

# Navigating Department of Defense Research

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# Peeling Back the Onion

# DOD Seeks to Expand Competition, Innovation in Research

## ▶ Why is it important?

- To avoid technological surprise and to maintain battlefield dominance against peer competitors like Russia and China, it is important for every state to be involved in cutting-edge defense research that could potentially lead to greater lethality.
- **Important #1:** Important for Universities to read the 2019 Presidents Defense Budget and National Defense Strategy!! Outlines the Presidents Direction and where funding is being allocated.
- **Important #2:** Important for Universities to read the 2019 NDAA document. It outlines the restructuring of the MHS.
- **Important #3:** Important to understand the Department of Defense Research Agency Structure (Line and Support components) in order to be successful.
- **Important #4:** Important to understand the funding process within DoD

# FY20 Budget

## ▶ Is the FY20 budget a strategy driven budget?

- ❖ The FY 20 Presidents budget is derived from and consistent with the National Defense Strategy (NDS). The NDS focuses on great power competition with Russia and China, and this budget reflects those priorities.
- ❖ The FY 20 budget sustains readiness recovery and increases **lethality** to make critical investments in advanced technologies and modernization that are essential to the future of our national security needs.
- ❖ The budget shifts resources to NDS priorities, including Advanced Technology and Nuclear Recapitalization, while capitalizing on economy of force and departmental efficiencies.

## ▶ You will see the RDT&E budget is up by \$9B while procurement is down by \$4B. How do you characterize this? What is taking place?

- ❖ RDT&E: Significant funding increases in RDT&E reflect DoD's commitment to developing and fielding next generation weapons systems and advanced technologies.

# Understand the Structures within the DOD Research and Development World

THE UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING  
(USD(R&E))



**Organizational Structure  
Office of the Secretary of Defense (OSD)**

**Dr Mark T Esper**  
36 Major Elements of OSD



**Warfighter Technology**

**The Under Secretary of Defense for  
Research and Engineering (USD(R&E))  
Dr. Michael D. Griffin**  
(11 major agencies)

**EX: Basic Research Office (BRO) Under  
Secretary for Defense in Research and  
Engineering**

**Air Force  
AFOSR**

**Navy  
ONR**

**Army  
AOR**

**Health and Welfare of the  
Warfighter**

**The Under Secretary of Defense for  
Personnel and Readiness, or USD (P&R),  
James N. Stewart (acting)**  
(4 major agencies)

**Assistant Secretary of Defense  
for Health Affairs (HA)  
Dr. David J. Smith**

**Defense Health Agency  
(DHA)  
VADM Rocky Bono**

**Uniformed Services  
University (USU)  
General (ret) Tom Thomas**

# The Under Secretary of Defense for Research and Engineering (USD(R&E))

- ▶ The USD(R&E) and the office s/he heads are charged with the development and oversight of DoD technology strategy for the DoD.
  - 5 Modernization priorities (outlined also in the Presidents Defense Budget)
    1. Artificial Intelligence/Machine Learning
    2. Biotechnology: technological application that harnesses cellular and biomolecular processes (ex: 4DBio3)
    3. Autonomy (unmanned and mixed team capabilities)
    4. Cyber
    5. Directed Energy (HEL: Laser Energy, Radio Frequency Technology, Microwave Technology,
    6. Hypersonics
    7. Space/Space Force
    8. FNC3 (Fully Network Command, Control and Communications) Micro-Electronics: light weight equipment capability and Quantum Science computers and sensing computers when the warfighter are in GPS denied theaters

# DARPA

## Example #1

- ▶ By design, **DARPA** reaches for transformational change instead of incremental advances, but DARPA does not perform its engineering alchemy in isolation. It works within an innovation ecosystem that includes academic, corporate and governmental partners, with a constant focus on the Nation's military Services, which work with DARPA to create new strategic opportunities and novel tactical options.
- ▶ **Universities** are an integral part of the innovation ecosystem, and DARPA seeks robust engagement directly with potential university partners.
- ▶ DARPA's work spans the spectrum from basic research to applied research to operational applications--a range of activity that offers numerous opportunities for academic engagement.

# Basic Research Office (BRO)

## Example #2

- ▶ Under The **Basic Research Office (BRO)** is the Department-wide strategic thread in ensuring future capability, and makes investments in areas where the Services may not be able to.
  - ❖ They work with academia, industry, and government partners to foster collaborations, shape priorities, and forge pathways in scientific investment areas that aim to establish new and strengthened alliances with international allies, insertion of new innovations into programs of record, and long-term scientific and technological superiority.
  - Divided into four directorates: DMEA, laboratories, technologies, and basic research
  - The office is responsible for setting Department policy for grants, and manages 5 programs including: the [Vannevar Bush Faculty Fellowship](#), the [Minerva Research Initiative](#), [Historically Black Colleges & Universities/Minority Institutions \(HBCU/MI\) Program](#), as well as a number of pilot programs meant to rethink the Department's approach to managing and maturing basic research investments.

# Basic Research Office (BRO)

## Five Targeted Programs

- ▶ The **Vannevar Bush Faculty Fellowship (VBFF)** is the Department of Defense's most prestigious single-investigator award and supports basic research with the potential for transformative impact. As a 5-year fellowship with up to \$3 million in funding, the VBFF supports new, out-of-the box ideas where researcher creativity intersects with the unknown.
- ▶ The **Minerva Research Initiative**, administered jointly by the Office of Basic Research and the Office of Policy at the U.S. Department of Defense, supports social science research aimed at improving our basic understanding of security, broadly defined. Supported projects are university-based and unclassified, with the intention that all work be shared widely to support the thriving of stable and safe communities.
  - ❖ The goal is to improve DoD's basic understanding of the social, cultural, behavioral, and political forces that shape regions of the world of strategic importance to the U.S.

# Basic Research Office (BRO)

## Five Targeted Programs

- ▶ The Office of the Under Secretary of Defense for Research and Engineering (OUSD(R&E)), Basic Research Office, announced awards to 45 minority-serving institutions totaling \$25.8 million as part of the fiscal year (FY) 2018 DoD Historically Black Colleges and Universities and Minority-Serving Institutions (**HBCUs/MSIs**) Research and Education Program. The selected institutions will conduct basic research with student support in scientific disciplines critical to national security and the DoD. Awards ranging from \$300,000 to \$600,000 will support three-year research projects with up to four students per project each year.
- ▶ **Multidisciplinary University Research Initiative (MURI)**
- ▶ **BRO workshops**

# Basic Research Office (BRO) Pilots

- **DEPSCoR** (pilot) (Defense Established Program to Stimulate Competitive Research) is targeting the states and territories that have received the least funding from DOD science and engineering research programs as a way to increase competition and innovation.
  - ✓ (2018) In the FY 2018 National Defense Authorization Act (NDAA), Congress reauthorized a restructured version of DEPSCoR. The program received appropriations in the FY2019 Defense appropriations Congressional supplement to the Basic Research Initiatives program line dedicated to DEPSCoR with \$12M.
  - ✓ (2019) The program is **congressionally mandated** and has directed over \$8.5 million toward program grants this fiscal year, with more to potentially follow in coming years.

# Basic Research Office (BRO) Pilots

- ▶ The Defense Enterprise Science Initiative (DESI) pilot program aims to fund projects that bring together industry and university teams to look for new solutions to challenging defense and national security problems, with the aim of accelerating the impact of basic research on defense capabilities.
- ▶ Five DESI awards were recently announced
- ▶ The Laboratory University Collaboration Initiative (LUCI) started in 2016 to identify, and competitively fund, three-year basic research collaborations between leading scientists at the DoD laboratories and the Vannevar Bush fellows at US universities in fields of critical interest to the Department of Defense.
- ▶ The Bilateral Academic Research Initiative (BARI) focuses on high-risk basic research in science and engineering as a bilateral academic collaboration, and supports academic teams to combine unique skillsets and approaches and provide rapid advances in scientific areas of mutual potential interest to both countries.

# Defense Innovation Board

## Example #3

- ▶ The **Defense Innovation Board (DIB)** harnesses the experiences and ideas of its members to provide independent advice to the Secretary of Defense and other senior leaders on catalyzing innovation in DoD. Recruited specifically for their expertise outside the Department, DIB members are uniquely positioned to propose creative solutions to the structural, technological, and workforce challenges DoD faces - and provide U.S. warfighters and civilians with the solutions they need to achieve the mission.
- ▶ Many leaders from Universities sit on this Board (MIT, Northwestern, Harvard)



# Understand the Structures within the DOD Research and Development World Support Side

ASSISTANT SECRETARY DIRECTOR FOR HEALTH AFFAIRS (ASD HA)

# Understand the Structures within DoD Research and Development World

## Line (War Fighter Technology and Capability)

### ▶ Basic Research Office (BRO) Under Secretary for Defense in Research and Engineering

- ❖ ONR Office of Navy Research (Dr Mason) ONR has **six** science and technology departments
- ❖ ARO Army Research Office has **five** science and technology departments
- ❖ AFOSR Air Force Office of Scientific Research

## Support (Medical, Dental, Public Health, Legal)

### ▶ Defense Health Agency (DHA Research, J9, POC Shaun Biggerstaff)

- ❖ DoD laboratories for the Centers of Excellence
- ❖ Service Research Units (pending)
- ❖ Public Health Center
- ❖ Joint Program Committee (JPC)

### ▶ Uniformed Service University USU (President General (ret) Tom Thomas)

- ❖ Tri Service Nursing Research program (TSNRP) POC CDR Heather King
- ❖ Center for Neuroscience and Regenerative Medicine (CNRM)
- ❖ **Congressionally Directed Mandated Medical Research program (CDMRP)**
- ❖ **Joint Program Committees (JPC's)**

# Understand the DoD Funding Sources

- ▶ **What is Congressionally mandated money?** Money direct to straight to the Services or agency to study a research topic. Example: Directed Energy, Mercury Abatement, Warfare Technology, Cyber.
- ▶ **The Defense Medical Research and Development**
  - ❖ **Defense Health Program (DHP) money (The annual Defense Health Program (DHP) Research Program is approximately \$1 billion, with 80% of these funds provided to academic and industry scientists).**
    - NOTE: Will go directly to Defense Health Agency (DHA) FY2020 for ALL of the Military Health System (MHS)
    - The **Defense Health Agency**, Research, Development, and Acquisition (DHA RDA) Directorate manages and executes the Defense Health Program (DHP) Research, Development, Test, and Evaluation (RDT&E) appropriation.
  - ❖ **Congressionally Directed Mandated Medical Research Programs (CDMRP):** Money fund the (JPC's). The US Army Medical Research and Materiel Command (USAMRMC) Congressionally Directed Medical Research Programs (CDMRP) provides Defense Medical Research and Development Program (DMRDP) execution management support for the six DHP core research program areas listed below.
    - Each of these major research program areas is strategically guided by a committee, called a **Joint Program Committee, or JPC**, which consists of Department of Defense (DoD) and non-DoD medical and military technical experts.
  - ❖ **Each JPC are heavily connected to USU AND the DHA**

# CDMRP and Joint Practice Committee Structure Example #1

- ▶ There are funding opportunities through the CDMRP website
- ▶ JPC 1: [Medical Simulation and Information Sciences Research Program](#)
- ▶ JPC 2: [Military Infectious Diseases Research Program](#)
- ▶ JPC 5: [Military Operational Medicine Research Program](#)
- ▶ JPC 6: [Combat Casualty Care Research Program](#)
- ▶ JPC 7: [Radiation Health Effects Research Program](#)
- ▶ JPC 8: [Clinical and Rehabilitative Medicine Research Program](#)
- ▶ Psychological Health and Traumatic Brain Injury

# Questions

# Backup Slides

# Presidents Budget FY20

# FY20 Budget Key Points

- ▶ The Department is committed to ensuring our military remains the most lethal force in the world.
- ▶ The FY 20 budget is derived from and consistent with the NDS. The NDS focuses on great power competition with Russia and China, and this budget reflects those priorities.
- ▶ The FY 20 budget sustains readiness recovery and increases lethality to make critical investments in advanced technologies and modernization that are essential to the future of our national security needs.
- ▶ The Administration is seeking a base budget of \$545 billion, which includes \$165 billion in Overseas Contingency Operations (OCO) funding and \$9 billion in emergency funding to provide the additional resources essential to meet our national security needs.
- ▶ This DoD funding level of \$718 billion in total will enable us to implement the National Defense Strategy, while rebuilding critical installations damaged by Hurricanes Florence and Michael.
- ▶ Our FY 20 budget request is critical to arresting the erosion of our competitive advantage and sustaining the readiness recovery that started with the FY 17 Request for Additional Appropriations.
- ▶ Sustained, predictable, and adequate funding is required for the Department to execute the NDS and preserve U.S. military advantages in the years to come.

# FY20 Budget

## ➤ Aircraft

- ✓ Next Generation Air Dominance (Navy/Air Force) +\$589 million
- ✓ Long Range Strike – Bomber (Air Force) (B-21) +\$725 million
- ✓ F-35 Block IV (C2D2) upgrades (Navy/Air Force) +\$1,039 million

## ▶ Missile Defense

- ✓ Ballistic Missile Defense Midcourse Defense Segment +\$349 million
- ✓ Homeland Defense Radar (Hawaii) (MDA) +\$212 million

## ▶ Advanced Technology Development

- ✓ Joint Artificial Intelligence (DW) +\$209 million
- ✓ Algorithmic Warfare Cross Functional Teams +\$221 million
- ✓ Defense Rapid Innovation Program -\$249 million



# The Under Secretary of Defense for Research and Engineering (USD(R&E))

# Agencies under the USD(R&E) (Lethality)

- ▶ [Deputy Under Secretary of Defense for Research and Engineering<sup>\[6\]</sup>](#)
- ▶ Director of Defense Research and Engineering for Research and Technology
  - Deputy Director for Strategic Technology Protection and Exploitation
    - [Defense Microelectronics Activity\\*](#)
  - Deputy Director for Research, Technology, and Laboratories
  - [Defense Technical Information Center\\*](#)
- ▶ Director of Defense Research and Engineering for Advanced Capabilities
  - Deputy Director for Mission Engineering and Integration
  - Deputy Director for Developmental Test and Evaluation
    - [Test Resource Management Center\\*](#)
- ▶ [Strategic Intelligence Analysis Cell](#)
- ▶ [Strategic Capabilities Office](#)
- ▶ [Defense Innovation Unit](#)
- ▶ [Missile Defense Agency\\*](#)
- ▶ [DARPA\\*](#)

# First Step to working with DARPA

- ▶ The first step to working with DARPA is to visit the Agency's website at [www.darpa.mil](http://www.darpa.mil) to learn more about the research that DARPA's technology offices are supporting.
- ▶ From there, the best way to identify opportunities that bridge those priorities and your interests or expertise is to search for relevant Broad Agency Announcements (BAAs), which are DARPA's primary means of advertising opportunities.
- ▶ DARPA BAAs and Requests for Proposals (RFPs) can be found on the official federal acquisition opportunities websites, [www.fedbizopps.gov](http://www.fedbizopps.gov) and [www.grants.gov](http://www.grants.gov).
- ▶ A partial listing of DARPA opportunities can also be found at DARPA's [Opportunities page](#). The preferred method for submitting ideas and concepts to DARPA is to respond to a BAA, SBIR topic, STTR topic, program research and development announcement (RA), or other Government-initiated solicitation or program (RFP).
- ▶ The [Young Faculty Award program](#) provides additional opportunities for rising research stars in junior faculty positions to engage with DARPA and earn funding for their work.

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# **Assistant Secretary Director for Health Affairs (ASD HA)**

# Organizational Structure Office of the Secretary of Defense (OSD)

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36 Major Elements of OSD

## Line

The Under Secretary of Defense for  
Research and Engineering (USD(R&E))  
Dr. Michael D. Griffin  
(11 major agencies)

Basic Research Office (BRO) Under  
Secretary for Defense in Research and  
Engineering

Air Force  
AFOSR

Navy  
ONR

Army  
AOR

## Support

The Under Secretary of Defense for  
Personnel and Readiness, or USD (P&R),  
James N. Stewart (acting)  
(4 major agencies)

Assistant Secretary of Defense  
for Health Affairs (HA)  
Dr. David J. Smith

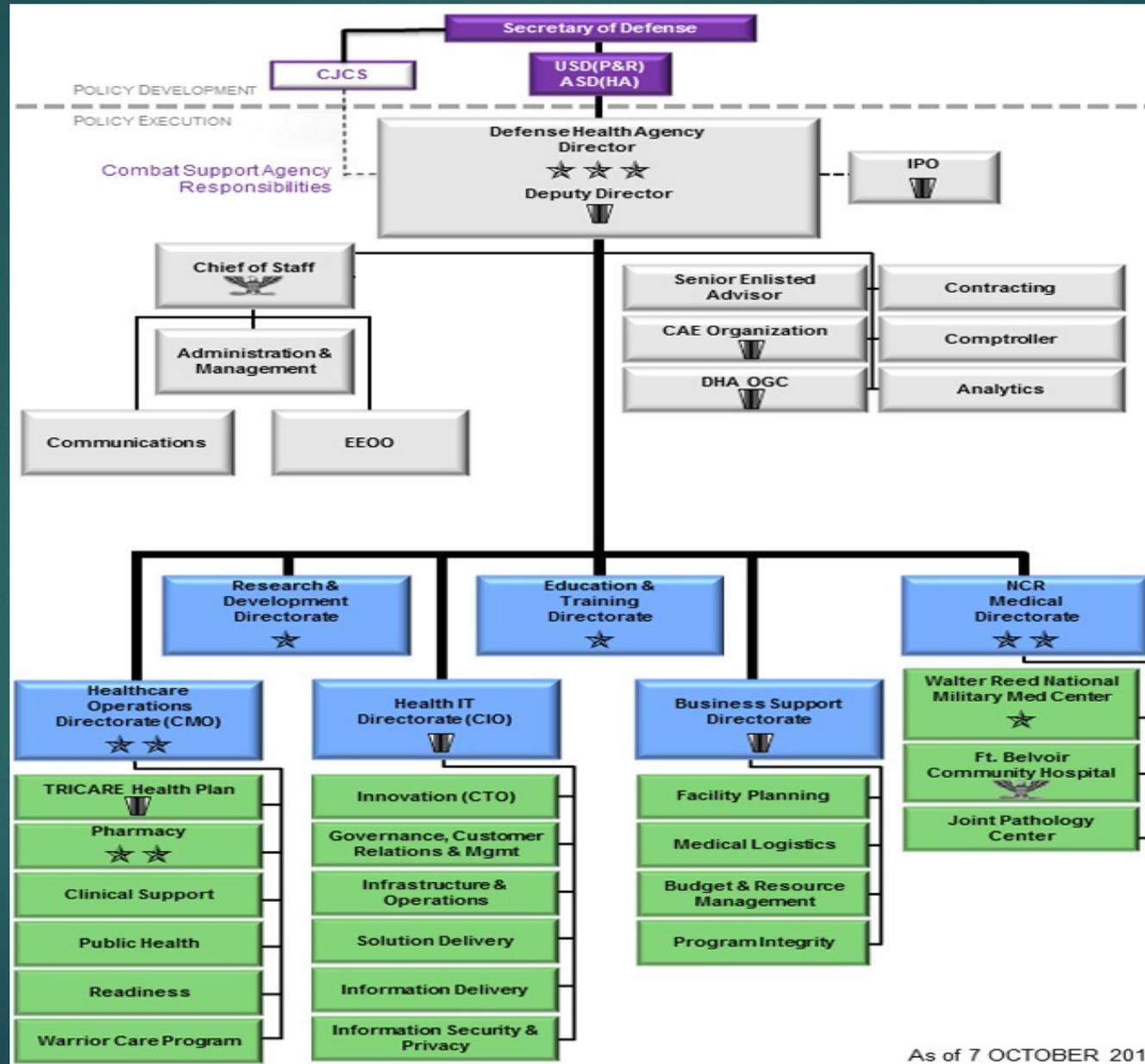
Defense Health Agency  
(DHA)  
VADM Rocky Bono

Uniformed Services  
University (USU)  
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# Assistant Secretary Director for Health Affairs (ASD HA)

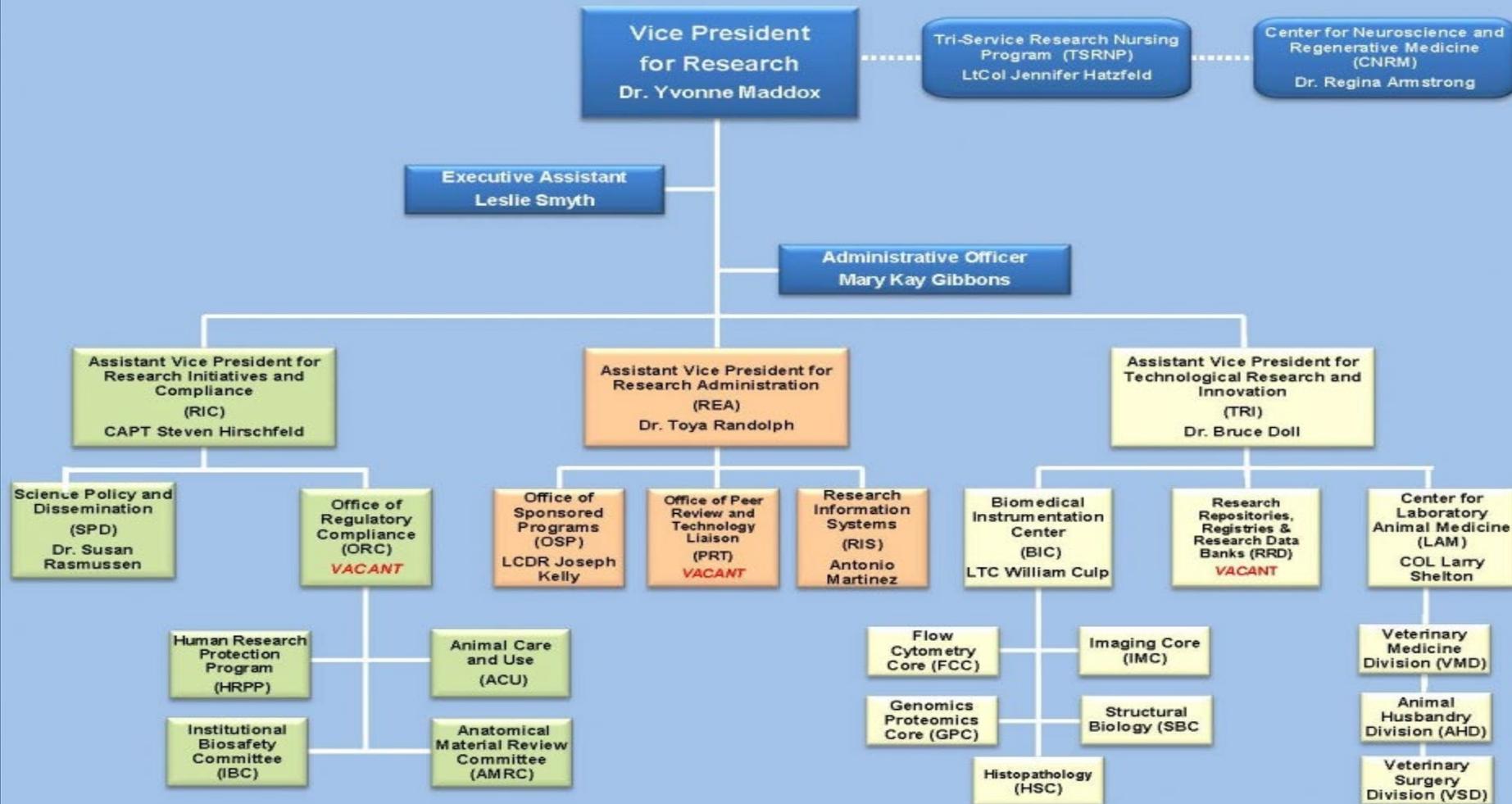
- ❖ ASD(HA) is the principal advisor to the [U.S. Secretary of Defense](#) on all "DoD health policies, programs and activities." In addition to exercising oversight of all DoD health resources, ASD(HA) serves as director of the Tricare Management Activity.
- ❖ The ASD(HA) reports to the [Undersecretary of Defense \(Personnel and Readiness\)](#), or USD(P&R).
- ❖ The ASD (HA) oversees the **Defense Health Agency**, [Uniformed Services University of Health Sciences \(USU\)](#), which educates uniform [physicians](#) and other health professionals for the [Army](#), [Navy](#), [Air Force](#) and [Public Health Service](#).
- ❖ The ASD(HA) also directly tasks the [International Health](#) Division of FHP&R, while FHP&R provides administrative oversight and resources.

# Defense Health Agency Structure



# Uniformed Services University Structure

## Office of the Vice President for Research



# Submitting to CDMRP

- ▶ General Tips for Submission Success
- ▶ Download a copy of the PA/BAA from the [CDMRP website \(https://cdmrp.army.mil/funding/default\)](https://cdmrp.army.mil/funding/default), [eBRAP \(https://ebrap.org\)](https://ebrap.org), or Grants.gov.
- ▶ Carefully read the PA/BAA to understand its key elements
- ▶ Start application submission early to allow adequate time to address issues that may arise during the process
- ▶ Adhere to PA/BAA timelines
- ▶ Ensure spelling of names and emails are correct and consistent throughout the process
- ▶ Remember that corrections to the project narrative and budget requires the application to be submitted through Grants.gov before the application submission deadline

# Know the Process of Grant Submission

- ▶ **ALL** agencies have grant announcements every week!!!
  - ❖ It's a full time job to scan the agencies and announce them to the university (note: professors don't have the time to be scanning)
  - ❖ Know the process for submission (note: The average professor will not know the process nor have the patience for this type of submission)
  - ❖ Understand and navigate through eBRAP, Broadband Agency Announcement (BAA) and Grants.gov