Public Health Laboratory

Annual Report

Fiscal Year 2018

DEPARTMENT OF HEALTH

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Letter From the Director

Dear Reader,

Each year I eagerly anticipate publication of the Public Health Laboratory Division's Annual Report. It is an opportunity for me to reflect on the events of the year and to share our successes, and occasionally our challenges, with all who are willing to take the time to read the report. I would like to share with you some of the highlights from fiscal year 2018 (spanning July 2017-June 2018).

In the past year, the Newborn Screening Program added, not one, but three new conditions to the Minnesota screening panel (pages 6-7). It is not an overstatement to say that this will have a tremendous impact on the health outcomes of children with these conditions and on their families. I am grateful to the parents who advocated for the addition of these disorders, to the health care providers who worked to educate us on the availability and efficacy of treatments, to the members of our advisory panel who made the recommendation to add the disorders and to Commissioner Ehlinger for accepting the recommendation. Last, but not least, I would like to extend my gratitude to the staff in our Newborn Screening Program and in the Community and Family Health Division who worked on the details of test implementation and follow-up activities. It really does take a village.

This past year the Environmental Laboratory added a panel of more than 200 compounds to help with the Minnesota Drug Overdose and Substance Abuse (MNDOSA) surveillance (page 11). Adding one or a few analytes to our test menu is a daunting task, but adding 200 compounds was especially challenging and our staff worked hard to implement and validate the new methods. The new tests are being used in a pilot surveillance project to better understand the types of drugs that are being used in Minnesota, which will help our partners in Injury Prevention and Control develop strategies to combat the drug overdose epidemic. Because this utilization of laboratory data is unique, as well as the partnerships that have been developed, the lab has been asked to share information about our testing with other states so that they can implement similar systems.

Finally, the Infectious Disease Laboratory has continued expanding their use of whole genome sequencing to detect outbreaks and to help us understand the nature of the microbes that are causing disease (page 13). And while the laboratory is busy characterizing emerging threats, such as the recent spate of foodborne outbreaks caused by the parasite, Cyclospora, they are also dealing with diseases that have been with us for centuries, such as rabies, both of which are detailed in this report on page 14.

Looking back at our activities and accomplishments, I am more enthusiastic than ever about the Public Health Laboratory's role in supporting the mission of the Minnesota Department of Health, to protect, maintain, and improve the health of all Minnesotans. As we move ahead to respond to ever evolving health threats, I look forward to sharing our continued progress with you.

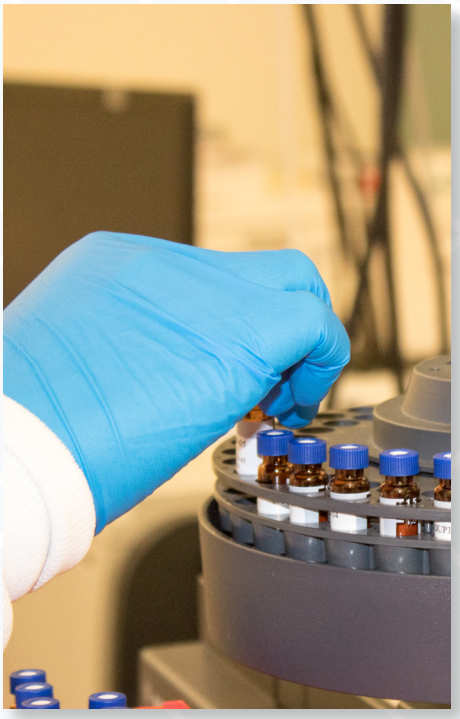
Joanne M. Bartkus

Joanne Bartkus, Ph.D.
Public Health Laboratory Director

At A Glance

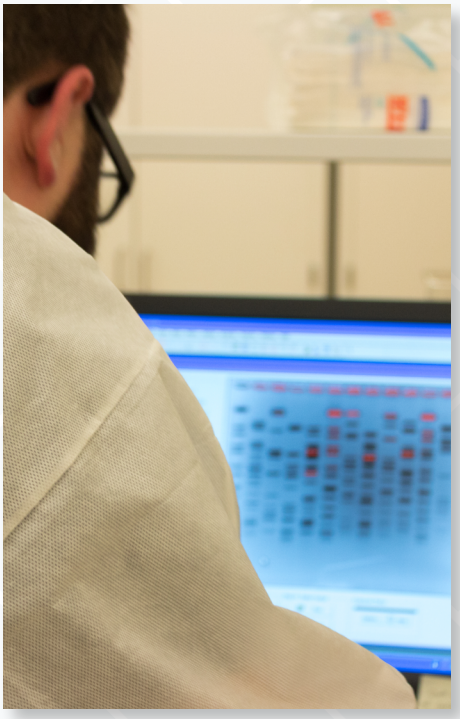
443

MINNESOTA NEWBORNS IDENTIFIED WITH A DISORDER THROUGH NEWBORN SCREENING



116,323

ENVIRONMENTAL & BIOMONITORING TESTS PERFORMED TO IDENTIFY TOXIC CHEMICALS

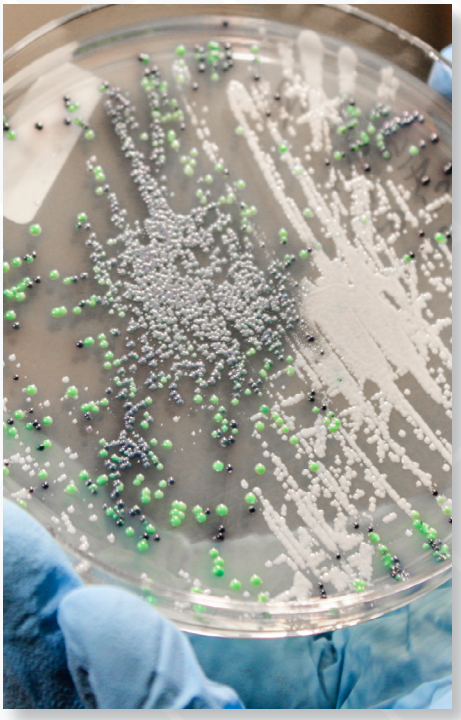


84,091

TESTS PERFORMED TO IDENTIFY INFECTIOUS DISEASE TRENDS AND OUTBREAKS

Glossary:

Acronym	Meaning
MDH	Minnesota Department of Health
PHL	Public Health Laboratory



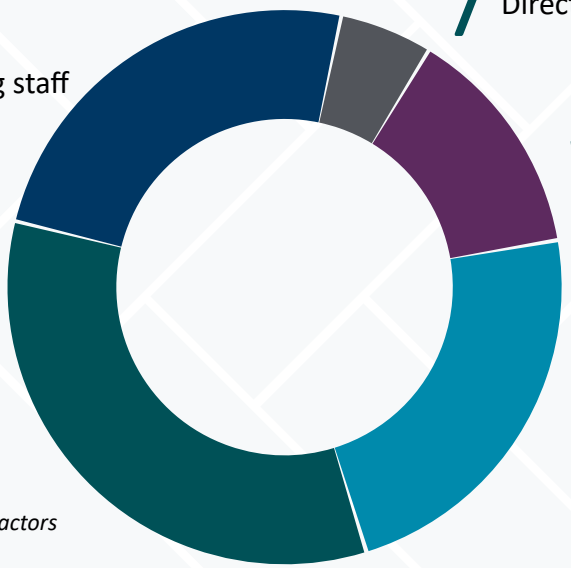
40

RARE, HIGHLY INFECTIOUS BACTERIA IDENTIFIED WHICH PROMPTED EARLY TREATMENT

105

TRAININGS PROVIDED BY PHL STAFF TO EXTERNAL STAKEHOLDERS

PHL staff by section



Does not include contractors

Newborn Screening Program

Minnesota Newborn Screening screens infants at birth for over 60 serious disorders, including hearing loss and critical congenital heart disease (CCHD). Newborn screening aims to identify disorders before symptoms appear so that affected infants can receive prompt diagnosis and treatment to prevent serious health problems, developmental delay, or death.

Almost every day, our program identifies an infant with one of these health conditions. For a complete list of the disorders on the Minnesota Newborn Screening Panel, visit: http://www.health.state.mn.us/people/newbornscreening/program/newbornscreeningpanel.html.

Newborn Screening Increases Timeliness with Technology

Timeliness and quality assurance are important—especially when it comes to determining if a baby has a condition on our newborn screening panel. Several of our projects in the Newborn Screening program have revolved around instituting Health Information Technology (HIT) into more of our processes.

MNScreen

In June 2017, Minnesota became the first state to have all of its 91 birth hospitals (99% of all Minnesota births) send pulse oximetry and hearing screening results to the Newborn Screening program through a secure electronic reporting system, MNScreen. Obtaining results in this manner helps contribute to better understanding of the screening process, improved quality assurance for birth facilities, and enhanced patient follow-up. MNScreen has improved timeliness of pulse oximetry and hearing screening results and has reduced reporting errors.

In the future, outpatient providers will also be able to use MNScreen to report diagnostic test results and refer newborns for early intervention as needed, helping to improve access and reduce disparities in care.

All Minnesota birth hospitals report hearing and pulse oximetry results electronically

Electronic Demographics

Our Newborn Screening program receives approximately 70,000 specimens each year with every specimen card containing 32 demographic fields pertaining to the patient and specimen. For many years we have relied on manual data entry for all of these demographic fields. Much of the same information is already collected in the infant's Electronic Medical Record (EMR) that sends electronic messages to MNScreen. In 2017, we began working to have the demographic information captured in MNScreen sent to our Laboratory Information Management System (LIMS) via secured messaging.

By pulling demographic information directly from MNScreen, we are able to reduce errors that could otherwise lead to specimens with missing information, errors in clinic information, delayed test interpretation and delayed results reporting.

Secure Remote Viewing

In April 2017, we began to transition birth hospitals over to our Secure Remote Viewer (SRV) which allows them to access the newborn screening result reports electronically. Currently, 66 hospitals and over 100 clinics are using the secure web portal to download/print their result reports.

Before SRV was available, result reports were printed daily, hand-sorted and mailed to the submitting facility in which the hospital staff processed the results on their end. Often this manual process resulted in inaccurate and/or incomplete screening results being entered into the infant's EMR and the completed reports wouldn't make it to the primary care provider in a timely manner.

Not only has SRV allowed primary care providers to receive the newborn screening results more quickly, clinics can also see if we received the specimen which prevents unnecessary repeat screens.

New Condition Addition: When Stars Align

Adding one new condition to the newborn screening panel requires tremendous effort from everyone involved—we recently began screening for *three* new conditions. On August 1, 2017, we began screening Minnesota newborns for MPS I (mucopolysaccharidosis type I) and Pompe disease, and on March 1, 2018, we implemented screening for SMA (spinal muscular atrophy).

Often times in Minnesota and in other state screening programs, the timing of new condition consideration can be challenging. Sometimes the advocates are ready before the program, sometimes the requirement to screen comes before the lab is ready, and rarely as was the case with SMA, everything seems to align at just the right time.

Spinal Muscular Atrophy (SMA)

Spinal muscular atrophy is the leading genetic cause of childhood death and affects approximately 1 in 10,000 births. SMA affects the motor nerve cells in the spinal cord causing muscle weakness that eventually deprives people of the ability to walk, eat, or breathe. While there are multiple types of SMA, the most severe type typically appears before six months of age. Without treatment, children with this type of SMA rarely survive to celebrate their first birthday.

Lab's Early Work

Our lab has collaborated with the CDC a number of times, and they asked our lab to partner with them again in 2016. Together, they wanted to develop a way to screen newborns for SMA by adding it to our SCID (severe combined immunodeficiency) test.

By combining the SMA test[1] with our SCID test, we minimize the cost of the screen as there is no need for additional lab scientists or equipment. This work with the CDC allowed the laboratory to be prepared for early adoption of SMA screening.

[1] Every test has limitations, the test used to screen for SMA detects about 95% of SMA cases. If a provider suspects SMA based upon clinical concern, they should proceed with clinical testing, regardless of the infant's newborn screening result.

A Chance For Hope

In August 2014, clinical trials began for a new drug called nusinersen. Children who got nusinersen before they had symptoms were able to meet their motor milestones of sitting, standing, and walking; never before seen in children with SMA type 1. The results were so amazing that the NIH ended the study early (November 2015) to let all participants get the drug and allow more children to benefit. Following the success of these clinical trials, nusinersen was approved by the FDA on December 23, 2016. This is what was needed for newborn screening, the knowledge that early diagnosis with a good and available treatment would improve the health outcomes of these children.

Advocates and Doctors at the Ready

Both Gillette Children's Specialty Healthcare and the University of Minnesota participated in the nusinersen clinical trials and saw the miraculous results first-hand and shared their knowledge with us. Following this engagement, we asked them to present information to our Advisory Committee for Heritable and Congenital Disorders. SMA families also shared their stories and encouraged the advisory committee to add SMA, including Carissa Keister who engaged our program around the same time as our SMA experts to encourage its addition. Her daughter, Evie, died from SMA when she was only two years old. In addition to speaking at the advisory committee meetings and working to organize other SMA families, Carissa presented the committee with a petition signed by 3,150 people urging the committee to add SMA testing to Minnesota's newborn screening panel.

Carissa Keister and her daughter Evie.

> "It seemed with each new day, she'd lost something she'd had the day before... Almost overnight, she went from being healthy and perfect to weak, fragile, and critically ill."
> Carissa Keister

On October 10, 2017, the advisory committee thoughtfully discussed SMA and voted in favor to recommend the addition of SMA to the newborn screening panel to the Commissioner of Health. On December 17, 2017, the Commissioner of Health formally approved the committee's recommendation, and we began screening Minnesota newborns on March 1, 2018.

Dr. Randal Richardson, Commissioner Jan Malcolm, and Carissa Keister, at a press conference on March 5, 2018, announcing that Minnesota has begun universal screening of newborns for spinal muscular atrophy.

59,201 infants screened since March 1, 2018;

7 infants identified with SMA

*numbers current as of December 31, 2018

Environmental Laboratory

The Environmental Laboratory protects the environment—and by extension, Minnesotans—by performing chemical, bacteriological, and radiological analyses of environmental samples including drinking water, surface water, waste water, air, soil, and hazardous waste. These testing services, which work to keep Minnesotans healthy and safe, are provided to programs at the county, state, and national level. The laboratory also develops new tests for detecting contaminants of emerging concern and measuring human exposure to environmental hazards throughout the state.

New Test Provides Faster Results to Help Save Lives

When there is an outbreak of Legionnaires' disease, every day that goes by without identifying the source of the outbreak means more people are at risk. Legionnaires' disease is caused by inhaling water droplets that contain the bacterium Legionella pneumophila and often leads to pneumonia. While most cases are successfully treated with antibiotics, Legionnaires' disease can be fatal.

Water cooling towers tend to be at the center of a Legionnaires' disease outbreak and it requires testing many cooling towers to identify the contaminated water source. To help reduce the amount of time it takes to identify the source of the outbreak, the Environmental Laboratory purchased and validated a new test to detect Legionella in water samples up to seven days faster than traditional culture methods. Legiolert™ uses a bacterial enzyme to detect if viable Legionnella pneumophila bacteria are present in the water sample.

By using this new testing method, we can identify which samples have Legionella pneumophila and provide that information and the isolated bacteria to the Infectious Disease Laboratory for further testing. Working together, we can reduce the time it can take to identify the source of an outbreak and prevent more people from becoming sick.

This new testing method can identify *Legionella pneumophila* up to 7 days faster than traditional culture methods

Measuring Air Quality: A Cluttered Atmosphere

In the Land of 10,000 Lakes, air quality is just as important as water quality, although more difficult to measure. But that's exactly what the Environmental Laboratory had to figure out when approached by the Minnesota Pollution Control Agency (MPCA) in 2013 to study PAHs (polycyclic aromatic hydrocarbons) in the air. PAHs aren't currently regulated and there isn't much monitoring data available, despite the fact that many are known to cause health concerns, including cancer.

There are over 1,000 different kinds of PAHs and they come from a variety of sources, typically released into the air by fires, automobile exhaust, and refineries. The challenge of this study was that air samples are notoriously "messy," there are a lot of compounds in air samples which must be analyzed and sorted. Imagine putting all the tiny pieces from every board game you own into one box and then sort through it and try to identify each piece. That gives you an idea of the challenge our scientists faced.

With our help, the MPCA was able to figure out where some of the more harmful PAHs are found in Minnesota, which will eventually help with regulating these compounds to protect public health. The data from this study showed that where and when you monitor matters. The air filters used near busy roadways collected different types and amounts of PAHs depending on the time of day and season, which were different than the PAHs found in other urban or rural areas.

The methods we developed will be helpful for analyzing PAHs in the future and the data we provided to MPCA will help them research potential exposures to PAH from the air and to help identify the sources of the PAHs.

Our new method will help MPCA research PAH exposure around Minnesota.

Prepared, Practiced, and Ready to Protect

Practice makes perfect—especially when it comes to radiation emergency preparedness. Our PHL Radiation Emergency Preparedness Program is evaluated by FEMA (Federal Emergency Management Agency) every eight years, but we perform a practice drill every year. A timely, efficient, and effective laboratory response is an important part of a nuclear power plant release scenario, and ultimately helps keep our communities safe. The data we provide allows decision makers to determine which communities need to be evacuated and allows them to track any contamination that may have been deposited during the release.

In June, our most recent FEMA evaluated drill began the same way it would if there were a real emergency—with a call-tree. Trained volunteers from the lab were informed about the event and began receiving some simulated samples. The simulated samples consisted of air filters, water samples, and soil samples.

On the day of the exercise, seven of our 35 Radiation Emergency Preparedness volunteer staff completed the FEMA exercise over the course of a four-hour set-up and sample receiving process on top of their other required laboratory work. By the time the exercise was complete, over 500 people including state, county, and local agencies and schools, along with various emergency responders and hospitals had participated and were evaluated against approximately 4,950 criterion. The State met all the criterion elements and auditors reported no observed shortcomings. This is the fourth consecutive drill in which Minnesota has had seamless evaluations, making us the leading state in the nation for Radiation Emergency Preparedness exercise evaluations.

We met all 4,950 success criterion for the FEMA drill

Using Data to Better Understand Overdoses

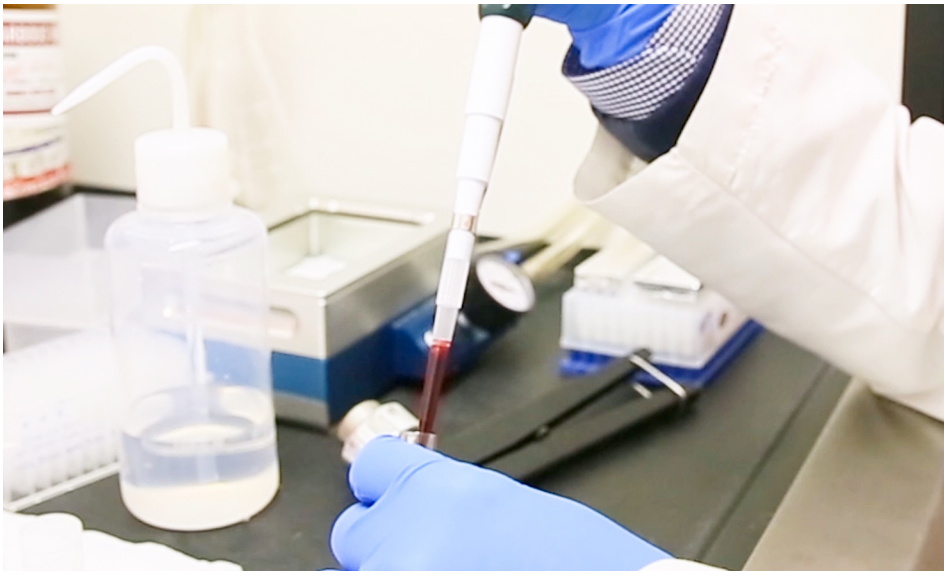
It's no secret that drug overdoses have reached epidemic proportions, and we are not shielded from this in Minnesota. In fact, in 2016, 675 Minnesotans died from a drug overdose, up 16% from 2015. Drug overdose deaths are only part of the picture however. It is estimated that for every drug overdose death there are two hospitalizations, four emergency department visits, and seven emergency medical services responses. To prevent these deaths, we need to know more about overdoses that don't result in death, but one of the challenges in the drug overdose epidemic is the lack of accurate surveillance data.

To address this, the Environmental Laboratory's, Biomonitoring and Emerging Contaminants Unit (BEC), has partnered with MDH's Workplace Injury and Prevention Section and others, to begin expanding the collection of drug overdose related data in Minnesota. Developed in July 2017, the Minnesota Drug Overdose and Substance Use (MNDOSA) pilot project aims to quickly identify clusters of drug overdoses and new substances that are being introduced, to inform public health stakeholders and hospitals in order to better prevent and treat drug overdoses.

Illegally purchased drugs may contain a wide variety of compounds unknown to the user. Some drug batches are significantly more potent than others which makes it difficult for a user to know how much of the drug to take to achieve similar effects. This is a major factor affecting the increased overdose rates. The BEC Unit's role in MNDOSA is to identify specific drugs in biological specimens from individuals who are: admitted to hospitals, associated with a clusters of overdoses indicating a dangerous batch of drugs, and who are having unexpected reactions to drugs. This information is shared with public health stakeholders, toxicologists, and physicians, to better inform them when clusters of overdoses may indicate a "bad batch" of illegal drugs or when a new drug concoction is circulating.

The BEC unit has developed methods to analyze blood and urine specimens for over 200 drugs of abuse. These detection methods and the use of biomonitoring surveillance is a unique way to help characterize overdoses. Because we are one of the first public health laboratories in the nation to do this, we are sharing our knowledge with other states so they can begin similar studies.

Our new methods allows us to analyze blood and urine specimens for over 200 drugs of abuse



Infectious Disease Laboratory

The Infectious Disease Laboratory is composed of six units: emergency preparedness and response, microbiology, enterics, sequencing and bioinformatics, virology, and operations. Throughout the year, we detect and identify a variety of bacteria, viruses, parasites, and fungi that make Minnesotans ill. Clinical laboratories throughout the state are required to submit specific organisms for our lab to provide diagnostic, characterization, and surveillance services that are not otherwise available in Minnesota.

Expanding Whole Genome Sequencing to Study What Makes Us Sick

In 2018, the Infectious Disease Laboratory established the Sequencing and Bioinformatics unit. While the lab has been performing whole genome sequencing (WGS) on microorganisms since 2014, in 2018 we expanded capacity to better identify and analyze the pathogens that make Minnesotans ill. Not only is WGS faster than traditional culture techniques, it's also more cost-effective. This is because once we have the entire genome sequenced, we have all the information we need to analyze the organism immediately, whereas traditionally, we would have had to conduct several different tests.

Before we could begin sequencing, we had to build the infrastructure to make it possible. This including purchasing additional equipment, developing protocols, a sample tracking system, and training staff. We established a partnership with the University of Minnesota Supercomputing Institute to help us with the needed computing power to analyze the large amounts of data that we get when sequencing. We are able to access the power of the Supercomputing Institute via a secure cloud environment, which allows us to analyze the sequencing data right in the lab. While quite new to our lab, whole genome sequencing has already made a huge impact in the work we do to protect Minnesotans. As one of the leading public health labs in the nation for WGS, we share our knowledge with other labs, so that other states will have the same ability to analyze organisms immediately.

Tracking Down a Culprit

In 2018, we saw an unusual increase in the number of Group A Streptococcus cases in multiple long-term care facilities. Traditional methods to determine if the cases were related couldn't provide clear evidence, so we used WGS and bioinformatics data analysis to determine if the cases were related. The sequencing data from each bacterial isolate, combined with the information that our epidemiologists had, led to the identification of a wound care physician who wasn't following safe wound care practices, and had unknowingly spread the bacteria from patient to patient. Following identification, no additional cases appeared.

Tiny Differences, Big Impact

Whole genome sequencing allows us to identify the DNA building blocks that make up the entire genetic code for an organism (bacteria, parasites, viruses, etc.). If an organism's genome was a book, we would know every single letter that makes up every word in that book. This allows us to identify minuscule differences between the genomes of the same type of bacteria, like spelling differences between American and British versions of the same book.

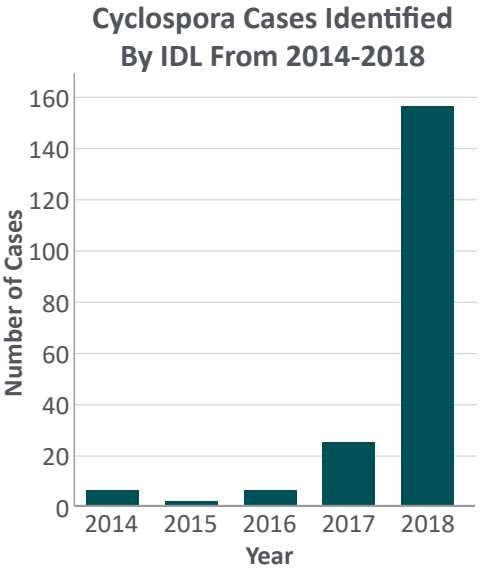
Because we are sequencing the entire genome of an organism, we are also able to look at the genes and their mutations that make each organism unique. We can identify subtypes of bacteria and determine what strains are circulating in Minnesota and how they are changing overtime. We can screen for genes that can make bacteria more dangerous (like genes for antibiotic resistance) and when there is a cluster of similar illness cases, we can identify if we are seeing the results of one outbreak or several different outbreaks. All of this valuable information can be concluded from a single WGS test. Simply put, WGS helps us better understand the organisms that are making Minnesotans ill. The more we understand about these organisms, the better equipped we are to control outbreaks and prevent future illnesses.

New Testing Helps Identify Outbreaks in a Wave of Cyclospora

Every time you listen to the news, there seems to be another story about a foodborne outbreak—we are certainly identifying more of them. In June 2018, we began to see an unusually large number of cases diagnosed with Cyclospora cayetanensis. Cyclospora is a parasite that causes severe diarrhea and infects people when they consume contaminated food or water—generally raw produce. The Infectious Disease Laboratory sees less than 10 cases of cyclosporiasis a year typically, but in 2017 we received 24 cases, and in 2018 we saw 156 cases.

Samples that test positive for Cyclospora at the clinical laboratory are sent to the Public Health Laboratory for further testing, as required by law. In 2018, we started using a new DNA fingerprinting method developed by the CDC that can identify differences between Cyclospora strains. This new typing method looks for differences in several regions of the Cyclospora DNA. This method was helpful in identifying five outbreaks of Cyclospora in 2018.

By combining detailed food history information from interviewing the patients with the data mined from the Cyclospora typing, we are able to determine which patients likely became ill from the same source. Identification of the source of the disease prevents more people from becoming ill.



"Minnesota Nice" Saves Woman From Rabies

It's not every day that you come across a wild bat on a sidewalk and the next steps you take save a young woman's life. But for one Minnesotan, that's exactly what happened. On May 31, 2018, a park visitor found a bat on the sidewalk in Como Park. Before coming upon the animal, this person had witnessed a young woman handling it. The concerned citizen brought the bat to the Wildlife Rehabilitation Center, who then submitted it for rabies testing.

We test for rabies every day in the Infectious Disease Laboratory. When an animal is submitted for rabies testing, the University of Minnesota's Veterinary Diagnostic Laboratory sends the brain to the Infectious Disease Laboratory for analysis.

In this case, the bat tested positive for the rabies virus. This kicked off search efforts to identify the young woman who had been handling the bat. Bat bites are so small, this young woman could have been bit and not noticed. Rabies is 95-100 percent fatal if not treated, and once someone begins to show late-stage symptoms (confusion, anxiety, hallucinations), it's almost always too late for treatment. MDH used health alerts, signs posted in Como Park (which were shared on social media by park-goers), and worked with the media to get information out to the public to help identify and locate the young woman who was then successfully treated with a post-exposure rabies vaccine. This story proves that "Minnesota Nice" is not an empty slogan; it's the story of how we look out for each other.

In FY18, we tested 2021 animal specimens for rabies, 27 of which tested positive.

Meet Our Infectious Disease Fellows

Every year the Infectious Disease Laboratory has the opportunity to host fellows to work in the lab. Fellows are an advantageous addition to the lab, providing time and new skill sets that allow us to tackle special projects that are valuable to the laboratory.

This year we welcomed four fellows to our laboratory:

PHL Fellows from left to right: Dr. Randal Fowler, Ph.D., Dr. Jennifer Dale, Ph.D., and Dr. Sean Wang, Ph.D.

Randal Fowler, Ph.D.: Randal was a Laboratory Leadership Service Fellow sponsored by the CDC. This fellowship helps prepare early-career scientists to become future public health leaders. Randal was instrumental in implementing our new Laboratory Information System (LIMS, the computer system we use to catalogue all of our samples, tests, and results) and helped enhance our biosafety program.

Jennifer Dale, Ph.D.: Jennifer was an Antibiotic Resistance Fellow from APHL. Jennifer developed new testing methods to detect novel antibiotic resistant organisms. This is of ever-increasing importance as we continue to see a rise in the number of organisms that are resistant to different types of antibiotics.

Sean Wang, Ph.D.: Sean was a Bioinformatics Fellow sponsored by the Association of Public Health Laboratories (APHL) and is now a permanent member of our lab. Sean's expertise in bioinformatics helped the Infectious Disease Laboratory expand their sequencing capacity. He assisted in developing the operational framework for whole genome sequencing of bacteria. Sean cultivated a relationship with the University of Minnesota's Supercomputing Institute to help process the large amounts of data that whole genome sequencing generates.

Megan Nichols: Megan was an ORISE Fellow through the FDA. Using the newly built infrastructure, she developed protocols and sequenced bacteria to add to a national database, helping to create a comprehensive library for our laboratory and others to identify bacteria. Whole genome sequencing allows us to identify foodborne outbreaks more quickly. In collaboration with FDA, the sequences that Megan identified will be used by labs all over the country to help identify, stop, and prevent future foodborne illness outbreaks from occurring.

Megan Nichols

Director's Office

The Director's Office provides documentation, training, and analytic support for division projects. The goals of the office are to align our division work with strategic goals, support collaboration among division sections and programs, and streamline division processes and procedures. Staff are also responsible for general administration and reporting, records management, audits, training, and the website for the division.

Taking Lab Tours Online

Have you ever wondered what it's like inside the Public Health Laboratory? For years we have provided lab tours to stakeholders as a way to share the work of the Public Health Laboratory, but we can't provide tours to everyone. In an effort to inform more people about the work we do in the Public Health Laboratory, we created a series of lab tour videos. With MDH Communications, we produced a general Public Health Laboratory video and a series of videos that highlight the work of each of the three laboratory sections—Newborn Screening, Environmental, and Infectious Disease.

The videos are available on our external website and MDH's YouTube account. To reach more Minnesotans we've also shared them on social media. Since first posted at the end of February 2018, the videos have been viewed 1,964 times.

Would you like to watch our videos? Follow this link, Public Health Laboratory Tours, or select the QR code.

In FY18, the videos were viewed 1,984 times

Outreach and Partnerships

Quality partnerships between the Public Health Laboratory and our stakeholders is one of the many reasons Minnesota is considered a leader in public health. Each year we continue to nurture and build these relationships, as well as seek out new partners, in order to strengthen public health across the state and the nation. By offering trainings to increase the knowledge and abilities of our clinical lab partners, in addition to collaborating on studies and new methodologies with other programs and agencies, we are better able to serve Minnesota and continue to realize the MDH mission of protecting, maintaining, and improving the health of all Minnesotans.

Working Together to Prevent Laboratory-Acquired Infections

Having processes in place to quickly identify and isolate concerning pathogens is necessary to prevent the spread of disease. In April 2018, IDL teamed up with the Infection Control Assessment and Response unit to host regional conferences for clinical laboratorians and Infection Preventionists across the state. Conferences were held in Alexandria, Bemidji, Duluth, Marshall, Rochester, and St. Paul. In the past, each group hosted separate trainings to similar audiences. By joining forces, we were able to provide cross-training that is relevant to both Infection Prevention teams and clinical labs, reaching 144 people from 69 facilities.

We provided training to 144 people in 69 facilities

Training topics included information on biosafety, infection prevention, and MDH's role in protecting the health of healthcare workers and Minnesotans. Attendees also participated in a simulated lab exposure exercise. Participants were given a written scenario in which a vial of blood was collected from a patient and then sent to the clinical lab for testing. Based on the actions of each employee in the scenario, participants determined if the fictional employees were exposed to the contagious bacteria found in the blood sample and the degree of their risk of infection. This biosafety exercise illustrated how common lab practices can make a large difference in the number of people exposed to a potentially harmful infectious disease.

These regional conferences not only educated participants, it also increased communication and collaboration by connecting these two distinct audiences. As two different parts of the hospital, these two groups may not have had much interaction previously. Now they can see how their work relates to one another and discovered ways to support each other. By identifying risk and taking steps to mitigate it, we can protect the health of the healthcare workers and citizens of Minnesota.

Discussing Emerging Contaminants in Minnesota

Gathering a diverse group of stakeholders to discuss current work and solicit feedback on future directions is never an easy task, but the Environmental Laboratory did just that in May 2018. Together with MDH's Environmental Surveillance and Assessment, and Chronic Disease, and Environmental Epidemiology Sections, we hosted a one-day meeting of representatives of Minnesota's environmental and public health communities to share information about the current work on contaminants of emerging concern (CEC) and receive feedback regarding future directions in Minnesota. The Science and Policy of Emerging Contaminants in Minnesota meeting went beyond simply updating the community on CEC work already occurring, it also explored ways in which that work can lead to policies and actions.

Funded by a grant from the Association of Public Health Laboratories specifically to support the development of a state or regional environmental health system meeting, the CEC meeting included stakeholders from environmental advocacy groups, academia, MDH and other state agencies, industry and private sector organizations as well as a public radio reporter. The morning presentations explored how to prioritize areas of research and select contaminants for investigation in Minnesota. Both large and small group discussion explored what strategies work best for advancing our scientific research. The afternoon sessions examined how we communicate science and the risk of emerging contaminants to Minnesotans and how research data informs policy and action. Attendees helped identify opportunities to advance effective communication around CEC in Minnesota and encourage pollution prevention actions.

1997

MCDHH (Minnesota Commission of the Deaf, DeafBlind, and Hard of Hearing) legislation directs MDH to develop a plan for voluntary universal NBHS, begins with four hospitals.

2000

1st HRSA & CDC grants to expand EHDI

EHDI Advisory Committee Created

2001

Lion's Loaner Bank is established at the University of Minnesota

2005

Voluntary NBHS is at all 111 birth hospitals; but screening practices, reporting, follow-up are inconsistent.

2007

EHDI legislation (Minnesota Statute § 144.966)

2010

Local Public Health agencies begin providing follow-up & data reporting

2012

Out-of-Hospital birth locations begin newborn hearing screening

Increase in state funding for Deaf and Hard of Hearing Mentors/Role Models, & Parent-to-Parent support.

H&V permanently establishes parent-to-parent cultural guides

2015

MNScreen electronic reporting of hearing screening results begins

2016

Early Childhood Longitudinal Data System (ECLDS) begins to look at educational outcomes for Deaf and Hard-of-Hearing students

Teleaudiology services initiated in northern Minnesota

2017

All hospitals securely reporting newborn hearing screening results through MNScreen

Early Hearing Detection and Intervention Celebrates Anniversary and Program Successes

Newborn hearing screening in Minnesota began in approximately 1997. Throughout the following decade, the Minnesota Newborn Hearing Screening program succeeded in increasing the number of infants that received hearing screening across the state, with the goal that all infants—regardless of geographic location—would receive hearing screening and appropriate follow-up services when needed.

In 2007, legislation passed to formalize the Minnesota Early Hearing Detection and Intervention (EHDI) program. Importantly, the legislation mandated results reporting to the Minnesota Department of Health (MDH) so that the EHDI program could ensure the screening of all infants, timely follow-up, and appropriate intervention services. The legislation also established a Newborn Hearing Screening Advisory Committee (NHSAC) to guide the EHDI program and provided funding for parent-to-parent support through a nonprofit organization, Minnesota Hands & Voices (H&V).

Since EHDI's formalization in 2007, 2344 children have been identified as permanently deaf or hard of hearing.

Laboratory Performance and Budget

Every year, we strive for excellence through improved quality assurance, cutting-edge research and analysis, and public impact. This section highlights a few of our recognized achievements this year as well as our division budget.

In fiscal year 2018, our division operated on a budget of $28.63 million. For more information about our budget this year, please contact our Director's Office staff. Our contact information is located on the back of this report.

Awards and Honors

Kirsten Coverstone (Newborn Screening program) received the 2018 Honors of the Academy award from the Minnesota Academy of Audiology. This award goes to individuals who have made truly outstanding contributions to the Minnesota Academy of Audiology.

Maureen Sullivan (Infectious Disease Laboratory) was awarded the Silver Award from the Association of Public Health Laboratories. This award honors a laboratorian with 10 to 15 years of service in a Governmental public health laboratory.

PHL Staff Star Honors Award:

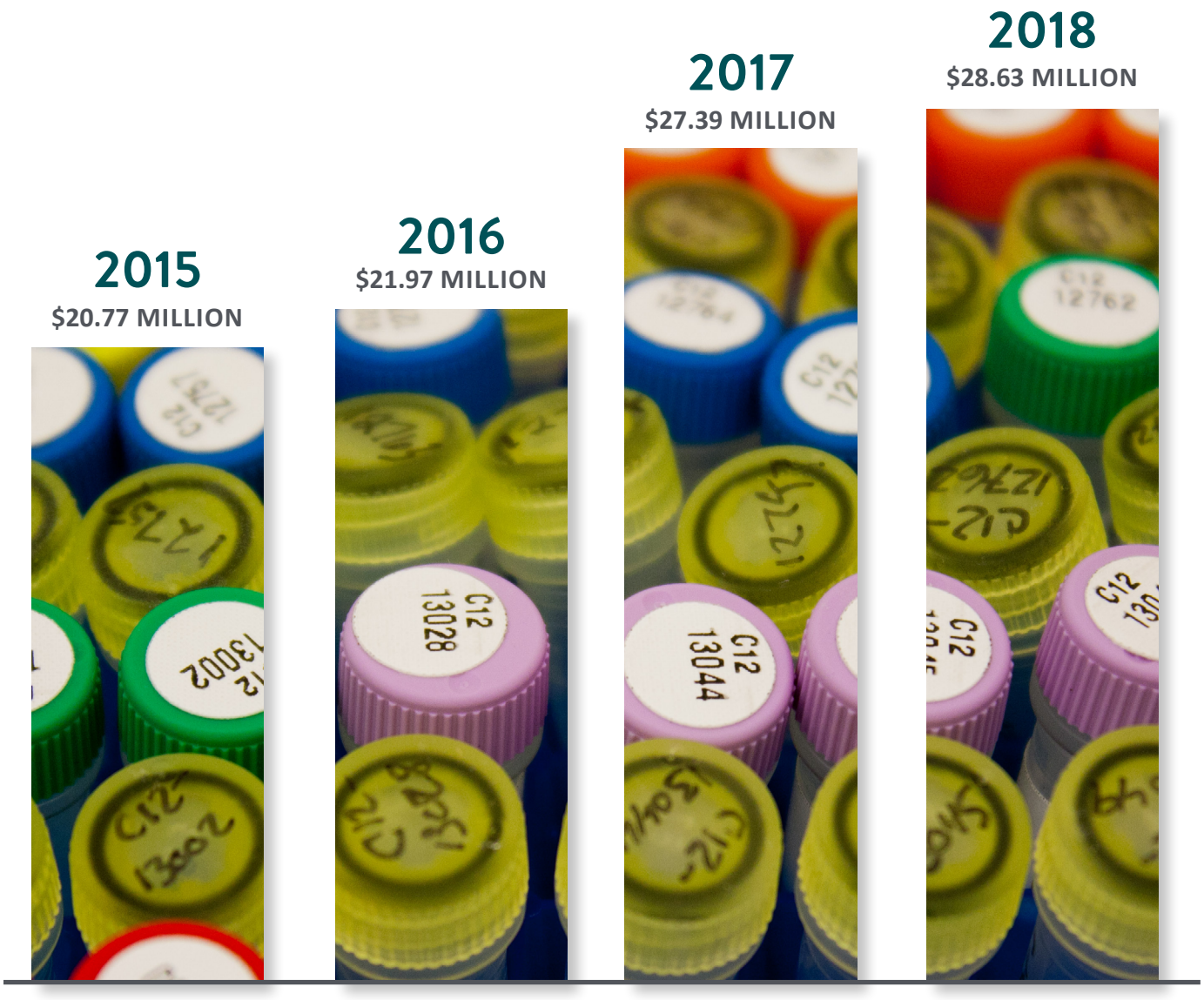
Holly Winslow

The MDH Star Honors Program allows staff members to formally recognize colleagues at all levels for their exceptional accomplishments and outstanding contributions which are models of public service. A limited number of Star Honors are awarded each year.

The BioWatch team received the Award of Excellence from the U.S. Department of Homeland Security's BioWatch Program. The BioWatch Program provides early detection of a bioterrorism event and helps communities prepare a coordinated response. The combination of detection, rapid notification, and response planning helps federal, state and local decision-makers take steps to save lives and mitigate damage.

The team, headed by Maureen Sullivan, BioWatch Unit supervisor, is recognized for its work in the category of Quality Assurance–Laboratory Operations. Also honored were Dr. Joanne Bartkus, Public Health Laboratory director; Dr. Sara Vetter, Infectious Disease Laboratory manager; and other team members Nicolle Leska, Rose Collins, Mandy Foss, Jackie Mahon, Courtney Demontingy, Stephanie Eng, Melissa Bloemke, and Bret Schothorst.

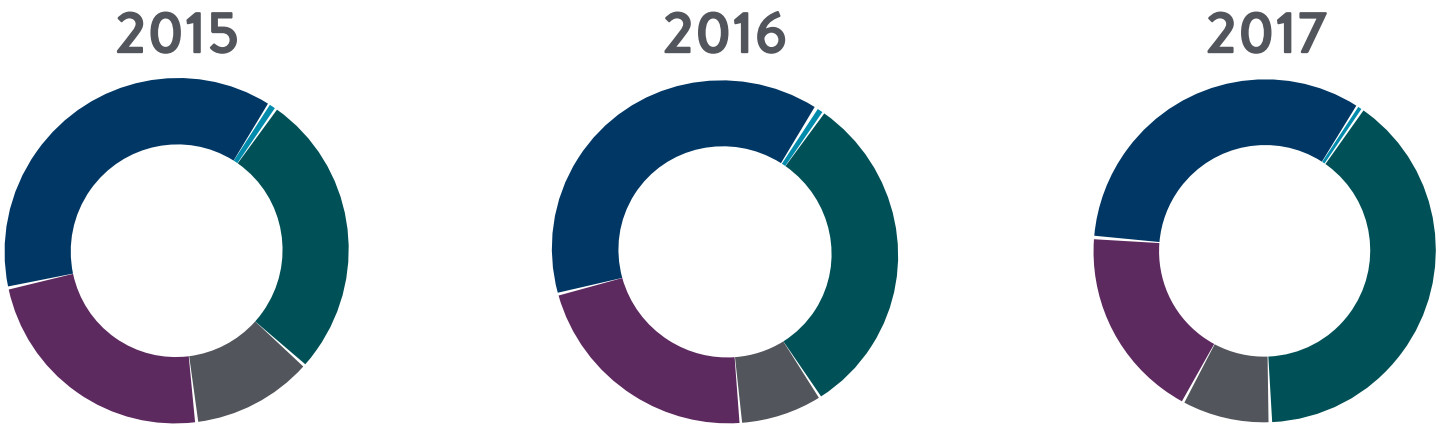
PHL Budgets



For past annual reports and budgets, visit: https://www.health.state.mn.us/about/org/phl/pastreports.html

For a description of fund categories, visit: https://www.health.state.mn.us/about/org/phl/funds.html

Budget Breakdown by Fund Category



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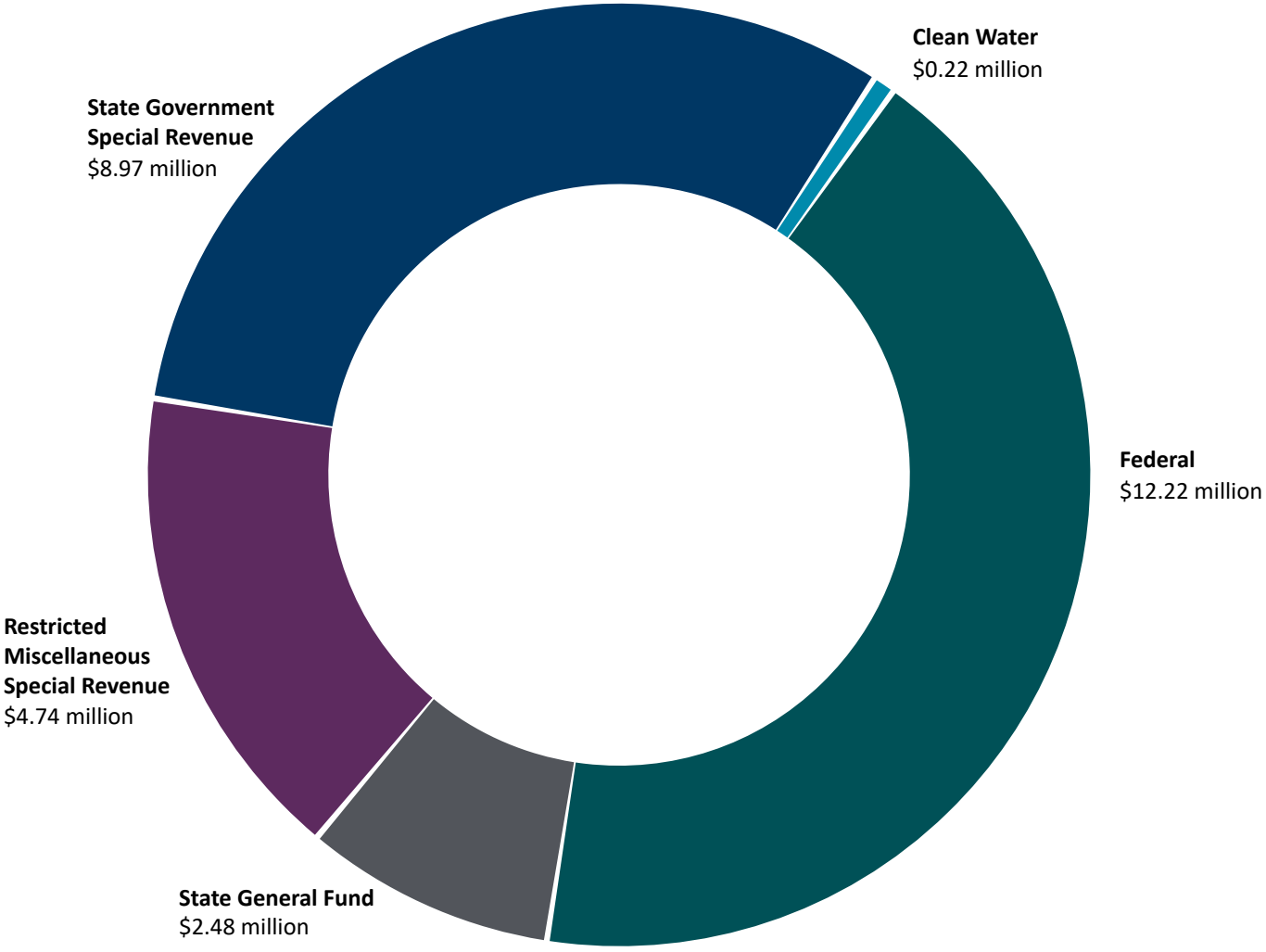

Protecting, maintaining, and improving the health of all Minnesotans

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