Improving Your Relationship with Federal Research Agencies

BU Federal Relations

and

Lewis-Burke Associates

March 2017

BOSTON UNIVERSITY

Today's Talk

- Introductions
- Guidance for Interacting with Federal Agencies
  - National Science Foundation (NSF)
  - National Institutes of Health (NIH)
  - Department of Defense (DOD)
  - Department of Energy (DOE)
  - National Aeronautics and Space Administration (NASA)
  - National Endowment for the Humanities (NEH)
  - Department of Education: Institute for Education Sciences (IES)
- Questions

About Lewis-Burke

- Twenty-eight policy experts with range of expertise/backgrounds allow multi-layered issue teams with deep expertise in agencies and scientific/education areas
- Support federal relations activities to develop and implement federal strategies to pursue, shape, and create new sources of funding to increase and diversify research portfolio
- Able to engage on multiple levels:
  - Individual faculty (including early career faculty)
  - Teams of faculty
  - Associate Deans for Research
  - Deans and Center Directors
  - University leadership and campus-wide priorities
- Began working with BU in 2012

General Advice for Interacting with Federal Agencies

- Build relationship – be courteous
- Make initial contact via email and be specific
- Ensure follow up
- Prepare concise one-page summaries (or other appropriate formats) of your research
- Attend relevant workshops / conferences
- Offer to serve as reviewer where appropriate
- Get feedback on your proposal from more experienced colleagues
- Do your homework:
  - Read solicitation / FOA / program home page
  - Research other awards supported through program
  - Read relevant community / workshop reports

Advice for Meeting with Program Officers

- Research Program officer and their program
- Provide tailored one-page description of your research
- Prepare questions and LISTEN to answers
- Dress appropriately – business attire
- Talk succinctly and clearly during meeting
- Allow Program Officer to talk about their program and issues of concern
- Take notes
- Send thank you emails following meeting and highlight any agreed next steps or follow up actions

NSF Overview

- FY 2016 budget ~ $7.5 billion
- Six Research Directorates organized by science and engineering disciplines:
  - Biological Sciences (BIO)
  - Computer and Information Science and Engineering (CISE)
  - Engineering (ENG)
  - Geosciences (GEO)
  - Mathematical and Physical Sciences (MPS)
  - Social, Behavioral, and Economic Sciences (SBE)
- Education and Human Resources (EHR) directorate focuses on STEM teaching, learning, and workforce development
- Priorities include clean energy, neuroscience, resilience, sustainability, and broadening participation PLUS new 10 big Ideas
- Director remains in place, NSF so far under radar of Trump Administration
- Potential threats to SBE, EHR, and GEO remain
- Number of vacant staff positions

How NSF Supports Researchers

- Investigator driven bottom up proposals to core discipline programs
- Dear Colleague Letters
- Focused Solicitations – often interdisciplinary, sometimes in collaboration with other agencies
- Workshops and Coordination Networks
- People
- EAGER / RAPID awards – respond quickly to new and emerging opportunities
- Supplemental awards
- CAREER Awards to early career faculty

How to Engage with NSF?

- Research the program/solicitation
- Engage with your sponsored research office on campus – they know NSF rules
- Contacting NSF:
  - Email first rather than phone and be specific
  - Provide details of the program/solicitation/award number that you want to discuss
  - Any attachments summarizing your research should be no more than 1-2 pages and should be tailored to that program officer
  - It's OK to follow up with program officers, but don't overdo it
  - Always be courteous – get feedback if their response is disappointing

Recommendations for NSF CAREER

- Strategy and expectations vary by division. Important to speak to program director before applying
- Expectations related to education components also differ by division.
  - –Some divisions like to see more focused education projects
  - –Others want to see efforts that check a number of boxes, the education component has to be integrated with the research proposed and for some divisions (broadening participation, undergraduate research, etc.)
  - –Department chair's letter of support is helpful to show how education efforts would be of value to the department and its students.
- Think carefully about when to apply as you only get a few chances.
  - – Don't submit at the very beginning of your career
  - – Don't wait so long that you can't use your second and third tries.
  - – The odds of obtaining a CAREER go up on the second try, so it's important not to get discouraged.
- The research proposed for CAREER should be expansive enough to build a career on – very narrow research aims will not be competitive.
- First CAREER proposals often rejected because of presentation. Pay attention to details.

NSF vs. NIH

- Concerned with health of disciplines it supports and advancing fundamental science
- Heavily focused on teaching, student mentoring, broadening participation, and broader impacts – every proposal must address broader impacts
- Peer review is organized by program directors on an ad hoc basis – no standing panels
- NSF program directors have more flexibility in determining program directions and funding decisions – proposal pressure and peer review are still main drivers

NIH Overview

- Enjoys strong bipartisan support—Senate appropriators included a $2 billion increase in FY 2017 budget over FY 2016 levels
  - –FY 2017 CR provided $352 million for targeted initiatives through the 21st Century Cures Act
  - –FY 2018 budget proposes 18 percent cut to NIH to pay for defense and national security increases

- No leadership changes (for now)
  - –Francis Collins held over as Director; Secretary Price has stated his support for NIH and increased funding for biomedical research

- 21st Century Cures Act—signed into law December 2016
  - –Innovation Projects: Precision Medicine Initiative, BRAIN Initiative, Cancer Moonshot, Regenerative Medicine
  - –$4.8 billion over 10 years; $352 million in FY 2017
  - –NIH policy changes: reduce administrative burden; Next Generation Researchers Initiative; EUREKA prize competitions; mandate agency-wide strategic plans; strengthen privacy protections for agency-funded research; working group on rigor and reproducibility

NIH Overview, con't

- Award trends:
  - NIGMS' MIRA (R35) program will support people rather than projects to allow flexibility in pursuing research avenues; NCI, NINDS, NHLBI, NIDCR launched their versions and other ICs exploring
  - Collaborative funding mechanisms enhance program officers' input on projects (U awards)
  - Special consideration for first-time applicants continues; new concerns over achieving second grants
  - Select pay across ICs enables program leaders to fund proposals above payline that meet priorities and unmet needs or to support new investigators
  - NIH leadership exploring ideas to maximize funding, including limiting funding, awards, or efforts per PI
- NIH structure and policies:
  - Internal review of peer review process to increase innovative projects and improve diversity of grantees
  - Ongoing efforts to enhance rigor reproducibility of pre-clinical research – Advisory Committee to the Director Working Group launched recently

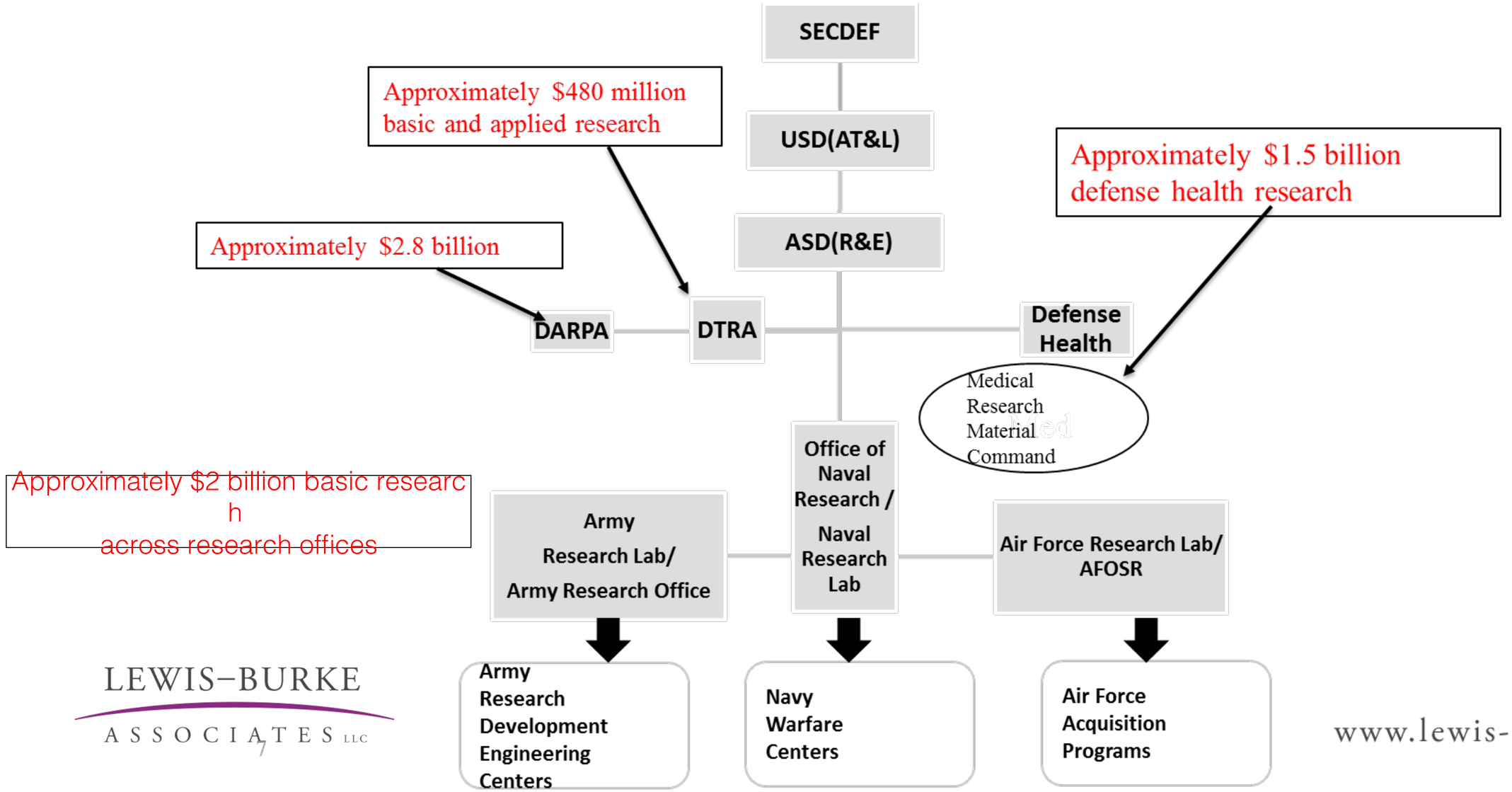
How to Engage with NIH

- Identify the program officer associated with the solicitation/program
- Engage with your sponsored research office on campus for insight on NIH processes
- Contacting NIH:
  - Email first rather than phone: summarize your research aims and how it fits into program officer's portfolio or solicitation
  - Any attachments summarizing your research should be no more than 1-2 pages
  - Always be courteous and seek specific feedback
  - Contact sponsored research or Lewis-Burke if getting no response from program officer
- Review the list of peer review panels and members on the Center for Scientific Review website
- Seek insight from program officer on peer review panels most appropriate to review proposal
- Suggest preferred panel on cover letter accompanying proposal

DOD Overview

- FY 2016 budget: RDTE: $69.7 billion; S&T Total: $12.99 billion
- Office of basic research includes:
  - Army Research Office (ARO)
  - Office of Naval research (ONR)
  - Air Force Office of Scientific Research (AFOSR)
- Other DOD branches include:
  - Defense Advanced Research Projects Agency (DARPA)
  - Defense Threat Reduction Agency (DTRA)
  - DOD Health
- Trump's budget Blueprint would:
  - Provide an additional $52 billion for DOD in FY 2018
  - Request also included additional $33 billion for FY 2017
  - 2017 NDAA included language directing DOD to establish a Manufacturing Engineering Education Grant Program

DOD Organization



DOD Funding Mechanisms

- **Broad Agency Announcements (BAAs)** are competitive solicitations for basic and applied research proposals
- **Multidisciplinary University Research Initiative (MURI)** program supports research conducted by teams of investigators that intersect more than one traditional science and engineering discipline in order to accelerate research progress
- **Vannevar Bush Faculty Fellowship (formerly NSSEFF)** provides extensive, long-term financial support to distinguished university faculty and staff scientists and engineers to conduct unclassified, basic research on topics of interest to DoD
- **Minerva Research Initiative** initiated by former Secretary Gates in 2008, “seeks to build deeper understanding of the social, cultural, and political dynamics that shape regions of strategic interest around the world.”
- **Young Investigator Programs (YIP)** or DARPA Young Faculty Award – awards range in size from $50k - $170k per year

Steps to Effectively Engage DOD

- Meet program managers, laboratory subject matter experts, invite government researchers to give Department seminars
  - Even formal opportunities, e.g. DARPA Discover DSO Day (Mar 28 deadline)
- Attend conferences
  - E.g. Annual Military Health System Research Symposium http://mhsrs.com/
  - Office of Naval Research Expo, July 20-21, 2017: https://www.onr.navy.mil/Conference-Event-ONR/2017-naval-expo.aspx
  - Annual Air Force leadership meeting (Every Sept): https://www.afa.org/airspacecyber/home
  - AFOSR young investigator event (October 24-27): https://community.apan.org/wg/afosr/w/researchareas/19426/2017-young-investigator-research-program-yip-meeting/
- Review program websites, BAAs, and past solicitations to find relevant programs
- Submit white paper ahead of application to assess fit to program, get feedback, and potentially shape future solicitations
- Have more than one idea to propose
- Be prepared to adapt your research to meet program managers' goals
- Other considerations:
  - Fellowships
  - Postdoc Support (most if not all have support for rotations or funded support)
  - Equipment (DURIP)
  - Seed grants (flexibility)
  - Small Business (different type of funding)

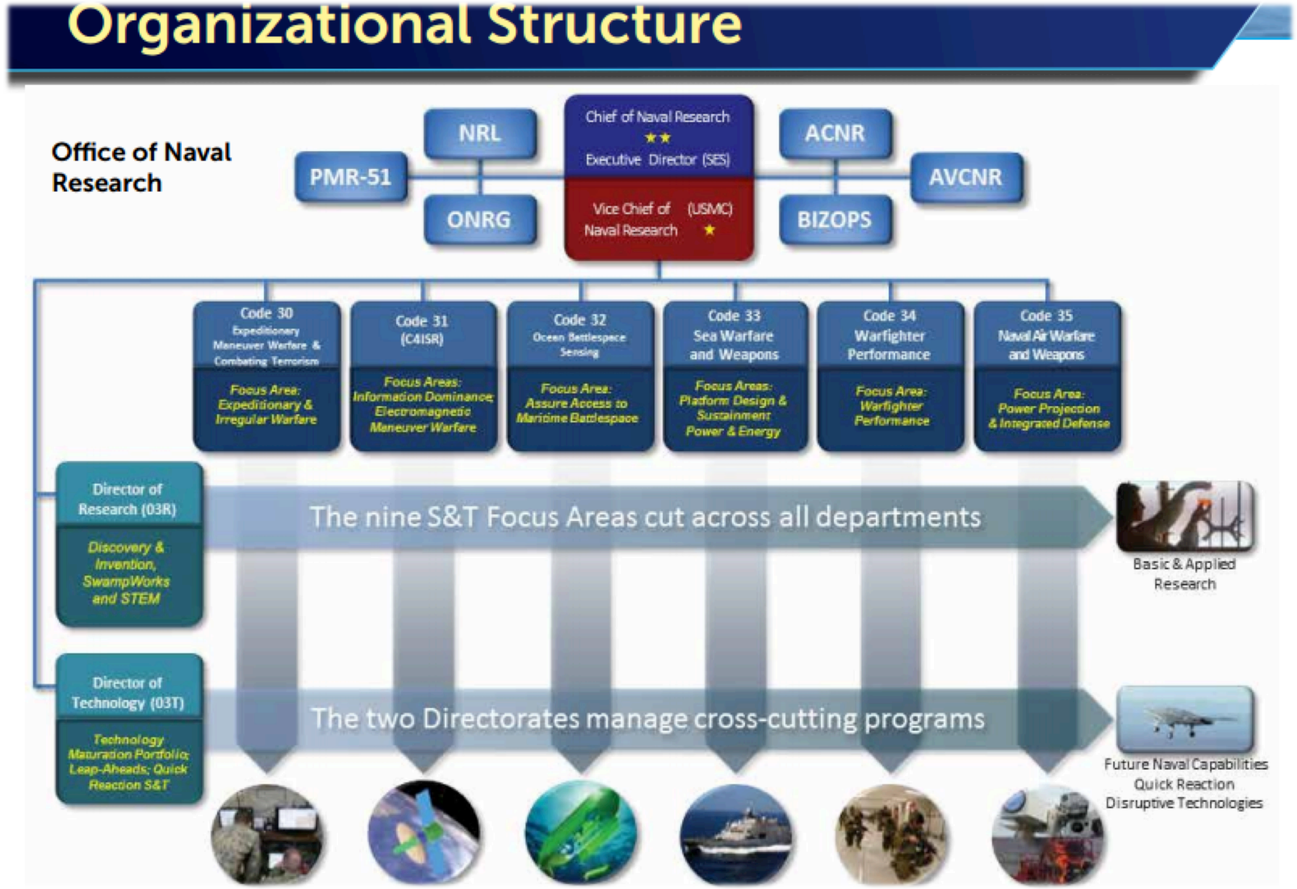
Office of Naval Research (ONR)

- ONR- Leading funder of basic research across service branches
- ONR releases open BAA at start of fiscal year – submit white paper prior to full application

Use “Technology Locator”:
http://www.onr.navy.mil/Science-Technology/Contacts.aspx

Organized by CODEs 30-35

- **Code 30** - Expeditionary Maneuver Warfare and Combating Terrorism Department
- **Code 31** - Command, Control, Communications, Computers, Intelligence, Surveillance &Reconnaissance (C4ISR)
- **Code 32** - Ocean Battlespace Sensing
- **Code 33** - Sea Warfare and Weapons
- **Code 34** - Warfighter Performance
- **Code 35** - Naval Air Warfare and Weapons



Army Research Laboratory (ARL)
Army Research Office (ARO)

ARO Research Thrusts (often one PM) – multiple BAAs

- Chemistry
- Computing and Info Science
- Electronics
- Environmental
- Life Sciences
- Materials
- Mathematics
- Mechanics
- Network Science
- Nanoscience
- Physics

ARL Core Technical Areas

- Computational Sciences
- Materials
- Sciences-for-Maneuver
- Information Sciences
- Sciences-for-Lethality and Protection
- Human Sciences
- Assessment and Analysis

Research ranges from atom optics for underground bunker/tunnel detection to nano-energetics for more powerful and insensitive munitions and propellants

Air Force Office of Scientific Research (AFOSR)
Air Force Research Laboratory (AFRL)

- AFOSR awards nearly 1,500 grants and contracts to more than 200 academic institutions, 160 firms and more than 250 intramural programs

- Annual BAA (Broad Agency Announcement)

AFRL Technology Focus Areas

- Next Generation Aerospace Systems
- Weapon
- Space & Nuclear Deterrence
- Intelligence, Surveillance, & Reconnaissance
- Command & Control, Cyber, Communications (C^4)
- Affordability and Sustainment
- Human Performance
- Electronic Warfare/Electronic Protection

DARPA

- FY17 / 16: $2.9 B
- FY17 topic areas (proposed areas):

Defense Research Sciences
- Secure Programming Languages (Math & Computer Sciences)
- Quantum and Materials Basics (Electronic Sci.)
- Engineering Complex [biological] Systems (Transformative Sciences)
- Decoding Neural Activity (Transformative Sci.)

Electronics Technology
- Limits of Thermal Sensors
- Connect Everything

Basic Operational Medical Sciences
- Outpacing Infectious Disease

Biomedical Technology
- Enhanced Monitoring of Health and Disease

Information and Communication Technology
- Tactical Context Extraction
- Removing Barriers to Hardware
- System Security Integrated through Hardware and S oftware

Tactical Technology
- Counter Unmanned Air Systems and Force Protection
- 21st Century Propellants
- Science of Human and Computer Teaming

Materials and Biological Technology
- Enhancing Neuroplasticity

Defense Threat Reduction Agency (DTRA)

- **Basic and applied research on bio/chemical/nuclear/explosives/information sciences geared towards countering weapons of mass destruction**

- **Total Research Budget (6.1-6.3) ~$480 million (basic $38 million)**
  - Non-medical: Nano, cognition, information science, bioscience
  - Medical Biological Defense Transformational Medical Technologies Initiative: Diagnostic Technology, Vaccine, Therapeutic – viral, toxin, bacterial
  - Medical Chemical Defense – Smallest Area: Respiratory, Cutaneous and Ocular, Neurological, Toxicology
- **Working with DTRA**
  - Broad Agency Announcement (BAA): Science and Technology New Initiatives.
    - New way for researchers to engage DTRA program managers by submitting a quad chart and white paper narrative to gauge interest in an idea and receive informal feedback.
  - Annual call for BASIC RESEARCH TOPICS pre-application white papers - typically in fall
  - Multi-year BAA, specific topics change annually based on program manager interest - little feedback

DOD Health

Government-wide Initiatives Impacting DOD Health

- **Big Data**: data sharing standards, software tools, enhanced training, centers of excellence
- **Precision Medicine**
- **Cancer Moonshot**
- **BRAIN**: targeted investment to accelerate development of neurotechnologies
- **Alzheimer's and aging**: new investments in research and care to address looming challenges in patients and costs
- **Global Health Security** (biosurvelliance, antimicrobial resistance, and Ebola/infectious disease research and response)

DOD Health Research Priorities

- **Hemorrhage** – blood products (storage, transportation, in theater transfusions); extend blood platelet shelf life; improved pre-hospital treatments for critical patients; alternatives to using antibiotics for post wound care.
- **Traumatic Brain Injury (TBI)** – classification of TBIs that can inform future technology and treatment strategies; Biomarkers to replace CAT scans (affordability)
- **Mental Health** – suicide prevention; substance abuse, rural healthcare/telemedicine
- **Pain Management** – Burn care, opioid use
- **Infectious Disease** – prevention, diagnostics, therapeutics; surveillance; warfighter v. civilian health
- **Health IT**

Congressionally-Directed Medical Research Program (CDMRP)

Mission: *"Responsibly manage collaborative research that discovers, develops and delivers health care solutions for Service Members, veterans, and the American public."*

- ~$850 million annual fund
- Started in 1992 to support breast cancer research – has since supported research in more than 20 topic areas
- Created as way for Congress to assert influence over biomedical research agenda
- Congress helps dictate topics, but annual open competitions/peer review employed in funding decisions
- CDMRP funds added annually by appropriators
  - –Frequent talk about scaling back, but several in Congress are strong supporters
- TBI/Psychological Health a key focus in recent years; sustained at $125 million

Engaging DOD Health vs. NIH

- Start with the DOD challenge; NOT the research idea
- Program managers have broader authority and more flexibility
- Only some programs use peer review; more ad hoc, not always external
- Collaborations with DOD medical commands and centers are important to long-term success
- New program managers often change program goals and direction
- Process to request DOD data from Military Health System
- Opportunities to engage locally/regionally

DOE Overview

- FY 2016 budget: Total: $29.6 billion; Office of Science: $5.3 billion
- The Department of Energy (DOE) has 3 core missions:
  - Science and Energy (basic and applied research)
  - Nuclear Security
  - Environmental Management

Strategic science directions are guided by input from the research community, scientific workshops, the National Science and Technology Council, the National Academy of Sciences and advisory committees.

DOE and the Trump Administration:

- Secretary Rick Perry has stressed the importance of basic research and highlighted: supercomputing, international collaboration, and genomics and gene-editing technologies as research priorities
- Trumps budget Blueprint proposed:
  - 17% cut for Office of Science
  - Eliminating all funding for the Advanced Research Project Agency-Energy (ARPA-E)
  - Cutting ~$2 billion from fossil energy, renewable energy, energy efficiency, nuclear energy, and grid research and development activities
- Political support in Congress for many of DOE's basic and applied research programs

How to Engage with DOE Office of Science?

- To increase likelihood of success for winning funding solicitations:
  - Review the 5 year strategic plans for basic and applied research programs AND relevant topic area reports
  - Participate in workshops
  - Engage with faculty contacts sitting on DOE advisory committees
  - Respond to requests for information
  - Meet with program managers (either in person or via phone / videoconference)
  - Partner with DOE national labs
  - Review Basic Energy Sciences (BES) project summary document (released every two years)

- Competitive awards:
  - For Biological and Environmental Research (BER), there were 8 FOAs in FY 2016. 502 proposals were submitted and 68 awarded meaning a 14 percent success rate
  - In BES, the renewal rate for awards is around 65 percent and the award rate for new awards is around 15 percent

NASA Overview

- National Aeronautics and Space Administration (NASA) Mission: advance human exploration and understanding of the Earth and space
- Most of NASA's budget devoted to human exploration missions and operations
- Budget: $19.3 billion in FY 2016
  - $5.59 billion for the Science Mission Directorate (SMD)
  - $686.5 million for the Space Technology Mission Directorate (STMD)

- NASA direction often influenced by politics
  - Distribution of NASA facilities creates political power centers in Congress
  - Earth science research politicized due to debate over climate change

- NASA and the Trump Administration
  - Budget blueprint proposes $19.1 billion for FY 2018
    - **Proposed** reduction to Earth science programs less than anticipated
  - New Administrator and deputy yet to be named
  - Overall, NASA is shielded from severe cuts facing other agencies (e.g. NOAA, EPA)

How to Engage with NASA SMD?

Primary funding opportunities:

- Research Opportunities in Space and Earth Science 2017 (ROSES 2017)
  - Main source of funding for individual researchers

- Competed, PI-led missions
  - Each division has its own series of missions
  - Overseen by NASA but designed and managed by a PI
  - Cost-caps ranging from $31 million to $750 million

Engagement:

- Community-driven research priorities
  - Decadal surveys determine mission priorities
    - 2017 Earth Science and Applications from Space due this year
  - Other advisory mechanisms
    - NASA Advisory Council's Science Committee and subcommittees
    - National Academies' Space Studies Board, Board on Physics and Astronomy

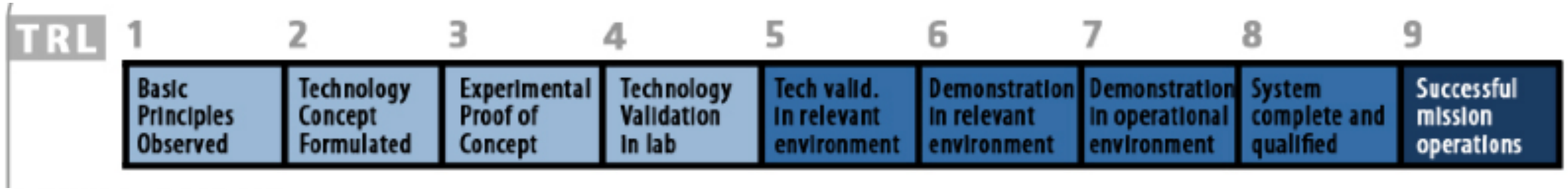
- Contact program managers with questions on how research fits within a specific call

How to Engage with NASA STMD?

STMD's wide-ranging research portfolio makes it very accessible to engineering schools
- Directorate is relatively new (2013) and actively engages with universities
- Capabilities-driven programs allow participation across a broad range of tech R&D areas

Primary funding opportunities:
- Different awards based on Technology Readiness Level and response to certain technology challenges
- Range from $100k - $2 million
- Specific opportunities for Early Career Faculty

Engagement:
- Program managers at HQ best to contact with high level questions
- Principle Technologists located at NASA centers and can provide technical feedback



NEH Overview

- NEH Funding: FY 2016 budget was $148m
- NEH Chairman Bro Adams would like to stay on to finish his four-year term appointment
- Anticipate will continue on with usual grant-making activities and current agency-wide initiatives
  - **Common Good Initiative** supports humanities scholars and organizations to focus their attention to humanistic topics that resonate with Americans and society at large.
  - **Standing Together Initiative** to promote an understanding of the experience of war

How to Engage with NEH?

- Nearly 50 percent of the funding goes directly to support state humanities councils and the agency's administration, with most of the rest slated for grants, education and public programming
- NEH programs are organized through several divisions/offices, including: Division of Education Programs, Division of Preservation and Access, Division of Public Programs, Division of Research Programs, Office of Challenge Grants, Office of Digital Humanities, and State and Federal Partnerships Office.
- Over last few years, major changes to programs/opportunities across various NEH Divisions - Challenge Grants (new opportunities - Next Gen PhD, Creating Humanities Communities), Education Programs (Humanities Connections), Digital Humanities (new Advancement grants).
- Majority of NEH program solicitations are released on annual basis.
- NEH program managers are happy to speak and meet with interested researchers and educators regarding potential ideas.
- Additional funding opportunities are available through NEH-funded state humanities councils.

IES Overview

- Department of Education's Institute of Education Sciences (IES)
- Non-partisan division
- Tom Brock, Commissioner of National Center for Education Research serving as Acting Director of IES
- One of the smaller research agencies: FY 2016: $618 million
  - National Center for Education Research: $195 million
  - National Center for Special Education Research: $54 million

How to Engage with IES?

- Annual competitive grant program will be posted in spring 2017 for a range of topics in education and special education
- Other opportunities include:
  - –Partnerships and Collaborations Focused on Problems of Practice or Policy
  - –Low-Cost, Short-Duration Evaluation of Education Interventions
  - –Research Networks Focused on Critical Problems of Education Policy and Practice Exploring
- Important to develop relationships with program officers and offer to serve on peer review panels

Thank You For Your Time

Questions?

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