ABOUT THIS REPORT

The American Society for Microbiology (ASM) is uniquely positioned at the intersection of science and public health to create sustainable solutions for health systems around the world. Our global network of experts works in resource-limited countries to advance the microbial sciences and strengthen health systems by raising awareness of health threats, increasing local expertise, and promoting a culture of responsibility in high-burden areas.

This report highlights ASM’s global impact over the past year in four key areas of public health:

- Addressing critical gaps in HIV detection
- Advancing diagnostics for tuberculosis
- Improving global health security
- Strengthening the healthcare workforce
ASM was founded to advance the microbial sciences, and we are collectively achieving that mission in many ways. One of the areas that I am most passionate about and proud of is our collaborative work to fight infectious diseases on the front lines.

For more than a decade, ASM has developed a global laboratory strengthening program in support of several U.S. government initiatives. Innovation in high-profile labs is often more visible than the remarkable work being done in resource-constrained environments, where innovation is driven by necessity, and where Mother Nature seems always to be one step ahead. By contributing to the resolution of pressing global health challenges—HIV/AIDS, tuberculosis, antimicrobial resistance, emerging biological threats, and healthcare workforce gaps—we are making the world a safer and more prosperous place for everyone.

Leveraging our membership, collective resources, and expertise, ASM has helped dozens of nations develop their capacity to prevent, detect, and respond to emerging infectious diseases. Along the way, we have fostered collaboration and goodwill, speaking the common language of science. ASM is a platform for all—a place to connect, share, and advance our field.

At a time when budgets are tighter than ever, many nations are questioning the value of scientific initiatives and international collaboration. Now, more than ever, we need to articulate the value of this work. The Global Impact Report is our annual update on our achievements in advancing the health, security, and economy of the United States, our partner nations, and the entire world.

If you are reading this as a member of ASM, you should take pride in this report—this is your society, and you should be proud of the work you are contributing to. If you’re a newcomer to our society and you would like to get involved, I invite you to visit www.asm.org and join the team. We welcome your support.

Stefano Bertuzzi, Ph.D.
WHERE WE WORK

45
ASM BioResource Centers in 30 countries

52
countries with ASM Young Ambassadors of Science

15
countries with ASM Laboratory Strengthening Programs
85 countries with ASM Country Ambassadors

13 countries with active ASM International Student Chapters

10 countries with ASM Health Security Programs
2016 IN REVIEW
A JOURNEY THROUGH SOME OF OUR RECENT ACTIVITIES

NIGERIA
ASM hosts a Biosafety and Infection Control Workshop for 50 people in Enugu State, Nigeria.

JANUARY

BOTSWANA
ASM hosts the first-ever Antibiotic Susceptibility Testing (AST) Workshop in Botswana, training 36 technicians in this key diagnostic test for detecting antimicrobial resistance (AMR).

FEBRUARY

MOZAMBIQUE
34 technicians participate in a Gram staining training-of-trainers (TOT) workshop in Mozambique to improve diagnosis of meningitis and other bacteria in cerebrospinal fluid.

MARCH

EGYPT
ASM partners with Suez Canal University to train more than 60 Egyptian microbiologists in biowaste management.

APRIL

PAKISTAN
ASM consultant Sean Kaufman launches the 52 Weeks of Biosafety program with a cohort of 15 Pakistani laboratorians.

MAY

NIGERIA
25 participants apply the fundamentals of management theory to laboratory practice at an ASM workshop at the University of Calabar Teaching Hospital in Nigeria.

JUNE

VENEZUELA
A virtual workshop on scientific writing and publishing for postgraduates is organized by Maria Alexandra Garcia-Amado, ASM Country Ambassador to Venezuela.

JULY

PERU
In Chachlacayo, Peru, ASM helps to host a camp for more than 100 young women interested in pursuing careers in the sciences.

AUGUST

UKRAINE
ASM develops guidelines for Pima™ CD4 testing at point-of-care testing centers in Ukraine. The guidelines are distributed throughout the country to support health centers managing HIV cases.

SEPTEMBER

CÔTE D'IVOIRE
ASM supports the MOH of Côte d'Ivoire in validating the National HIV Screening and Counseling Policy document, which guides the national rollout of the country's improved HIV rapid testing program.

OCTOBER

NEPAL
ASM Country Ambassador Dr. Prakash Ghimire and ASM Young Ambassador Dr. Shyam Prakash Dumre partner with the Nepalese Society for Microbiology to organize a One Health Symposium in Nepal.

NOVEMBER

LIBERIA
In Liberia, two ASM consultants work with Phebe Hospital laboratory staff to improve microbiology capacity, with a focus on blood culture.

DECEMBER
Over the past decade, efforts aimed at decreasing rates of new HIV infections and HIV-related deaths have shown significant progress in the global fight against HIV/AIDS. Access to quality-assured diagnostics and treatments is essential to combating the high burden of disease in resource-limited countries.

The Joint United Nations Program on HIV/AIDS (UNAIDS) has set the 90-90-90 targets, an ambitious set of goals that aims to increase rates of HIV diagnosis, treatment, and viral load suppression. These goals will be impossible to achieve without quality-assured point-of-care testing and reliable laboratory services in all health system settings.

Under the President’s Emergency Plan for AIDS Relief (PEPFAR), ASM is mobilizing its extensive network of experts in the microbial sciences to bring innovative HIV/AIDS diagnostic services to the world’s most vulnerable communities. Our focus on country ownership and sustainability helps to ensure that the UNAIDS targets can be met in even the most resource-limited settings.
Ensuring that treatments for HIV are accessible and effective is essential to preventing the spread of the virus. The PEPFAR-funded Botswana Combination Prevention Project (BCPP) aims to make this goal a reality.

Pioneered in 2013, the BCPP is a four-year study that evaluates the ability a combination prevention and treatment package has to significantly reduce the rate of new HIV infections. Led by a group of academic institutions and PEPFAR partners, including ASM, the BCPP is aiming for early achievement of the UNAIDS targets—by December 2017—in 15 rural and peri-urban communities.

Through the procurement and delivery of life-saving equipment and supplies, ASM has played a key role in developing a cold supply chain, blood specimen referral system, and health information system for the country’s laboratory network. To promote proper testing practices and equipment use, ASM is also delivering trainings to laboratory technicians through the BCPP.

Significant decreases in HIV prevalence have already demonstrated the benefits of systems-level programs like BCPP for combating the HIV epidemic in Botswana. If programs like BCPP continue to see success, Botswana may soon meet the 90-90-90 targets and achieve the goal of an AIDS-free generation.

Partners:
CDC-Botswana; Botswana-Harvard AIDS Institute Partnership; Government of Botswana; Harvard AIDS Initiative

HOW IS ASM WORKING TO ACHIEVE THE UNAIDS 90-90-90 TARGETS?

90% of people living with HIV will be diagnosed.

ASM establishes laboratories and conducts quality assessments to ensure that tests are available and accurate.
Since 2013, ASM has worked in the Democratic Republic of Congo (DRC) to implement a proficiency testing (PT) program for HIV rapid tests. PT helps to ensure the accuracy of diagnostics by comparing a laboratory’s analyses to the results of an outside reference laboratory.

ASM has been working with local technical expert Jeanine Nkakulu, to implement a rigorous PT program for laboratories in DRC. The program has grown significantly in the last three years, covering around 600 laboratory sites per cycle in 2016—up from approximately 200 in 2013. Laboratory participation rates have also increased, hitting 100% in the first cycle of 2016, compared to less than 50% in 2014.

This growing enthusiasm for the PT program is an encouraging sign for the future of accurate rapid HIV testing in DRC.

Containerized laboratories, also known as modular molecular laboratories (MMLs), can be quickly set up and equipped to provide quality-assured testing services in resource-limited areas. In 2016, ASM established an MML to make early infant diagnosis (EID) and viral load (VL) monitoring services accessible to the population of San Pedro, Côte d’Ivoire. (See photo at left.)

The MML in San Pedro officially launched operations in April 2016, becoming the fourth MML ASM has established in Côte d’Ivoire. While patients in San Pedro previously had to travel six hours to Abidjan to receive laboratory services, they are now able to receive them closer to home.

The San Pedro MML is advancing Côte d’Ivoire toward the 90-90-90 goals for diagnosis and viral load suppression. It has helped pave the way for a robust laboratory network: ASM will help to establish eight more HIV EID/VL laboratories over the next year, further expanding access to critical laboratory services.
OVERCOMING SOCIAL AND FINANCIAL BARRIERS TO TESTING ACCESS

In Ukraine, the realities of being HIV-positive are challenging: social stigmas within communities can make patients reluctant to use testing and treatment services. Coupled with a large funding gap for HIV/AIDS testing services at public health facilities, these social fears have made it difficult for HIV services to reach key target populations. The country is therefore at risk of not only failing to reach the 90-90-90 targets, but also of potentially reversing the progress made thus far.

To tackle these combined challenges, NGOs in the country implemented a new, supervised self-testing scheme. In the presence of a social worker, patients can collect their own blood sample and use a rapid diagnostic testing (RDT) kit to determine results—all without the risk of being seen in public entering a HIV testing center.

Together with in-country partners, ASM has worked to ensure the quality of the new self-testing service. To identify potential problems, ASM conducted site visits to self-testing locations, which revealed several inconsistencies in testing procedures, data collection, and social worker communication. ASM used these findings to produce a comprehensive framework for assisted HIV self-test evaluation and recommendations for service indicators, which enabled the HIV National Reference Laboratory to endorse quality control measures for RDT kits. Additionally, ASM helped to implement standard operating procedures (SOPs) and workshops to ensure the proper training of social workers supervising self-testing services.

Innovative approaches like this one enable countries to better serve hard-to-reach populations and curb the emergence of new HIV infections.

WHY DO WE PROMOTE RAPID HIV TESTING?

IT SAVES TIME.
Rapid tests deliver results in under an hour, compared to several days for traditional blood tests.

IT GETS PATIENTS ON TREATMENT FASTER.
Immediate diagnoses enable doctors to give immediate treatment recommendations.

IT’S MORE ACCESSIBLE.
Rapid tests are easy to store and distribute in resource-limited settings, and even enable self-testing in certain situations.

Partners:
Alliance for Public Health in Ukraine; HIV National Reference Laboratory
TUBERCULOSIS

SUSTAINING PROGRESS FOR STRONG HEALTH SYSTEMS

Although tuberculosis (TB) is curable, it continues to have a devastating impact in high-burden, resource-limited countries. According to the World Health Organization (WHO), there were 10.4 million new TB cases and 1.4 million TB deaths in 2015, making it the world’s leading infectious disease killer. Rising rates of multidrug-resistant (MDR) and extensively drug-resistant (XDR) TB are intensifying the danger of the disease. The public threat posed by TB is exacerbated by high rates of TB/HIV co-infection in many low-income countries.

Laboratories that can provide timely, accurate, and quality-assured diagnostic services play a critical role in fighting the global TB epidemic. For over 10 years, under the President’s Emergency Plan for AIDS Relief (PEPFAR), ASM has provided long-term, sustainable technical assistance to improve the quality and delivery of microbiology services. ASM has worked in more than 25 countries to help diagnose and treat TB, fight the rise of TB drug resistance, and prevent complications of TB/HIV comorbidity.
Mentor4TB: Helping Laboratories Reach New Heights

Since 2005, ASM laboratory mentorship programs have provided training to laboratory staff in resource-limited countries, helping them to more quickly and accurately diagnose TB and TB-HIV co-infections. The launch of the Mentor4TB toolkit in 2016 keeps with this tradition of creating lasting change in laboratory practices around the world.

Mentor4TB is an open-source toolkit that provides guidance for laboratory mentorship programs, with the aim of helping laboratories gain international accreditation. Mentor4TB lays out a customizable framework for improving laboratory technical capacity to deliver results to TB patients.

The knowledge and technical skills of the mentees are evaluated with intermittent competency testing. Laboratory progress is measured over time using a standardized TB technical checklist and the WHO/AFRO Stepwise Laboratory Improvement Process Towards Accreditation (SLIPTA) checklist, which recognizes laboratory improvements in 12 technical areas using a five-star tiered approach.

By taking a systems-level approach to assessing and improving laboratory practices, Mentor4TB promotes the development of sustainable TB control strategies.

The Stepwise Laboratory Improvement Process Towards Accreditation (SLIPTA) framework lays out 12 areas for laboratory improvement, as well as a 5-star evaluation system.

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<tr>
<td>Equipment</td>
<td>✓ 35</td>
</tr>
<tr>
<td>Internal Audit</td>
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ON THE FAST TRACK TO ACCREDITATION

The Mentor4TB method has already put the regional TB reference laboratory (RTRL) in Nampula, Mozambique on the fast track to accreditation. With the help of experienced ASM mentors, staff at the Nampula RTRL have been trained in a number of areas, including new TB diagnostics methods, the implementation of SOPs, and the development of job aids to promote quality and safety standards. The laboratory also conducted its first management review meeting in early 2017, bringing managers from the country’s laboratory network together to identify areas for improvement.

With the help of the Mentor4TB toolkit, the Nampula laboratory raised its SLIPTA accreditation score from one star to four stars in only nine months. If improvements continue at this pace, the laboratory will be able to start the accreditation process after meeting the standards using the Mentor4TB approach.

PROMOTING QUALITY AND EFFICIENCY

Using the Mentor4TB approach, ASM worked with staff at three laboratories across Zambia to develop their technical skills and improve quality management systems for TB diagnostics. The laboratories all viewed achieving international laboratory accreditation as their ultimate goal.

ASM experts and partners worked with the laboratorians to identify weaknesses in their practices, and to draft work plans for improvement. Individual and group trainings were also organized to help the mentees make quality upgrades in line with the SLIPTA evaluation criteria.

All three laboratories started in 2014 at a baseline SLIPTA score of zero stars. By 2016, two sites had earned three stars, and one site had earned four stars. All partners anticipate that these laboratories will begin the accreditation process in 2017.

Partners:
Ministry of Health of Zambia; CDC-Zambia

Partners:
Ministry of Health of Mozambique; U.S. Centers for Disease Control and Prevention

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<th>Category</th>
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<td>Occurrence Management &amp; Process Improvement</td>
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<tr>
<td>Facilities &amp; Biosafety</td>
<td>43</td>
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0-150 POINTS (0 STARS)
151-177 POINTS
178-205 POINTS
206-232 POINTS
233-260 POINTS
261-275 POINTS
Botswana has begun an important transition in TB diagnostics. Older techniques, such as Ziehl-Neelson, are being replaced with light-emitting diode (LED) microscopy—a fast, accurate, and cost-effective method of diagnosing TB and monitoring patients who are undergoing treatment. Ensuring the proper use of this new technology is crucial to controlling the country’s TB epidemic.

ASM is leading the way in the roll-out of LED microscopy in Botswana’s public health laboratory network. In August 2016, ASM led a training-of-trainers (TOT) workshop for 13 staff from seven district laboratories across the country, as well as the National Health Laboratory in Gaborone. The participating laboratorians were trained in LED microscopy techniques, as well as other aspects of TB diagnosis and treatment in line with Botswana’s National TB Control strategy. This includes strengthening recording and reporting methods, waste management, standard operating procedures, and external quality assessment practices.

After the workshop, participants were qualified to work as trainers in their local facilities. By early 2017, they had facilitated two workshops to ensure the proper use of LED in district laboratories. Follow-up site visits are underway by mentors from the country’s National Tuberculosis Reference Laboratory (NTRL) to ensure quality of services, and to assist laboratories with method validation and competency assessments.

By engaging these local experts, ASM is helping to create a sustainable TB control strategy in Botswana. Localized training support will build a strong cadre of public health laboratorians who will be able to accurately and effectively diagnose and control TB.
Rapidly evolving patterns in global travel, trade, and conflict have been accompanied by the rise and spread of infectious diseases across borders. Protecting against biological threats will require an integrated, multi-sectoral approach to health systems strengthening.

In support of the Global Health Security Agenda (GHSA), ASM is strengthening capacities for the surveillance of antimicrobial resistance (AMR) and zoonotic infections, as well as bolstering laboratory networks’ ability to detect and report outbreak-prone diseases. ASM is bolstering biorisk management systems in human health and veterinary laboratories to prevent the accidental release or intentional misuse of high-consequence pathogens for purposes of bioterrorism. ASM’s training programs in biosafety, biosecurity, and bioethics are promoting a culture of responsibility in the life sciences community.
Antimicrobial resistance (AMR) is one of the greatest challenges today, occurring at unprecedented levels with vast potential for high mortality rates. With resistant strains of global killers like MRSA becoming increasingly common, a multi-pronged, inter-sectoral approach is required to monitor—and outpace—the spread of resistant microbes.

In 2016, ASM helped Tanzania reach a major milestone in the fight against AMR with the development of the country’s first AMR National Action Plan. As a member of the country’s Multisectoral Coordinating Committee, ASM chaired a technical working group (TWG) that designed plans for a national AMR surveillance system. The TWG also worked to develop a national AMR research agenda and standardized guidelines for data management and sharing systems were developed.

In September 2016, the completed Plan was presented to stakeholders, which included government branches, research institutions, and international organizations. At the meeting, all parties agreed on the importance of tackling the AMR problem, as well as on key priorities for the Plan’s first year. After review by the WHO and stakeholders, the Plan was officially launched at the Symposium on Antimicrobial Resistance in Dar es Salaam on 27-28 April 2017.

In May 2015, the 68th World Health Assembly adopted the Global Action Plan on Antimicrobial Resistance. The plan lays out five key objectives that can guide national AMR strategies.
Educated and empowered laboratorians are better able to implement strong institutional controls to ensure biological agents are handled responsibly.

To this end, ASM Young Ambassador of Science Samreen Sarwar worked with ASM to organize a multi-day biosecurity workshop in Pakistan. The workshop, which took place in June 2016, brought together 41 microbiologists from 10 laboratories across the country to discuss critical biosecurity issues. Workshop sessions covered best practices—including biosafety cabinets, institutional risk assessment, and institutional biosafety committees—and encouraged participants to view their work in the broader context of national security. After the workshop, the participating microbiologists were able to apply their knowledge of biosecurity practices at their home laboratories.

In 2015, ASM launched a yearlong biosafety course for life scientists. Developed in collaboration with biosafety expert Sean Kaufman, 52 Weeks of Biosafety is a primarily remote course that offers a comprehensive curriculum on issues related to biosafety protocols.

Early in the course, participants reported on individual and institutional gaps at their home laboratories, such as a lack of signage and personal protective equipment (PPE), poor waste management, and fragmented emergency response plans. By the end of the course, participants reported increased biosafety compliance among their colleagues and some major institutional improvements, including significant increases in budget allotments for PPE procurement and greater prioritization of biosafety and biosecurity protocols.

So far, three cohorts of life scientists in Pakistan and Egypt have taken the course.
DESIGNING STRATEGIES TO IMPROVE SURVEILLANCE

In response to increasing rates of AMR, the Ethiopian Food, Medicine and Healthcare Administration and Control Authority (EFMHACA) developed the 2015-2020 Strategy for the Prevention and Containment of Antimicrobial Resistance for Ethiopia. First drafted in 2011, and revised in 2015, this national strategy includes interventions to improve surveillance networks and infection control interventions.

In 2016, ASM aided in drafting a national AMR surveillance plan for Ethiopia. The three-year plan aims to generate evidence on the prevalence of AMR, support the design and establishment of an AMR surveillance network, and develop guidelines and standard operating procedures (SOPs) to ensure timely and accurate results reporting.

The first version of the National AMR Surveillance Plan 2016-2019 was presented at a three-day multi-stakeholder meeting in August 2016. The meeting facilitated a comprehensive review of the Plan, resulting in consensus of selected participating surveillance sites and 16 priority surveillance pathogens, based on the WHO’s Global Antimicrobial Resistance Surveillance System (GLASS).

ASM worked with partners to conduct validation visits to the 16 participating surveillance sites to ensure that established protocols were being followed. ASM also mentored staff at the National Reference Laboratory, enabling them to oversee the collection of high-quality AMR data, and ensure the use of SOPs at participating sites.

ASM is acutely aware of the dangers of AMR and the urgent need to act. To learn more about ASM’s other work on AMR surveillance, please see our report on the ASM AMR Coalition Meeting at: http://bit.ly/2q1dY6W
The World Health Organization estimates the world will be short 12.9 million healthcare workers by 2035—a deficit that will have massive consequences if left unaddressed. These workforce gaps exist worldwide, but are heavily concentrated in resource-limited countries, where health systems are strained by high rates of infectious diseases and a lack of qualified health workers. Capacity-building initiatives for laboratorians will be crucial to ensure that the soaring demand for accurate diagnostics and treatment in emerging economies can be met.

ASM is leveraging its unique position as a global leader in the microbial sciences to ensure that laboratorians around the world are properly trained and equipped to provide critical diagnostic services. Through initiatives like the ASM Ambassadors and Young Ambassadors of Science programs, ASM BioResource Centers, and continued workshops and trainings, ASM is creating environments in which local laboratory scientists can thrive and provide the best possible service to their communities.
Malaria is a leading cause of hospitalization and death in Guinea, and has a severe economic impact for the health system and the general population. A well-trained healthcare workforce is necessary to quickly and accurately diagnose malaria, and to achieve the President’s Malaria Initiative (PMI) target of reducing annual malaria-related deaths by one-third between 2015 and 2020.

In line with Guinea’s National Malaria Control Program (NMCP), ASM is working with international partners to implement supervision and training activities for laboratory technicians at facilities in 19 districts. ASM workshops on malaria microscopy and the use of rapid diagnostic testing (RDT) kits are helping to ensure that laboratorians can provide timely and accurate malaria diagnoses. Working with local consultants, ASM also conducts site visits to review RDT records for accuracy, and to ensure that each health center has adequate capacity to diagnose malaria cases.

ASM’s programs have already made significant progress in Guinea, even amidst numerous setbacks triggered by the 2014-2015 Ebola outbreak in West Africa. So far, trainings have been delivered to 65 laboratory technicians. ASM consultants continue to provide immediate recommendations for improvements and opportunities to align laboratory activities with NMCP policy.

The world’s poorest countries are disproportionately burdened by healthcare workforce gaps.

<table>
<thead>
<tr>
<th>Skilled Healthcare Workers per 10,000 Population</th>
<th>Developed World</th>
<th>Developing World</th>
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<tr>
<td>59.4</td>
<td>22.8</td>
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The world’s poorest countries are disproportionately burdened by healthcare workforce gaps.
ASM’s BioResource Center (BRC) program provides universities in resource-limited countries with free access to reference materials related to the microbial sciences.

Most recently, ASM established a BRC at the School of Applied and Health Sciences at Evelyn Hone College in Lusaka, Zambia. Since opening in August 2016, this BRC has served as a key resource, not only for undergraduate students, but also seasoned researchers at the university. The center assists about 25 students and staff with their research needs each day, and is helping to establish a strong scientific community on campus.

According to Mr. Brian Lojiji, the BRC manager, the facility has made a significant impact on the study of microbiology at the university, adding that it has helped students and staff access critical information.

Through the ASM Young Ambassadors of Science program, early-career microbiologists around the globe are advancing the ASM mission, helping to promote laboratory safety and scientific advancement in their communities. With their specialized skill sets, ASM Young Ambassadors can help to bridge local capacity gaps and identify opportunities for outreach.

After noticing critical gaps in biosafety knowledge among students at a local teaching hospital in Malawi, ASM Young Ambassador Dikani Salema organized a three-day seminar in April 2016. The seminar, funded by an ASM grant, covered topics including the prevention and identification of hospital acquired infections (HAIs), and the role of microbiology laboratories in managing infections. More than 300 clinical and nursing undergraduate students from several local institutions participated.

**ASM programs close the healthcare workforce gap around the world.**

**ASM Country Ambassadors** spread valuable knowledge and communicate the ASM mission in their home countries.

**Workshops and trainings** build capacity and improve understanding of lifesaving laboratory practices.

**ASM helps early-career professionals** map out a path to success through the Young Ambassadors of Science Program.
The ASM Country Ambassadors program is designed to engage prominent microbiologists around the world to promote and build capacity in the microbial sciences in their home countries. Working with ASM, Country Ambassadors develop and maintain relationships with key institutions and organizations in their regions. With their deep knowledge of local programs and working cultures, Country Ambassadors can both respond to the needs of their local microbiological communities and promote the benefits of ASM membership.

In Benin, ASM Country Ambassador Dr. Edgard Lafia has helped improve the quality of testing for typhoid fever at local laboratories. After hearing reports of systemic misinterpretation of assay results—which can lead to false negatives—Dr. Lafia recognized the need to ensure that all laboratorians were trained in proper typhoid testing techniques.

With funding from ASM, Dr. Lafia organized a step-down training to give laboratory managers a more comprehensive understanding of the underlying science behind typhoid testing, as well as methodologies for performing the assay and interpreting results. The participating laboratorians were expected to later carry out trainings for staff in their home laboratories.

Laboratory managers in Benin now have a solid understanding of typhoid blood sample testing, and are better placed to deliver accurate typhoid diagnoses. Dr. Lafia’s outreach efforts also resulted in a stronger ASM presence in Benin, with several participants having become ASM members after the training.
Funding for training women in the sciences is often insufficient, leading to a significant gender gap throughout academia and industry. With a recent program targeted at young women interested in scientific careers, ASM is helping to close the gender gap and create new opportunities for women in the sciences.

In July 2016, ASM—as part of a public-private partnership led by the U.S. State Department and the Asia Pacific Economic Cooperation (APEC)—hosted the second annual WiSci STEAM Camp in Chaclacayo, Peru. WiSci, short for Women in Science, is a two-week camp for 100 girls between the ages of 13 and 17 who are interested in pursuing careers in the “STEAM” fields: science, technology, engineering, art and design, and mathematics.

One-hundred participants traveled from Chile, Peru, Mexico, and the U.S. to take part in the camp, which featured a number of ASM-hosted microbiology workshops. Dr. Paola Scavone, ASM Young Ambassador of Science to Uruguay, also provided mentorship and shared her experiences working as a female microbiologist in a resource-limited country.

ASM is preparing to participate in the 2017 WiSci camp, which is scheduled to be held in Malawi. The 2017 camp will bring together young women from Malawi, Rwanda, Liberia, Uganda, Zambia, Tanzania, and the U.S.
A lack of laboratory facilities in remote, resource-limited areas often means that patients are not diagnosed or treated in a timely manner. Even if samples can be selected at local clinics, results may take several days—or even weeks—to arrive since many samples require advanced testing that is only available at properly equipped laboratories.

ASM is exploring the possibility of using drone technologies to solve these “last-mile” logistical challenges in West Africa. Drones will enable quick transport of samples from testing sites to laboratories, significantly cutting down on sample travel time and ensuring patients get their test results faster.

IMPROVING PUBLIC HEALTH INFRASTRUCTURE IN BOTSWANA

With strategic support from ASM, Botswana will open the Botswana Public Health Institute (BPHI) in 2017. By bringing together key government stakeholders and facilitating holistic planning for the health of the Botswanan population, the opening of BPHI will mark a fundamental shift in the country’s approach to public health.
WIDER REACH

EXPANDING THE ASM AMBASSADOR PROGRAMS

In 2017, 19 countries are set to receive their first ASM Young Ambassadors of Science, while three countries will receive their first ASM Country Ambassadors.

The countries welcoming their first Country Ambassadors and Young Ambassadors of Science are: Armenia, Australia, Côte d’Ivoire, El Salvador, Indonesia, Iraq, Jamaica, Japan, Kazakhstan, Lebanon, Mexico, Morocco, Russia, Rwanda, Serbia, Singapore, Switzerland, Tanzania, and Zambia.

NEW GLOBAL HEALTH SECURITY AGENDA (GHSA) PROGRAMS

In support of the Global Health Security Agenda (GHSA), ASM is working to establish new sustainable development programs.

In Vietnam, ASM is focusing on strengthening laboratory diagnostic capacity for antimicrobial resistance (AMR) surveillance. Meanwhile, new ASM initiatives in Bangladesh, Ethiopia, and India aim to improve the ability of laboratories in those countries to detect, diagnose, and mitigate the effects of AMR, zoonotic diseases, and other emerging areas of concern.
ACKNOWLEDGMENTS

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Amanda MacDonald  Alle Taylor
Aishat Magbade  Maritza Urrego
Koss Mensah  Janelle Winters

We would like to acknowledge that our work and this report would not be possible without the tireless dedication of our members, volunteers, subject matter experts, and consultants who make themselves available to be critical resources in our mission to promote and advance the microbial sciences all over the world. We thank them for their contributions and look forward to the next year of international collaboration and sustainable development.

CONSULTING ACKNOWLEDGEMENT

Content for ASM’s 52 Weeks of Biosafety program was developed by Mr. Sean Kaufman of Behavioral-Based Improvement Solutions.

PHOTO CREDIT

The cover photo was taken by Ray Ortega at the WiSci Camp, hosted in Peru in August 2016.
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