Path Forward



Outlined in the 2022-2027 BARDA Strategic Plan

Faster development with better down-select success rate

Re-imagining Phase III/IV clinical trial approaches

Initially, target indication for a single virus-select families where FDA licensure against at least one virus has clear regulatory route

medicalcountermeasures.gov
Portal to BARDA: ***Register to request a TechWatch meeting!***

sam.gov/
Official announcements and info for all government contract solicitations

aspr.hhs.gov/MCM/
Program description, information, news, announcements

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