EP.113 – Gary Disbrow, Ph.D. – Director of BARDA

Narrator: You're listening to *BioTalk* with Rich Bendis, the only podcast focused on the BioHealth Capital Region. Each episode, we'll talk to leaders in the industry to break down the biggest topics happening today in BioHealth.

Rich Bendis: Hi, this is Rich Bendis. I'm your host for *BioTalk*. And as you know we bring leaders onto the podcast to talk about relevant events that affect you and I, as well as our region—the BioHealth Capital Region—which really is the headquarters for a lot of the people who have been trying to combat this pandemic and other major diseases that we've been encountering. And we have someone on the frontline that we're going to have the opportunity to talk to today, and it's Dr. Gary Disbrow, and he's got a long title here, so be patient with me. It's Director Biomedical Advanced Research and Development Authority, better known as BARDA, which we all know as BARDA, but also Deputy Assistant Secretary Preparedness and Response, US Department of Health and Human Services, which is also referred to as ASPR. So, Gary, welcome to *BioTalk*.

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Gary Disbrow: Rich, I really appreciate the opportunity. The first update as of last week, the Assistant Secretary of Preparedness and Response, which is an office, a staff division within the office of the secretary has been elevated to an operating division within HHS. So we are now known as the Administration for Strategic Preparedness and Response, still keeping the ASPR acronym, but we are now a full-fledged operating division.

Rich Bendis: Great, well thank you for that update, but to be honest with you, for the novices who are not in the federal government, what does that mean for you and your department?

Gary Disbrow: Prior to being elevated to an operating division, a staff division is within the Office of the Secretary, so we are under the Executive Branch. And being elevated to an operating division puts us on the same level as other agencies within HHS, such as the FDA, NIH, and CDC, which many people are familiar with.

0:02:08 And because of all the hard work that we have done, the expanding scope for what we are preparing the nation for, the secretary thought that it was time to elevate this staff div to an operating division. And it's

all of the hard work that we've been doing over the last 15 years as the ASPR organization, and the critical importance we play for national preparedness and response to get us elevated to an operating division, which has several benefits for us. Similar to other agencies, we would have our own hiring authority. It also allows us to have more control over our budget, and several other things. But it's just a huge acknowledgment of all of the hard work from the people within the ASPR and BARDA organizations.

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Rich Bendis: Well, congratulations. You and your team have done a fantastic job, and this elevation is well deserved. Enough of getting us to where we are today. Thank you. I like breaking news on podcasts. Even though it's a week late, it's still breaking news for us.

One of the things we like to do for the listeners, is for those being interviewed to do a self-introduction, because no one can do it better than they. So, Gary, if you don't mind, why don't you give us a little history? You mentioned 15 years in the federal government, but you had a lot of experience prior to that, so talk a little bit about how you got to where you are today, and also that interesting transition from industry to government that you've had.

Gary Disbrow: I appreciate that Rich. I have worked in industry, I have worked in academic institutions, and now the federal government for over 15 years. And prior to coming to the federal government, I was Research Assistant Professor at Georgetown University working on human papillomavirus research, vaccines, and therapeutics. With the licensure of the HPV vaccine, which the lab that I worked in was part of that, they had one of the patents for the development of the HPV vaccine, and unfortunately I was too late to be included in the patent for that.

0:04:04 But it was going to be difficult to get R01 grants for basic research within—for human papillomavirus viruses, and I had to make a decision whether I wanted to stay in HPV research, or move into another area of research such as breast cancer or colon cancer. And at that time a friend of mine who I postdoc'd with introduced me to the individual who was running the chemical, biological, radiological, and nuclear division at the predecessor to BARDA which was established in 2006. And I had a

conversation with him, and I just found the mission of the organization to be incredibly important. And I had never really thought of going into public service and working for the United States Government, but through multiple conversations that I had with that individual, it convinced me that this would be a great opportunity for me, and I've never looked back.

0:05:00 The opportunities that I have through public service to impact public health, to work with the incredible team that we have within the BARDA organization and across the federal government, has just been the highlight of my career. And I really just appreciate the opportunities that I've been given within the organization, and now to lead the BARDA organization and represent the team has been an incredibly gratifying. And it's so important for me to represent the organization, because there are 450 individuals within this organization who are truly dedicated to public health.

Rich Bendis: I think the other thing you talk about is passion, and public service is something that some people really don't understand as well as they should. And what you have is 450 people who are all committed to public service just as you, all working on a common goal and a vision, and providing great leadership through yourself, and we appreciate that Gary.

Gary Disbrow: Thanks, Rich.

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Rich Bendis: One of the other things with the transition between government and industry is I see some innovation occurring within BARDA that you might not traditionally see in other federal agencies with new programs. We're gonna talk about that a bit later, and I would imagine some of the experience you had in industry has benefited you in what you're doing in the federal government here, but we talked about BARDA and ASPR, but you have probably more acronyms within BARDA than any other federal agency that I've come in contact with, and just a few of those are PAHPAIA and CBRN and PHEMCE and ASPR. Tell us a little bit about this alphabet soup of acronyms we have and how all these programs all work together.

Gary Disbrow: Sure, I can start from the very beginning. In 2006, under the Pandemic and All-Hazards Preparedness Act, or PAHPA.

Rich Bendis: PAHPA.

Gary Disbrow: PAHPA, yep. It was legislation passed by Congress to establish BARDA as well as the Assistant Secretary for Preparedness and Response, those two organizations.

0:07:02 BARDA was established under this congressional legislation to act as the advanced research and development arm, or ARD arm for the federal government. Prior to BARDA being established, there was a lot of early research that was being done by our colleagues at the National Institutes of Health, and then the Strategic National Stockpile which was under the Centers for Disease Control and Prevention was located down in Atlanta, would purchase products for national preparedness efforts, but there was no funding for the development of medical countermeasures (MCMs), for advanced research and development. So BARDA was given the mission by Congress to act as the advanced research and development arm, to develop medical countermeasures which include vaccines, therapeutics, diagnostics, and medical devices to address chemical, biological, radiological, and nuclear threats, or CBRN, pandemic influenza, as well as emerging infectious diseases.

0:08:04 And over our 15 year history (we just celebrated our 15 year history in December of 2021), we have supported 63 FDA approvals, clearances, and licensures of products that cut across our threat space, so the CBRN threat space, pandemic influenza, and emerging infectious disease. And I'm not aware of any other federal agency that has been as successful developing FDA (Food and Drug Administration) approved products to support national preparedness for the threats that we face.

Rich Bendis: The threats that you're talking about, so BARDA's on the frontline for biological, chemical, radiological, and nuclear threats, just as DOD's on the frontline for other types of threats that may encounter us. Also, they have a program called DARPA, you've got BARDA. Do you have interaction with them on programs as well as any other federal agencies you may interact with, Gary?

0:09:05

Gary Disbrow: We do. Our partnerships are critically important, both with the private sector, and to date we've partnered with over 400 different industry partners, all sizes, large pharmaceutical companies, mid-sized biotechs

and small start-ups. But we do also collaborate across the federal government, so our role in advanced research and development is to be the transition partner for programs that are being supported by DARPA, by NIH, and other components of DOD, such as DTRA, the Defense Threat Reduction Agency, and then our counterpart in Department of Defense is the Joint Program Executive Office for ChemBio Defense, or JPEO. But we also partner with other federal agencies such as NASA, and everybody that is interested in developing medical countermeasures, we partner with them.

0:09:57 The other program that you mentioned is the PHEMCE, which is the Public Health Emergency Medical Countermeasure Enterprise, and that is led by ASPR. And it is across department and within HHS, leadership that looks across the threat space and makes strategic decisions on investments or products that we may need to address national security, and I'll try us to align as best as possible those efforts across those multiple departments.

Rich Bendis: That was a very good introduction to, sort of, the distillation of all the different things that you're involved in at BARDA. But I think BARDA really came to the forefront when COVID-19 hit, not that it wasn't well-known before, but the public became better known to the BARDA name and what you did, and particularly when Warp Speed evolved. So let's talk a little bit about the beginning of the pandemic, what BARDA did to attack it aggressively, and how Warp Speed has been effective in combating COVID-19 pandemic.

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Gary Disbrow: No, that's a great question, and there were many lessons learned from the experience of COVID-19, which is still ongoing. So, even prior to a public health emergency being declared by the secretary of HHS, BARDA quickly stood up. We put in place an incident management structure within our organization so that we could respond appropriately. We started reaching out to pharmaceutical companies even in advance to understand what technologies they may have available. And we used our own annual appropriations prior to supplemental funding coming from Congress to make initial investments. So we had contracts with companies that we had partnered with. I'll give you one example, Regeneron, which develops monoclonal therapeutics, we had partnered

with them to develop the first licensed Ebola therapeutic, and they have this rapid technology that can be utilized, and under that contract we quickly pivoted them to start developing monoclonals against COVID-19.

0:12:04 So we used our own annual appropriations to get them started. We also worked with vaccine manufacturers such as Sanofi and Merck, and Merck's vaccine that had been licensed for Ebola, they wanted to evaluate that same technology to see if it might be applicable to COVID-19. Ultimately it was not, but we did make those initial investments. And it was not until March 18th of 2020 when we received supplemental funding, where we could really expand our partnerships and make investments with companies such as Moderna, which we had partnered with before for the development of the Zika vaccine, and other partners like Johnson & Johnson, and their vaccine that we had partnered with, and previously for the development of another Ebola vaccine. So we were able to quickly utilize the contracts that we had available to us, and pivot those companies to start making medical countermeasures and vaccines and therapeutics as well as diagnostics.

0:13:00 We laid the groundwork for the portfolio of candidates that were supported as far as vaccines and therapeutics under the eventual Operation Warp Speed. And Operation Warp Speed, through some other discussions, we made some additional investments such as through our investment with AstraZeneca for their vaccine and some of the other therapeutics. But we had the basis of the portfolio that would be supported by OWS, and BARDA played a critical role, meaning that we were the lead for the development of vaccines and therapeutics. And so for each project that was supported by BARDA and transitioned to Operation Warp Speed, BARDA was the lead for the development.

So we set up what we call a project coordination team or PCT, which has a lead, and we also bring in subject matter experts for regulatory, clinical, non-clinical, manufacturing, to help support the company and the development of those vaccines and therapeutics.

0:14:00 And we also brought in partners through the National Institutes of Health, the National Institute of Allergy and Infectious Diseases (NIAID), and they worked with us on the clinical aspects and the Phase 3 clinical studies that were supported. But the key component for COVID-19 and under Operation Warp Speed, is that the federal government was willing

to assume the financial risk and burden of supporting parallel activities. So typically you would do your Phase 1 clinical trial, a Phase 2 clinical trial, and then you would move into your Phase 3 efficacy trials. And then you would start scaling up manufacturing to go to commercial scale and validate that. What the federal government did was assume the financial risk of starting that scaling up of manufacturing while those clinical studies were ongoing, so that if there was a positive readout, and there was positive readouts very quickly for the mRNA vaccine candidates, we would have product available as soon as a potential emergency use authorization, or EUA, was granted by the Food and Drug Administration.

0:15:04 And so we did have doses available in December of 2020, and we started rolling those out, and that is what everybody has heard about for OWS, is the ability to go from what is typically from an 8 to a 10 year process, down to an 11 month process by the US government assuming that financial burden and risk of doing parallel activities.

Rich Bendis: I think you just explained something that was a question by a lot of our tax-payers in the United States, and that is: Why is government helping fund all these large companies who have all of these resources? And I think your explanation of doing parallel research versus linear research, basically going from 8 to 10 years, to 11 months, is the justification and the reason we did it, or else we never would have been able to come up with the vaccines as quickly as we did.

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Gary Disbrow: Correct, and the companies were moving as quickly as they could, but there is a huge financial risk to the companies if they support those manufacturing activities and their vaccine was not successful. The federal government was willing to support those companies even if their vaccine was not successful. So that if they were successful, we would have doses available. And that is the financial risk that the US government was willing to take, and I think it has paid off. But yes, the linear development of these vaccines could have taken years. It may not have taken 10 years, but it would have taken more time if the US government had not been supportive.

Rich Bendis: I'm a strong supporter of private public partnerships in BioHealth innovation. My organization is a private-public partnership, so what

you've explained is the benefit of the private sector and the public sector working together to leverage resources, because if there wasn't that stimulation by the federal government, all of these private sector companies have their own priorities. And in order to get them to reprioritize to meet what the needs for the American citizens were, it did require some incentives to do that, and I think they were well justified.

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Gary Disbrow: No, I agree. There's always financial trade-offs for commercial entities that they have to take into account. One of the things that BARDA is well known for, as you just mentioned, is the public-private partnerships. One of the very first things that we did at the beginning of the pandemic was to open up a market research portal. So BARDA interacts with industry. There were numerous companies that were interested in potentially partnering with the federal government, and so by us opening up that single portal, it allowed for a single entry-point for any company that was interested in potentially partnering with the federal government to submit a market research paper. We would then work across the federal government. We had a task-force. We had one task-force for vaccines, one task-force for therapeutics, one for diagnostics, and one for clinical studies.

0:17:55 And those submissions would be reviewed by those different task-forces, and would rate those as highly relevant, meaning that if we were to support them, they could have a potential immediate impact on the pandemic, and those that were ranked as a high priority, we invited them in for a tech-watch. We called it the Corona Watch, we rebranded it during COVID-19, but we have received almost 5,000 market research submissions and held almost 800 tech-watch meetings. And the tech-watch is where the company comes in, originally it was a person, but then we went to virtual meetings, and they would meet with anywhere from 40 to 60 representatives from across the federal government, because if they weren't an exact match for BARDA potential funding, they may have funding opportunities through the Department of the Defense, or other HHS agencies, and again that really streamlined the process for the companies.

0:18:54 And it's something that I wish we had done for the Ebola response back in 2014, because again, a lot of well-intentioned and well-meaning

companies who want to partner with the federal government, but not having that single portal meant that we had a lot of companies coming in through different agencies, and it was not very coordinated. But this really streamlined the effort for all our external partners.

Rich Bendis: I think crisis sometimes creates opportunities, and what it's done I think for BARDA is demonstrate that if you are nimble and you have flexibility then you can be able to respond much more effectively to what some of those threats are that you have to deal with on a day to day basis. And also, I think now that you've been elevated to an operator division, you're probably gonna have greater flexibility than you had before when the COVID crisis emerged.

Gary Disbrow: It does give us greater flexibility and it does take partnerships both within the federal government and the private sector to really do what we were able to do in COVID-19, and we were able to over the course to date—invest $80 billion.

0:20:00 We've established 140 partnerships, it's led to 41 emergency use authorizations across diagnostics, vaccines, and therapeutics. Two FDA approvals, one that we directly supported that was Moderna, and even though we didn't provide Pfizer advanced research and development funding, we did provide them with an advanced purchase commitment, which de-risked the development of that vaccine for the company. So the US government was willing to purchase that vaccine even if it was not successful through efficacy studies. We've delivered over 800 million vaccines, over 14 million therapeutics, and again, we've awarded $8 billion in partnership with our DOD, Department of Defense colleagues. We leaned on them for assisted acquisition, because we have a very strong contracting shop, but we knew we were going to need assistance. And the DOD under Operation Warp Speed brought both acquisition assistance—there were 180,000 acquisition experts within the Department of Defense, and they also brought logistic experience.

0:21:05 Having General Perna in charge of OWS really helped with the logistics of the entire effort, because we knew that we were going to be distributing hundreds of millions of doses of vaccine, and nobody knows how to prepare for a logistical effort like that better than the Department of Defense.

Rich Bendis: We're speaking with Dr. Gary Disbrow who is the Director at BARDA, and congratulations on some of those amazing statistics, because generally a lot of people talk about budgets in the federal government, and you don't hear about the outcomes. What you just talked about: what is the outcomes from the budget you had to work with—and some of those appropriations from Congress—to deal with some of these new threats that you were able to encounter over the last three years. So congratulations on that.

0:21:52 But, it does take innovation to be able to do that, and I want to talk a little bit about some of the innovative and new partnership programs that you've created that I'm aware of, and you probably have more that I haven't heard of. Some of those are the CARB-X program, DRIVe, Blue Knight, and your new BARDA ventures organization. So if you don't mind, could you elaborate on some of these new programs, Gary?

Gary Disbrow: In addition to the congressional mandate for being the advanced research and development arm, and embedded in that is that BARDA needs to be an innovator in the development of medical countermeasures. And so in 2018—well sorry, for CARB-X, which is the Combating Antimicrobial Resistant Bacteria Accelerator—that came out of the White House and the Office of Science and Technology and Policy (OSTP), their CARB strategy and implementation plan, and BARDA was directed to establish an accelerator by 2018, and we actually stood it up in 2016.

0:22:51 And the purpose of this was to support smaller companies through earlier stages of development, and we did this in partnership with the National Institutes of Health as well as the Welcome Trust, but was to really provide that base funding for companies that needed additional funding, and it was hard to get through venture capital, and the large pharmaceutical companies had pretty much abandoned development of novel antibiotics, moving more towards chronic diseases where there's additional or more significant profit to be made. And so we partnered with Boston University. We stood up the CARB-X program, and to date we have funded over 92 different technologies through that program, transitioned some of those to advanced research and development, and also have several that are first in human clinical trials to evaluate these novel antibiotics and therapeutics. And the goal was really to develop

novel antibiotics. We didn't want "me too" antibiotics. We need to constantly stay ahead of antimicrobial resistance, which continually occurs every time an antibiotic is used.

0:23:58 And it really serves that purpose, and the program has been so successful that we have obtained the interest of other governments from around the globe. And so now we have partnerships with the UK government and the German government. And we just awarded a new contract to Boston University, which is a 10 year commitment on behalf of the US government to continue this program. So that was just one of the things that we did. We also understood the need to have an organization within BARDA, or a division within BARDA, that was really focused on innovation. And so in 2018, we stood up a division within BARDA called the Division of Research, Innovation, and Ventures, or DRIVe. That was established to be the home for BARDA Ventures, which was an authority we were provided under the 21st Century Cures Act, called the Medical Countermeasure Innovation Partnership, to allow us to partner with a venture capital firm and provide them money, and then they are able to make investments just like any other venture capital firm would make investments in innovative technologies.

0:25:08 And we partnered with Global Health Investment Corporation, and that started in 2021, and we've already made some of those initial investments. But also under DRIVe, even before we stood up BARDA Ventures, we established 13 accelerator networks across the United States, because we understand that sometimes innovation doesn't come from with inside the beltway around DC, sometimes it does, but we wanted to have a very broad reach across the United States, and so those accelerators allowed BARDA to have outreach into those innovative communities across the United States and bring those technologies to BARDA, because most innovators would not think of partnering with the federal government. They need money quickly, they need autonomy, they need flexibility, and most people view the federal government as bureaucracy, red tape, long contracting processes.

0:26:00 But we've been able to educate them that working with BARDA can be a benefit to them even in the early stages of development. We set up a solicitation called the Easy BAA, and it really is easy for the companies to promote their ideas to the federal government. It's 2,000 word abstract.

We can make a decision on whether we're interested or not, and if we are, we can move into further negotiations, and have awarded contracts in as few as nine days, but typically it's about 30 days. And then finally, we also stood up a partnership with Johnson & Johnson, their innovation arm, which is called JLABS, through our Blue Knight Program. And that is located here in Washington, DC, at Children's National Hospital. There is lab space there. They receive expert advice from Johnson & Johnson, as well as BARDA mentoring, as well as funding to help them develop their innovative programs.

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Rich Bendis: Sally Allain, the head of JLABS in DC, is on my board. And also is Dr. Kurt Newman from Children's National Hospital. We have some partners that you are very familiar with. I love the campus idea in DC, because really, there weren't a lot of pharma- or bio-companies headquartered in DC, and there needed to be some way to get innovation going within the District, and with Virginia Tech, and BARDA, and JLABS, and Children's, it really is a really neat partnership that has evolved in the District there.

Gary Disbrow: It's been very successful. So, we have 23 programs that are funded through the Blue Knight. We have some that are resident at Children's National Hospital. I know Kurt very well. We've been able to leverage that new campus that they're developing, and it allows the innovators to be close to other research that is being done at the hospital, as well as being close to the National Institutes of Health. And it truly has been an impressive program. But we also have access to JLABS globally, so we do some investments that we're supporting through some other JLAB components or sites across the globe.

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Rich Bendis: I tell you, with all the innovation you've done and all the programs that have been created, what is there left to do? I mean, are there areas untouched that you see in the future that you can still impact?

Gary Disbrow: There are many opportunities, especially for innovation moving forward. We really need to be able to do everything that we did in COVID, but even faster. So you probably all heard of the American Pandemic Preparedness Plan BARDA is full committed to. We have a strategy to support that if we receive funding in fiscal year 23 to move forward on

that. And that is to prepare the nation, in advance of the next pandemic, to develop a prototype vaccine. So if you take a virus family that is considered to be of high pandemic potential, you develop a vaccine against one of those viruses in the family, do all of your clinical trials, scale up commercial manufacturing, and validate the process. And then if another virus from that family is the one that is the outbreak for the pandemic, you might be able to just plug and play, and put the antigens or what the body would recognize to generate an immune response against, from that virus into the same system.

0:29:06 But all the innovation that we're supporting—we have a beyond the needle program. Right now vaccines are administered through a needle and a syringe. Many people are hesitant to get a vaccine because they're afraid of the needle and the syringe, so we have a program we're looking at. It's called a microneedle array, and patch technology, where you could have the vaccine on a patch that looks like a Band-Aid that you would just stick on your arm, and it actually gives you the intradermal injection. So, much easier distribution of the vaccine.

We also are working on solving sepsis program within DRIVe. Almost all insults to the body can lead to sepsis, and that was also seen in COVID-19, people were dying of septic shock as a secondary effect of being infected with the virus.

0:29:55 And so the team is working on innovative technologies and algorithms that if an individual comes into an emergency room department, the algorithm can be applied to determine if they're at a high risk of moving on to sepsis, or if they're at a much lower risk, so that doctors can be aware and monitor them more closely. Those are just a few of the things that we're looking at. Threat agnostic therapies. There are multiple secondary pathologies that occur after a viral insult. Acute Respiratory Distress Syndrome, or ARDS, which occurs in pandemic influenza, influenza, as well as COVID-19. Developing therapeutics to address ARDS, and several other things that we're looking at. Agnostic diagnostics, so that they can determine that yes you've been infected with a virus, but trying to identify what those are for large virus families. And digital MCMs, such as wearable technologies that have come to the forefront of the COVID response, and also digital help.

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Rich Bendis: You don't have to apologize, Gary. You're doing extremely well [laughs] in explaining everything that BARDA does. One of the things you did talk about, I want to talk a little bit further, is that antibody research, as we look at going into the future, related to future pandemics, we helped establish the Global Pandemic and Biodefense Center in Rockville with Dr. James Crowe out of Vanderbilt, who had a program around I had100 looking at the potential 100 future pandemics that may occur, and developing these antibodies in advanced and stockpiling them. Is that something that you see BARDA is interested in?

Gary Disbrow: So, it is. Not only monoclonals, but also antivirals that are broad-spectrum, meaning that they're effective against the entire virus family. But again, as part of the American Pandemic Preparedness Plan is to do that all in advance, before the next pandemic, is to have a bank of antibodies that may work against the different viral families and viruses within those families, as well as antivirals.

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Rich Bendis: Super. Well, we've covered a lot of ground here within the last 30 minutes or so. What is it that we've left out that you'd like to talk to the listeners about that we haven't asked any questions on?

Gary Disbrow: Hopefully people understand the importance of the BARDA organization, not only in response, but also in preparedness. We're always on the forefront of developing medical countermeasures to make sure that we are prepared. I think one key example is the current monkeypox outbreak. So even though we don't have a requirement for monkeypox, it has not been determined as a threat to national security by the department of Homeland Security, we do have one for variola virus, or smallpox. And so our years of investment in the development of smallpox vaccines and therapeutics, has led to three that are FDA approved: the JYNNEOS vaccine, which all people are now very familiar with, as well as two antivirals, TPOXX and Tembexa.

0:32:55 And so, I think those prior investments supporting development of smallpox vaccines and antivirals was critically important so we would have something available immediately for the monkeypox outbreak. And so I think that's a key example of where preparedness allows us to respond much quicker. And the same thing goes for Ebola. In 2014, we

only had investigational products, meaning they were not licensed or cleared by the FDA, and through BARDA support, we now have an FDA licensed vaccine, two FDA licensed therapeutics, and an FDA cleared rapid diagnostic, so that anytime there is an outbreak of Ebola in Africa, we are able to respond very quickly. So, my key message is that preparedness is critical for response. I would even go as far as to say that preparedness can be less expensive than response, where you're always chasing the virus and trying to play catch-up. But I think the role that BARDA plays is critically important, not only for response but for national preparedness.

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Rich Bendis: So BARDA is able to react quickly, but also is becoming much more proactive to prevent things that they have to react to.

Gary Disbrow: Correct, and again, to me it's less expensive to be prepared, and it's also—if you think about economic tolls, the socioeconomic tolls of COVID-19—we receive about $2 billion a year in annual appropriations to prepare our nation for chem, bio, rad, nuke, and pandemic influenza, and in the past two years, we, and along with our partners at Department of Defense, have invested $80 billion just in the development and procurement of medical countermeasures.

Rich Bendis: Well, I think maybe your budget needs to be increased a little bit, Gary. [laughs]

Gary Disbrow: [laughs] I'm not allowed to advocate for more money.

Rich Bendis: I know, I can speak for you.

Gary Disbrow: We can always do more.

Rich Bendis: That's okay. That's part of the Bendis open mic, not the Gary Disbrow open mic part. Gary this has been very enjoyable and educational for me and I'm sure for the listeners. Anything else? Any parting words that you have for our listeners out there that you'd like to impart upon them?

0:35:05

Gary Disbrow: The federal government is often criticized for not being responsive, and not helping, but we truly do have a dedicated team at BARDA that is

committed to public health, and we will do everything that we can to make sure we're prepared, and/or if we have to respond, to do everything as quickly as possible. There are some great employees and many great employees in the federal government, and it is truly my honor to represent the BARDA team, both on this podcast as well as my ability to express what we do in front of Congress or when I talk to congressional members, so that people are aware that yes there is a group out there who is trying to do whatever we can to make sure that we're prepared for the future.

Rich Bendis: Well, I want to thank Dr. Gary Disbrow, who is the Director at BARDA, also the Assistant Secretary for ASPR, which has now been elevated to an operating division, which, congratulations again, Gary. For being on *BioTalk*, you've done an excellent job in educating and making people aware of the BARDA mission, where it's been, where it's going, and also how it's focused not only on response, but in preparedness in the future to prevent disasters like we've had in the last three years. So, thank you very much for being on *BioTalk* Gary.

Gary Disbrow: Thanks Rich, I appreciate the opportunity.

Narrator: Thanks for listening to *BioTalk* with Rich Bendis.

End of recording