CRITICAL LINK

John M. Colmers
Secretary

A Publication of the Maryland Department of Health and Mental Hygiene

The Laboratories Administration—Maryland's State Public Health Laboratory

2009 Pandemic Influenza A H1N1

Drug resistance surveillance

Influenza viruses are rapidly evolving, and it is likely that drug resistant and variant viruses that are mismatched to current vaccine antigenic formulations will continue to emerge. The accumulation of point mutations during replication of influenza virus genes, that encode for the protein targets of antiviral drugs, can result in the development of drug resistance. Influenza drug resistance can emerge and become widespread very quickly. For example, amantadine resistance rapidly developed in seasonal influenza A H3N2 viruses during the 2005-2006 influenza season. By January 2006 over 91% of H3N2 viruses were found to be resistant and the Centers for Disease Control and Prevention (CDC) issued recommendations to discontinue the use of the drugs to treat H3N2 infections.[1] More recently oseltamivir (Tamiflu™) resistance rapidly emerged in seasonal influenza A H1N1 viruses. Based on national drug resistance surveillance conducted by the CDC, only 12.3% of the seasonal

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Ethics and Medical Laboratory Operations

Ethical dilemmas in the workplace become complicated

We all have a fairly good idea of what being ethical and acting ethically means; however, a definitive, concrete meaning of "ethics" is hard to pin down. Our views and understanding about ethics can often be questionable or in the process of development because they are derived from our own experiences, values, and beliefs.

Ethics poses questions about how we should act in our relationships and specifically considers whether our conduct or actions are right or wrong. Ethical conduct is usually prescribed in terms of rights, obligations, benefits to society, fairness, or specific virtues,[1] such as integrity, honesty, faithfulness, loyalty, and compassion. In the simplest of terms, ethics is learning what is right or wrong, and then doing the right thing. However, doing the right thing is not as simple or straightforward as recognizing that "I shouldn't steal from my employer, or lie and blame someone else for my mistakes." Is this the same as fudging a time sheet or not following a test procedure? Ethical dilemmas in the day-to-day operations in the workplace are not so obvious, and therefore become more complicated. As ambiguity and vagueness increase in a particular situation, so too does the difficulty of acting the right way.

What may further complicate our course of conduct is a desensitized view of what an ethical course of conduct actually is. In the past decade we have been inundated with headlines of fraud, abuse, nepotism, kickbacks, and have seen an unprecedented number of corporate scandals: Enron, Tyco, Global Crossing, and WorldCom, are only a few examples.

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2009 Pandemic Influenza A H1N1

influenza A H1N1 viruses tested were resistant to oseltamivir during the 2007-08 flu season.[2] By the early spring of 2009, oseltamivir resistance had increased to over 99% of the viruses tested.[3] To date, only a small number of oseltamivir resistant cases have been documented in 2009 pandemic H1N1 influenza (swine-like) viruses in the United States by CDC surveillance activities (13 of 1,409 viruses tested.)[4] However, the majority (99.5%)[4] of 2009 pandemic influenza A H1N1 viruses are resistant to another class of antiviral drugs, the adamantanes (i.e., amantadine and rimantadine.)

Drug resistant viruses present a potential threat to emergency pandemic control measures by quickly rendering large stockpiles of anti-viral drugs ineffective. Therefore, public health officials need real-time information that demonstrates the existence and prevalence of resistant/ variant viruses as they are transmitted within the local population. During an ongoing pandemic event it is likely national laboratories would be overwhelmed with requests to genotype influenza viruses for drug resistance. This underscored the need for state and local public health laboratories, that have the ability to perform nucleic acid sequencing, to quickly generate influenza genotyping surveillance data that can be used to guide pubic health interventions. Through the CDC Public Health Emergency Response (PHER) Cooperative Agreement, the Division of Molecular Biology of the Laboratories Administration obtained funding to procure a pyrosequencer. This instrument is now used to perform standardized CDC/World Health Organization (WHO) procedures that quickly sequence small fragments of the influenza genome to identify specific mutations associated with anti-viral drug resistance to both oseltamivir and the adamantanes.

In September 2009, the Laboratories Administration became one of only a few public health laboratories in the United States with the capability to test 2009 pandemic influenza A H1N1 viruses for resistance to antiviral drugs. Clinical specimens are submitted to the Laboratories Administration as part of State-wide systemic influenza surveillance activities. Selected specimens that are real-time PCR positive for the 2009 pandemic influenza A H1N1 virus are then forwarded to the Molecular Epidemiology Laboratory for influenza drug resistance genotyping. To date, the Laboratories Administration has genotyped over five hundred 2009 pandemic influenza A H1N1 viruses from clinical specimens to identify mutations that are associated with anti-viral drug resistance to both oseltamivir and the adamantane drugs.[5]

On November 19, 2009, the Laboratories Administration's Molecular Epidemiology Laboratory identified the first oseltamivir-resistant mutation (H275Y) in a pandemic H1N1 swine influenza virus in Maryland. The mutation designated H275Y refers to a histidine (H)-to-tyrosine (Y) substitution at position 275 in the viral neuraminidase gene, the target of the antiviral drug.[6,7] This specimen was immediately sent to the CDC for verification and the DHMH finding was reproduced by the CDC Laboratory. On November 21, 2009 additional oseltamivir-resistant mutations (H275Y) were identified in viruses from three longitudinally collected specimens from another hospitalized patient.

Investigations by DHMH and local health department epidemiologists indicated that both resistance cases were diagnosed with influenza during October and November hospitalizations, and the patients have recovered from influenza. Both resistant cases had immunosuppression, which is an identified risk factor for the development of antiviral resistance. The initial case was detected through routine surveillance testing for resistant 2009 pandemic influenza A H1N1 virus by the Laboratories Administration. The second case was initially suspected by astute clinicians from a patient who continued to test positive for flu despite antiviral treatment. The two resistant cases do not appear to be

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linked to each other. Although there is no indication that the resistant virus has spread to any contacts, DHMH is working with local healthcare facilities and local health departments to further investigate and describe this situation. The resistant strain is presumed preventable by the 2009 pandemic influenza A H1N1 virus vaccine and can be treated by alternative antiviral medication.[8]

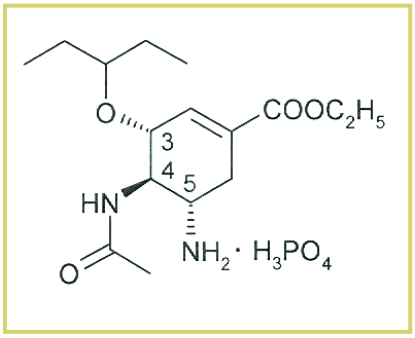

Figure 1: Molecular structure diagram of Oseltamivir. Source: Tamiflu package insert.

The WHO recently published a review[6] of all 39 cases of 2009 pandemic H1N1 influenza viruses found resistant to oseltamivir as of October 2009. Common features of all reviewed cases were:

- Resistance was associated with the point mutation at position 275 in the neuraminidase glycoprotein (H275Y).
- None tested by a phenotypic assay was resistant to the other neuraminidase inhibitor, zanamivir.
- None arose from a reassortment with the seasonal A H1N1 virus that has become naturally resistant to oseltamivir.
- There is no evidence that oseltamivir-resistance was transmitted beyond the close proximity of cases.
- Except for some severely immunosuppressed patients and two children who developed pneumonia, all other cases experienced an uncomplicated influenza illness.

WHO[6] now considers two factors to be associated with the isolation of oseltamivir-resistant 2009 pandemic influenza A H1N1 virus:

1. Immunosuppression, which was observed in seven cases and has also previously been observed for seasonal influenza viruses; and
2. Oseltamivir given for prophylaxis, which was observed in 13 cases.

In November 2009, authors reporting on an oseltamivir case in a letter to the *New England Journal of Medicine*[7] hypothesized that the presence of subtherapeutic levels of oseltamivir, at a time when viral replication has already begun, is an important factor that can lead to the emergence of resistance. Their observations also support the need to limit the indications for post-exposure prophylaxis, and to rapidly convert a prophylactic treatment regimen to a therapeutic regimen as soon as influenza-like symptoms develop in a patient receiving prophylactic treatment.

If local health departments become aware of patients who are undergoing antiviral therapy for influenza, but are repeatedly testing positive or exhibiting influenza symptoms, they should notify DHMH epidemiologists for further discussion and possible investigation. Please be aware that the Laboratories Administration may not be able to routinely test for resistant influenza viruses for individual patient management purposes, as its capacity serves as a limited surveillance and investigative tool.[8]

The article prepared by
Drs. Jack DeBoy and Robert Myers.

References

[1] *MMWR* Jan. 20, 2006 / 55(02);44-46 http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5502a7.htm
[2] *JAMA*, March 11, 2009; 301: 1034 - 1041 http://www.ncbi.nlm.nih.gov/pubmed/19255110
[3] *MMWR* April 17, 2009 / 58(14);369-374
[4] http://www.cdc.gov/flu/weekly/index.htm#whomap (2009-2010 Influenza Season Week 46 ending Nov. 21, 2009)
[5] http://dhmh.state.md.us/labs/pdf/Influenza%20Drug%20Resistance.pdf
[6] *Weekly Epidemiological Record*. 2009. 84:453-459. www.who.int/entity/wer/2009/wer8444.pdf
[7] *NEJM*. 2009 (Nov. 11). http://content.nejm.org/cgi/content/full/NEJMc0910060
[8] DHMH-Office of Infectious Disease Epidemiology and Outbreak Response-HO Memo #09-088, Nov. 30, 2009.

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Ethics and Medical Laboratory Operations

In contrast, our more common, day-to-day, ethical choices seem to become or may be considered trivial, inconsequential, irrelevant, and harmless. After all, we in the laboratory are probably not going to face ethical issues like "Sophie's Choice[2]," or a corporate debacle like Enron. Yet a shocking 48% of workers admit to performing unethical or illegal acts in the workplace within the previous year. More disturbing is that workers in manufacturing and healthcare reported the most pressure to act unethically, and the most commonly reported ethical violation was cutting corners on quality control.[3,4]

This survey[4] is believed to be the first to provide a quantitative measurement of the source and extent of workplace pressure experienced by American workers, and the first to provide a definitive link between workplace pressure and illegal or unethical behavior by employees. Nearly half of all workers (>48%) reported that, due to pressure, they had engaged in one or more unethical and/or illegal actions during the previous year. What's more, 58% of the respondents admitted that workplace pressures have caused them to at least consider acting unethically or illegally on the job. Workers in the manufacturing and the healthcare industries reported feeling the highest level of pressure to act illegally or unethically.

Significant contributors to workplace pressure included the following: poor internal communications; work hours/workload; downsizing effects; poor leadership; and balancing work and family. Most people surveyed, however, felt pressure from a variety of sources. More than one-third (35%) identified 11 or more sources of pressure out of 23 possibilities, and 69 % identified at least six sources.[4] This research was conducted during good economic times. Increasing pressure and resulting ethics violations would likely increase during an economic slump.[5]

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Two fundamentally divergent ethical theories have emerged and are split as to the application of "right" behavior. Some ethicists assert there is always a right thing to do based on moral principle, while others believe the right thing to do is tied to the situation.[6] Regardless of which view you chose, it ultimately remains up to the individual, because ethical issues are grounded in choices of behavior and conduct. Unlike medical, pharmaceutical, and in-vitro diagnostic test research, ethics have been given limited attention by professionals in laboratory medicine,[3] including public health testing.

The ethical standards for those working in a public health or environmental laboratory are derived from medical ethics and incorporate the same principles. Public expectations of public health or environmental laboratories reflect, with regard to ethical standards, those of the medical profession generally. It is the responsibility of individuals working in these laboratories to ensure they are worthy of the same level of trust that the medical profession has come to enjoy.

For our purposes, ethical laboratory practice "can be regarded as appropriate technical practice accompanied by integrity in attitude and behavior.[8]"

In recent times, as an aid to decision making in medicine and as a starting point for discussions in medical ethics, four principles have been generally agreed as important. They are derived from the Declaration of Geneva, which in turn is derived from the Hippocratic Oath, and reflect the values and responsibilities implicit in the Oath. These are:[8,9]

1. **Autonomy:** The right of patients to make decisions on their own behalf. This right presupposes informed consent, the right to knowledge about their condition, and a right of privacy.
2. **Beneficence:** The duty or obligation to act in the best interest of the patient.
3. **Nonmaleficence:** The duty or obligation to avoid harm to the patient, including confidentiality.
4. **Justice:** This embodies concepts of fairness and giving what is rightfully due. It applies not only to the individual, but also in the wider context, and incorporates notions of equity and fair distribution. This is important when medical services are distributed, as they usually are, in an environment of limited resources.

Applying Ethical Principles to Laboratory Practice [8]

The following laboratory operations are offered as a primer for applying ethical principles to the practice of laboratory medicine. While not exhaustive in scope, it provides a matrix of examples of those things that should be done to ensure laboratory services are carried out in an ethical manner. To do otherwise would be unethical. When in doubt, or when questions arise, use the four-step ethical decision making tool on page five.

Collecting Information

Laboratories must collect sufficient information to adequately identify patients and specimens, and should not collect unnecessary information. There should be sufficient information to enable the test to be performed and correctly interpreted, e.g., time and date of collection, patient age, and any clinical information that could be helpful for interpretation. Information may also be collected when there are legitimate concerns relevant to the safety of staff and other patients. Ultimately the patient should be aware of the information collected and the purpose for which it is collected.

Collecting Specimens/Samples

All procedures carried out on patients require informed consent. For most routine laboratory procedures, consent may be inferred when the patient presents at a clinic or health department and willingly submits to the usual specimen collecting procedures, e.g., venipuncture, voided urine, etc.

Performing Tests

All laboratory tests should be carried out to an appropriate standard as determined by regulatory authorities or professional accrediting organizations. Regardless of the standards, the patient's interest must always prevail. In some situations this may mean that a laboratory should refuse to perform a test, rather than risk producing an unreliable test result that could do harm to the patient. Questions that arise could include: "Do I proceed with an inadequate or incorrect specimen? Do I test the specimen if it is not properly labeled or was not refrigerated in transit as required for optimum results?" All laboratory work throughout the testing process (pre-analytic, analytic, and post-analytic phases) must be carried out with the high level of skill and competence expected of the laboratory scientific and support staff.[10] Are the test materials expired? Has every step in the procedure been followed?

Reporting Results

Prior to releasing test results, have all pre-analytic and analytic criteria been met? Are all controls properly performed and producing expected results? Laboratory test results are confidential unless disclosure is authorized. Results are normally reported to the submitter of the specimen/sample who requested the tests and may be reported to other parties with consent or as required by law. Decisions concerning implied consent when reporting to other involved practitioners to whom the patient has been referred must be made taking into account federal and state privacy requirements. The laboratory should have written procedures detailing how various requests should be handled to protect privacy. "Do I know who is requesting test results over the telephone?" The laboratory is also responsible for taking all reasonable precautions to ensure that the method of transmitting results to requesting clinicians or other authorized persons is secure and reliable. This applies whether the method used is by courier, U.S. mail, or electronic means. Are facsimile

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numbers checked periodically to ensure they match the person requesting the test?

The laboratory also has a responsibility to ensure that turn-around-time for results is reasonable, taking into account the patient's condition. There should be a means to report urgent test results as soon as they become available. In addition to accurate, reliable, and timely reporting of test results, the laboratory has the responsibility to ensure test results are correctly interpreted and applied in the patient's or public's best interest. Providing consultation with regard to selection of tests and interpretation of results should be an integral part of a public health and environmental laboratory service.

Storage and Retention of Laboratory Records

The laboratory must store records with reasonable safeguards against data loss, unauthorized access, tampering, and any other misuse. For electronic information systems, this would include network firewalls, using strong passwords that expire at set intervals for accessing information systems, and preventing general access of unauthorized personnel to the laboratory. Test results must never be altered or corrected, except by authorized persons in accordance with the laboratory's established procedures. The retention of laboratory records is defined by various state and federal statutory requirements and must be rigidly followed based on these requirements. Laboratories should develop their own protocols specifying the length of time that test results and specimens/samples will be maintained. When the time comes for destroying laboratory records, this should be carried out in a manner that prevents unintentional disclosure. Does the vendor provide proof of the destruction process? Or are records found in recycling bins?

Everyone is involved

Frequently we find ourselves in a tug-of-war between our own conflicting values and those of others. In the public health setting, such conflicts involve making choices between the opposing needs of groups with competing claims to our services. Conflicts also may surface in the clash of priorities within and outside the laboratory between different groups of people whose perspectives differ. The fundamental element in the decision must be the ultimate assignment of individual responsibility. Ethical situations are those in which we ask ourselves, "Should I do this?" "Should I not do this?" "How can I know if this is my responsibility[8]?" There is at least one tool to assist with the more complex or confrontational (think whistle-blower) ethical issues, such as observing a coworker or supervisor engaging in an unethical laboratory practice. Ethical decision making can be considered in the following four-step process to assist in methodically or systematically tackling an ethical dilemma:[8,9]

Step 1: Do a stake holder analysis. Identify all individuals whose interests are involved. This could include the patient, the patient's family, doctors, laboratory personnel, sanitarians, and other public health partners.

Step 2: Gather the facts and ensure data integrity. Understand all interests as completely as possible. This involves questioning all assumptions and being clear about the facts in the case.

Step 3: Apply the four principles (autonomy, beneficence, nonmaleficence, and justice) to the case. Consider the likely effects of alternative actions upon the various interests. This ensures that these principles have been upheld. Implicit in the four principles are the concepts of integrity, respect, honesty, and confidentiality.

Step 4: Once a decision has been reached, apply the "newspaper" or "parent" test before acting. Choose a course of action that will reconcile the most interests or otherwise maximize the common good. This involves conjecturing how a proposed action would be reported in the media (in the newspaper or on "60 Minutes" or what your mother or parent might say when told of your action. It is a simple "gut test" to see whether what you plan to do passes your conscience.

Conclusion

As public health and laboratory professionals we are obligated to patients and customers to do all we can to provide high-quality testing services. Frequently, this means that we are faced with issues that conflict not only with our own values but also those of co-workers and managers. What we must remember is that it is the interest of the patient that is paramount. Saying, thinking, and doing the "right thing" may seem simple enough, but often doing the right thing is more difficult, costs more, and provides the least amount of fanfare to our professional egos. Honesty, quality, reliability, accountability, and trust are some of the virtues and principles we embrace when we create an atmosphere of professionalism and quality improvement in the laboratory. In order to succeed we must continue to have these be the driving force behind our philosophy and ethics.

This article written by Michael Wajda

References

[1] M. Velasquez, C. Andre, T. Shanks, S.J., M.J. Meyer, "What is Ethics?", *Issues in Ethics* IIE Volume 1, Number 1 (Fall 1987).

[2] "Sophie's Choice," a 1979 novel by William Styron, portrays sophie, a yojng mother in Auschwitz, forced by Nazi guards to choose which of her children would live.

[3] L.D. Massey, "Ethical Choices Faced Daily in Laboratory," ADVANCE for Medical Laboratory Professionals, January 31, 2000, p. 5.

[4] American Society of Chartered Life Underwriters & Chartered Financial Consultants and Ethics Officer Association, "Sources and Consequences of Workplace Pressure: A Landmark Study," unpublished report (1997); See also Del Jones, "48% of Workers Admit to Unethical or Illegal Acts," USA Today (April 4-6, 1997), 1A-2A.

[5] Journal department author, "Social Science and the Citizen: Unethical Workers and Illegal Acts," Society Volume 36, Number 4, May, 1999, pp 2-6.

[6] C. McNamara, "Complete Guide to Ethics Management: An Ethics Toolkit for Managers, 2008, located at: http://www.managementhelp.org/ethics/ethxgde.htm.

[7] M.J. McQueen, "Ethics and Laboratory Medicine", Clinical Chemistry, Volume 36, Number 10, 1990, pp 1404-1407.

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Ethics and Medical Laboratory Operations

[8] Code of Maryland Regulations (COMAR) 10.10.01.01 Purpose. Medical Laboratories, Department of Health and Mental Hygiene: "The people of Maryland are entitled to the highest level of competency, reliability, and accuracy that reasonably may be expected from a medical laboratory…"

[9] Outline, headings, ethical practices substantially based on Kenneth D. McClatchey, Clinical Laboratory Medicine, 2nd Edition, Philadelphia: Lippincott Williams Wilkins, 2002, p. 134, Chapter 6 "Ethical Practice in Laboratory Medicine" citing: Mohammed M. El-Nageh, et al., Ethical Practice in Laboratory Medicine and Forensic Pathology, (WHO Regional Publications, Eastern Mediterranean Series) December 1, 1999, WHO Regional Office for the Eastern Mediterranean.

[10] M. Bissell and T. Cosman, "How ethical dilemmas induce stress—Ethics and the Clinical Laboratory, Part 1," Medical Laboratory Observer, July, 1991.

Recommended further reading:
B.E. Statland, M.D., Ph.D., "Ethics: A code for the laboratory," Medical Laboratory Observer, August 2007, pp. 10-16. (Contains more than 2 dozen ethical commandments for the medical laboratory.)

Rich Oatis promoted to TB Laboratory Supervisor

It is with great pleasure that the Laboratories Administration introduces Rich Oatis, who assumed responsibility as the TB Laboratory Supervisor November 18, 2009. Rich started in the Laboratories Administration's Retrovirology Laboratory and then joined the Public Health Microbiology Laboratory almost 10 years ago where he has been working full-time in our TB Laboratory.

Rich is a pleasant person to work with and has a great deal of knowledge in the laboratory diagnosis of TB. Please feel free to call Rich at 410-767-6130 to congratulate and welcome him in his new post.

The Laboratories Administration is committed to provide quality services to the TB Control Programs around the State.

The services and facilities of the Maryland Department of Health and Mental Hygiene (DHMH) are operated on a non-discriminatory basis. This policy prohibits discrimination on the basis of age; ancestry; color; creed; marital status; mental or physical disability; national origin; race; religious affiliation, belief, or opinion; sex; or sexual orientation and plies to the provisions of employment and granting of advantages, privileges and accommodations.

The Department, in compliance with the Americans with Disabilities Act, ensures that qualified individuals with disabilities are given an opportunity to participate in and benefit from DHMH services, programs, benefits, and employment opportunities.

Laboratory Statistics

Reported from the
Laboratories Administration
during the month of
October 2009

ENTERIC BACTERIOLOGY

GENUS SEROVAR

SEX	AGE	#	JURISDICTION
CAMPYLOBACTER JEJUNI			
F	18	1	ALLEGANY
M	0	1	ALLEGANY
U	0	1	ANNE ARUNDEL
U	45	1	ANNE ARUNDEL
U	29	1	ANNE ARUNDEL
F	56	1	ANNE ARUNDEL
U	56	1	BALTIMORE
U	2	1	BALTIMORE
F	41	1	BALTIMORE
F	30	1	BALTIMORE
F	2	1	BALTIMORE
F	1	1	BALTIMORE
M	63	1	BALTIMORE
M	22	1	BALTIMORE
U	71	1	BALTIMORE
F	60	1	BALTIMORE CITY
U	42	1	CECIL
M	59	1	MONTGOMERY
M	18	1	TALBOT
ESCHERICHIA COLI, SEROTYPE O103:H2			
U	0	1	OUT OF STATE
M	1	1	OUT OF STATE
ESCHERICHIA COLI, SEROTYPE O157:H7			
F	14	1	BALTIMORE
M	77	1	BALTIMORE
M	17	1	BALTIMORE
ESCHERICHIA COLI, SEROTYPE O157:NON-MOTILE			
F	0	1	BALTIMORE CITY
ESCHERICHIA COLI, SEROTYPE O26			
M	22	2	OUT OF STATE
F	11	1	OUT OF STATE
SALMONELLA			
M	83	1	ANNE ARUNDEL
M	30	1	BALTIMORE
M	24	1	BALTIMORE
F	0	1	BALTIMORE CITY
F	35	1	BALTIMORE CITY
M	3	1	BALTIMORE CITY
M	0	1	BALTIMORE CITY
F	1	1	CHARLES
M	48	1	OUT OF STATE
M	26	1	OUT OF STATE
M	5	1	OUT OF STATE
M	0	1	PRINCE GEORGE'S
F	12	1	WASHINGTON
M	2	1	WICOMICO
SALMONELLA BOVISMORBIFICANS			
U	39	1	CARROLL
SALMONELLA HARTFORD			
U	13	1	BALTIMORE CITY
F	3	1	CALVERT
U	13	1	HARFORD
SALMONELLA IV 50:G,Z51:-			
M	1	1	CECIL
SALMONELLA MBANDAKA			
F	2	1	MONTGOMERY
SALMONELLA RUBISLAW			
M	2	1	BALTIMORE
SALMONELLA SANDIEGO			
F	29	1	OUT OF STATE
SALMONELLA SER 4,5,12:D:-			
M	24	1	ANNE ARUNDEL
SALMONELLA SER 4,5,12:I:-			
F	51	1	FREDERICK

M	51	1	HARFORD
U	2	1	OUT OF STATE
U	1	1	OUT OF STATE
M	6	1	OUT OF STATE
M	1	1	SOMERSET
SALMONELLA SER 6,7:-:1,5			
M	35	1	ANNE ARUNDEL
F	30	1	BALTIMORE
F	22	1	OUT OF STATE
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U	0	1	BALTIMORE CITY
SALMONELLA SER AGONA			
F	8	1	BALTIMORE
F	39	1	BALTIMORE
SALMONELLA SER BARDO			
F	64	1	OUT OF STATE
SALMONELLA SER BAREILLY			
F	2	1	BALTIMORE CITY
M	1	1	OUT OF STATE
M	1	2	OUT OF STATE
SALMONELLA SER BRAENDERUP			
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M	5	1	MONTGOMERY
SALMONELLA SER ENTERITIDIS			
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F	75	1	ALLEGANY
F	67	1	ALLEGANY
F	65	1	ALLEGANY
F	65	1	ALLEGANY
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F	36	1	ALLEGANY
M	77	1	ALLEGANY
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M	52	1	ANNE ARUNDEL
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M	57	1	BALTIMORE
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M	0	4	BALTIMORE CITY
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M	1	1	BALTIMORE CITY
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F	64	1	OUT OF STATE
F	53	1	OUT OF STATE
F	53	1	OUT OF STATE
F	30	1	OUT OF STATE
F	15	1	OUT OF STATE
F	11	1	OUT OF STATE
F	2	1	OUT OF STATE
M	23	1	OUT OF STATE
M	22	1	OUT OF STATE
M	2	1	OUT OF STATE
M	0	1	OUT OF STATE
M	49	1	WICOMICO
SALMONELLA SER HAVANA			
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M	2	1	BALTIMORE
SALMONELLA SER INFANTIS			
F	25	1	OUT OF STATE
SALMONELLA SER JAVIANA			
M	26	1	BALTIMORE
M	41	1	BALTIMORE CITY
F	21	1	OUT OF STATE
M	14	1	WASHINGTON
SALMONELLA SER MUENCHEN			
F	44	1	BALTIMORE
SALMONELLA SER NEWPORT			
U	12	1	ANNE ARUNDEL
U	92	1	BALTIMORE
F	52	1	BALTIMORE
F	13	1	BALTIMORE
M	1	1	BALTIMORE
F	35	1	CARROLL
M	73	1	CECIL
M	64	1	MONTGOMERY
F	44	1	OUT OF STATE
F	21	1	OUT OF STATE
F	80	1	WICOMICO
F	95	1	WORCESTER
SALMONELLA SER NORWICH			
F	13	1	OUT OF STATE
F	0	1	OUT OF STATE
F	5	2	WICOMICO
F	0	1	WICOMICO
SALMONELLA SER ORANIENBURG			
F	26	1	BALTIMORE CITY
M	16	1	OUT OF STATE
SALMONELLA SER PARATYPHI A			
F	15	1	BALTIMORE
M	39	1	BALTIMORE
M	57	1	BALTIMORE
SALMONELLA SER SAINTPAUL			
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SALMONELLA SER THOMPSON			
U	29	1	OUT OF STATE
SALMONELLA SER TYPHI			
M	9	1	MONTGOMERY
SALMONELLA SER TYPHIMURIUM			
F	91	1	ALLEGANY
M	15	1	ANNE ARUNDEL
F	3	1	BALTIMORE CITY
F	3	1	HARFORD
F	18	1	OUT OF STATE
M	45	1	OUT OF STATE
F	68	1	PRINCE GEORGE'S
SALMONELLA SER TYPHIMURIUM VAR COPENHAGEN			
F	3	1	BALTIMORE CITY
F	0	1	BALTIMORE CITY
M	14	1	CALVERT
U	3	1	FREDERICK
F	3	2	OUT OF STATE
M	11	1	OUT OF STATE
M	4	1	OUT OF STATE
F	35	1	WICOMICO
SHIGELLA BOYDII TYPE 14			
F	37	2	BALTIMORE CITY
SHIGELLA FLEXNERI			
M	19	1	OUT OF STATE
M	4	1	OUT OF STATE
F	8	1	OUT OF STATE
F	7	1	OUT OF STATE
F	2	1	OUT OF STATE
M	6	1	OUT OF STATE
SHIGELLA FLEXNERI II:3,4			
M	25	1	PRINCE GEORGE'S
SHIGELLA SONNEI			
F	15	1	BALTIMORE
F	7	1	BALTIMORE
F	4	1	BALTIMORE CITY
M	14	2	BALTIMORE CITY
M	5	2	BALTIMORE CITY
M	1	2	BALTIMORE CITY
F	28	1	KENT
M	23	1	KENT
F	66	1	OUT OF STATE
M	75	1	OUT OF STATE
M	9	1	OUT OF STATE
M	10	1	PRINCE GEORGE'S
F	0	1	UNKNOWN
VIBRIO ALGINOLYTICUS			
M	22	1	BALTIMORE
VIBRIO FLUVIALIS			
U	69	1	CHARLES
VIBRIO PARAHAEMOLYTICUS			
U	61	1	ANNE ARUNDEL
M	52	1	ANNE ARUNDEL
VIBRIO VULNIFICUS			
F	60	1	MONTGOMERY
YERSINIA ENTEROCOLITICA			
M	12	1	OUT OF STATE

TOTAL 189

ISOLATES - REFERENCE

GENUS SPECIES SOURCE	#	JURISDICTION
CLOSTRIDIUM PERFRINGENS		
STOOL	1	CALVERT
ESCHERICHIA COLI		
URINE	1	ALLEGANY
GRAM-POSITIVE COCCUS		
BLOOD	1	CARROLL
PSEUDOMONAS PUTIDA		
BLOOD	1	BALTIMORE CITY
STAPHYLOCOCCUS AUREUS		
WOUND	3	WICOMICO
STAPHYLOCOCCUS, COAGULASE NEGATIVE		
UNKNOWN	1	PRINCE GEORGE'S

TOTAL 8

ISOLATES - MISCELLANEOUS

GENUS SPECIES SOURCE	#	JURISDICTION
ACINETOBACTER CALCOACETICUS-ACINETOBACTER BAUMANNI COMPLEX		
SPUTUM	1	WASHINGTON
BACILLUS GRAM-NEGATIVE		
URINE	1	FREDERICK
ENTEROBACTER CLOACAE		
CSF	1	BALTIMORE CITY
LUNG	1	BALTIMORE CITY
ENTEROCOCCUS FECALIS		
VAGINAL	1	MONTGOMERY
ESCHERICHIA COLI		
TISSUE	2	BALTIMORE CITY
GARDNERELLA VAGINALIS		
VAGINAL	1	CECIL
VAGINAL	2	PRINCE GEORGE'S
VAGINAL	7	SOMERSET
KLEBSIELLA PNEUMONIAE		
BLOOD	1	BALTIMORE CITY
SPUTUM	1	WASHINGTON
SPUTUM	1	WASHINGTON

PSEUDOMONAS AERUGINOSA		
EAR	1	ALLEGANY
STAPHYLOCOCCUS AUREUS		
BLOOD	1	BALTIMORE CITY
LUNG	2	BALTIMORE CITY
MRSA	1	BALTIMORE CITY
WOUND	3	BALTIMORE CITY
WOUND	3	CARROLL
WOUND	1	CARROLL
WOUND	1	FREDERICK
WOUND	1	PRINCE GEORGE'S
NASAL	2	WASHINGTON
STAPHYLOCOCCUS COAGULASE NEGATIVE		
WOUND	1	PRINCE GEORGE'S
SPUTUM	1	WASHINGTON
STREPTOCOCCUS ALPHA HEMOLYTIC		
CSF	1	BALTIMORE CITY
STREPTOCOCCUS BETA HEMOLYTIC NON-GROUP A		
THROAT	13	ALLEGANY
STREPTOCOCCUS BETA HEMOLYTIC GROUP B		
VAGINAL	2	ANNE ARUNDEL
VAGINAL	2	HOWARD
VAGINAL	1	PRINCE GEORGE'S
VAGINAL	5	PRINCE GEORGE'S
TOTAL	**49**	

SEXUALLY TRANSMITTED DISEASES

GENUS SPECIES		
SEX	#	JURISDICTION
SYPHILIS SEROLOGY		
M	1	ALLEGANY
M	1	ANNE ARUNDEL
F	1	BALTIMORE
M	3	BALTIMORE
F	10	BALTIMORE CITY
M	33	BALTIMORE CITY
M	1	CARROLL
M	1	DORCHESTER
M	1	HOWARD
F	1	MONTGOMERY
M	6	MONTGOMERY
U	1	MONTGOMERY
F	8	PRINCE GEORGE'S
M	20	PRINCE GEORGE'S
U	1	PRINCE GEORGE'S
M	1	SOMERSET
M	2	WASHINGTON
F	3	WICOMICO
M	3	WICOMICO
F	1	WORCESTER
M	1	WORCESTER
TOTAL	**100**	
CHLAMYDIA TRACHOMATIS		
F	10	ALLEGANY
M	11	ALLEGANY
F	29	ANNE ARUNDEL
M	6	ANNE ARUNDEL
U	1	ANNE ARUNDEL
F	30	BALTIMORE
M	17	BALTIMORE
F	2	BALTIMORE CITY
M	35	BALTIMORE CITY
U	2	BALTIMORE CITY
M	1	CALVERT
F	1	CAROLINE
M	1	CAROLINE
F	2	CARROLL
M	1	CARROLL
F	3	CECIL
M	1	CECIL
F	11	CHARLES
M	7	CHARLES
F	1	DORCHESTER
M	2	DORCHESTER
F	7	FREDERICK
M	6	FREDERICK
F	1	GARRETT
F	4	HARFORD
M	4	HARFORD
F	5	HOWARD
M	9	HOWARD
F	1	KENT
M	1	KENT
F	9	MONTGOMERY
M	8	MONTGOMERY
F	86	PRINCE GEORGE'S
M	43	PRINCE GEORGE'S
U	3	PRINCE GEORGE'S
F	2	QUEEN ANNE'S
F	1	SAINT MARY'S
M	1	SAINT MARY'S
F	9	SOMERSET
M	3	SOMERSET
F	6	TALBOT
M	2	TALBOT
F	5	WASHINGTON
F	23	WICOMICO
M	6	WICOMICO
F	3	WORCESTER
M	3	WORCESTER
TOTAL	**425**	
NEISSERIA GONORRHOEAE		
F	1	ALLEGANY
F	1	ANNE ARUNDEL
F	1	BALTIMORE
M	5	BALTIMORE
F	1	CALVERT
M	1	CAROLINE
F	3	CHARLES
M	5	CHARLES
F	1	HARFORD
M	1	HARFORD
F	1	MONTGOMERY
M	1	MONTGOMERY
F	13	PRINCE GEORGE'S
M	29	PRINCE GEORGE'S
F	1	QUEEN ANNE'S
F	1	SAINT MARY'S
M	1	SAINT MARY'S
F	4	WICOMICO
M	4	WICOMICO
F	1	WORCESTER
TOTAL	**75**	

MYCOBACTERIOLOGY

ISOLATE			
SEX	AGE	#	JURISDICTION
ACID-FAST BACILLUS			
M	51	1	WASHINGTON
AEROBIC ACTINOMYCETE			
F	67	1	BALTIMORE
MYCOBACTERIUM ABSCESSUS			
F	36	1	BALTIMORE
F	49	2	BALTIMORE
F	79	1	CALVERT
MYCOBACTERIUM AVIUM COMPLEX			
F	67	1	ALLEGANY
F	76	1	ANNE ARUNDEL
F	51	1	BALTIMORE
F	67	2	BALTIMORE
F	72	1	BALTIMORE
F	73	1	BALTIMORE
M	58	1	BALTIMORE
M	59	1	BALTIMORE
M	61	1	BALTIMORE
M	73	1	BALTIMORE
M	75	1	BALTIMORE
M	76	1	BALTIMORE
M	88	1	BALTIMORE
F	31	1	BALTIMORE CITY
F	52	1	BALTIMORE CITY
F	65	1	BALTIMORE CITY
F	71	1	BALTIMORE CITY
M	22	1	BALTIMORE CITY
M	40	1	BALTIMORE CITY
M	49	2	BALTIMORE CITY
M	63	1	BALTIMORE CITY
M	84	1	BALTIMORE CITY
F	70	1	FREDERICK
M	69	1	FREDERICK
F	65	3	HARFORD
M	88	1	HARFORD
F	53	1	MONTGOMERY
M	58	2	OUT OF STATE
M	44	1	TALBOT
M	63	3	TALBOT
F	62	1	WICOMICO
M	44	1	WICOMICO
M	74	1	WICOMICO
MYCOBACTERIUM FORTUITUM COMPLEX			
F	93	1	BALTIMORE CITY
M	90	3	BALTIMORE CITY
M	73	3	HOWARD
F	76	1	MONTGOMERY
M	43	1	MONTGOMERY
M	67	1	MONTGOMERY
F	0	1	OUT OF STATE
M	58	1	OUT OF STATE
M	55	1	PRINCE GEORGE'S
M	72	3	PRINCE GEORGE'S
M	61	1	QUEEN ANNE'S
M	49	1	WASHINGTON
MYCOBACTERIUM GORDONAE			
M	91	1	ANNE ARUNDEL
F	48	1	BALTIMORE
F	85	1	BALTIMORE
M	57	1	BALTIMORE
F	58	1	BALTIMORE CITY
M	61	1	BALTIMORE CITY
M	81	1	FREDERICK
F	33	1	PRINCE GEORGE'S
M	23	1	PRINCE GEORGE'S
M	33	1	PRINCE GEORGE'S

MYCOBACTERIUM KANSASII

M	63	1	BALTIMORE
M	38	1	BALTIMORE CITY

MYCOBACTERIUM TUBERCULOSIS

M	22	1	ANNE ARUNDEL
F	27	1	BALTIMORE CITY
F	36	1	BALTIMORE CITY
M	19	1	BALTIMORE CITY
M	45	1	BALTIMORE CITY
M	75	1	BALTIMORE CITY
F	43	1	DORCHESTER
M	29	1	FREDERICK
F	21	1	MONTGOMERY
F	54	1	MONTGOMERY
F	84	1	MONTGOMERY
M	45	1	MONTGOMERY
M	52	1	MONTGOMERY
M	68	1	MONTGOMERY
M	74	1	MONTGOMERY
M	29	1	OUT OF STATE
M	34	1	OUT OF STATE
F	35	1	PRINCE GEORGE'S
M	45	1	PRINCE GEORGE'S
M	63	1	PRINCE GEORGE'S
M	41	1	TALBOT

MYCOBACTERIUM TUBERCULOSIS COMPLEX

M	31	1	ANNE ARUNDEL
	19	1	BALTIMORE CITY
F	53	5	BALTIMORE CITY
M	19	5	BALTIMORE CITY
M	45	1	BALTIMORE CITY
M	75	1	BALTIMORE CITY
F	43	4	DORCHESTER
M	29	2	FREDERICK
F	34	1	HOWARD
M	55	2	HOWARD
F	54	2	MONTGOMERY
F	65	2	MONTGOMERY
F	84	3	MONTGOMERY
M	26	7	MONTGOMERY
M	38	2	MONTGOMERY
M	43	2	MONTGOMERY
M	45	5	MONTGOMERY
M	52	1	MONTGOMERY
M	68	9	MONTGOMERY
M	74	1	MONTGOMERY
M	90	1	MONTGOMERY
F	23	1	OUT OF STATE
M	24	1	OUT OF STATE
F	29	1	PRINCE GEORGE'S
F	30	2	PRINCE GEORGE'S
M	23	4	PRINCE GEORGE'S
M	29	4	PRINCE GEORGE'S
M	41	4	PRINCE GEORGE'S
M	45	1	PRINCE GEORGE'S
M	63	2	PRINCE GEORGE'S
M	72	1	PRINCE GEORGE'S
M	67	1	SAINT MARY'S
M	41	1	TALBOT
M	53	1	WICOMICO

NON-PHOTOCHROMOGENIC MYCOBACTERIA

M	60	1	WASHINGTON

SCOTOCHROMOGENIC MYCOBACTERIA

M	67	1	BALTIMORE
M	91	1	BALTIMORE

TOTAL 182

MYCOBACTERIUM SUSCEPTIBILITY RESULTS

17 ISOLATES IDENTIFIED
1 DRUG RESISTANT STRAINS FOUND

#	JURISDICTION	DRUG(S)
1[C]	MONTGOMERY	ISONIAZID PYRAZINAMIDE STREPTOMYCIN RIFAMPIN RIFABUTIN ETHAMBUTOL

[A] TWO ISOLATES FROM THE SAME PATIENT
[B] PROBABLE FOR M. BOVIS
[C] MEETS CASE DEFINITION OF MULTI-DRUG TUBERCULOSIS (MDRTB)

Mycobacterium tuberculosis complex consists of:
M. tuberculosis
M. bovis
M. bovis, BCG
M. africanum
M. microti
M. canettii

MYCOLOGY

ISOLATE

SEX	AGE	#	JURISDICTION
ACID FAST BACILLI			
M	53	1	TALBOT
ALTERNARIA SPECIES			
	64	1	ALLEGANY
	51	1	BALTIMORE CITY
M	74	1	TALBOT
ASPERGILLUS FLAVUS			
M	23	1	TALBOT
M	45	1	TALBOT
ASPERGILLUS FUMIGATUS			
M	64	1	BALTIMORE CITY
M	48	1	MONTGOMERY
F	40	1	PRINCE GEORGE'S
M	0	1	PRINCE GEORGE'S
F	39	1	TALBOT
M	43	1	TALBOT
M	0	1	WICOMICO
ASPERGILLUS NIGER			
F	34	1	ALLEGANY
F	67	1	ALLEGANY
F	47	1	MONTGOMERY
F	16	1	TALBOT
F	3	2	TALBOT
M	56	1	TALBOT
M	58	1	TALBOT
M	7	1	TALBOT
M	9	1	WICOMICO
ASPERGILLUS OCHRACEUS			
F	76	1	ANNE ARUNDEL
F	86	1	ANNE ARUNDEL
ASPERGILLUS SPECIES			
M	39	1	TALBOT
ASPERGILLUS TERREUS			
M	56	1	TALBOT
BIPOLARIS SPECIES			
F	65	1	ANNE ARUNDEL
M	70	1	TALBOT
CANDIDA ALBICANS			
F	48	1	BALTIMORE CITY
M	0	1	BALTIMORE CITY
M	59	1	BALTIMORE CITY
U	0	1	BALTIMORE CITY
M	47	1	CALVERT
F	32	1	MONTGOMERY
F	37	1	MONTGOMERY
F	79	1	MONTGOMERY
F	85	1	MONTGOMERY
F	17	1	PRINCE GEORGE'S
F	40	1	PRINCE GEORGE'S
F	65	2	PRINCE GEORGE'S
M	1	1	PRINCE GEORGE'S
F	17	1	SOMERSET
F	18	2	SOMERSET
F	20	1	SOMERSET
F	21	4	SOMERSET
CANDIDA GLABRATA			
F	49	1	MONTGOMERY
F	0	1	PRINCE GEORGE'S
CANDIDA GUILLIERMONDII			
M	49	1	MONTGOMERY
CANDIDA PARAPSILOSIS			
M	59	1	BALTIMORE CITY
CANDIDA SPECIES			
F	48	1	BALTIMORE
M	22	2	BALTIMORE CITY
CANDIDA TROPICALIS			
M	26	1	BALTIMORE CITY
CRYPTOCOCCUS HUMICOLA			
F	25	1	CARROLL
FUSARIUM SPECIES			
F	48	1	BALTIMORE
M	9	2	BALTIMORE CITY
F	67	1	CARROLL
M	53	1	WICOMICO
MUCOR SPECIES			
M	37	1	ALLEGANY
F	77	1	ANNE ARUNDEL
MYCELIA STERILIA			
F	65	1	ANNE ARUNDEL
M	50	1	ANNE ARUNDEL
M	69	1	BALTIMORE
F	59	1	BALTIMORE CITY
F	60	1	BALTIMORE CITY
F	64	1	BALTIMORE CITY
M	72	1	BALTIMORE CITY
M	60	1	CARROLL
F	53	1	PRINCE GEORGE'S
F	77	1	PRINCE GEORGE'S
M	66	1	PRINCE GEORGE'S
F	64	1	TALBOT
M	39	1	TALBOT
M	0	2	WICOMICO
NOCARDIA NOVA			
F	48	2	TALBOT
NOCARDIA SPECIES			
M	94	1	ANNE ARUNDEL
PENICILLIUM SPECIES			
M	69	1	BALTIMORE CITY
M	79	1	BALTIMORE CITY
M	53	1	MONTGOMERY
M	63	1	MONTGOMERY
F	66	1	TALBOT
F	71	1	TALBOT
F	83	1	TALBOT
M	56	2	TALBOT
M	72	1	TALBOT
PHIALEMONIUM			
M	75	1	WICOMICO
PHOMA SPECIES			
F	43	1	BALTIMORE CITY

PITHOMYCES SPECIES			
F	74	1	ANNE ARUNDEL
STREPTOMYCES SPECIES			
F	67	1	BALTIMORE
TRICHOCLADIUM SPECIES			
M	69	1	CECIL
TRICHOPHYTON MENTAGROPHYTES			
M	62	1	BALTIMORE CITY
TRICHOPHYTON TONSURANS			
	24	1	ANNE ARUNDEL
M	2	1	TALBOT
M	6	1	TALBOT
TRICHOSPORON ASAHII			
M	64	1	BALTIMORE
TRICHOSPORON MUCOIDES			
F	50	1	MONTGOMERY
YEAST			
M	40	2	BALTIMORE CITY
M	50	3	BALTIMORE CITY
M	52	1	BALTIMORE CITY
M	64	1	BALTIMORE CITY
F	47	1	MONTGOMERY
F	74	1	MONTGOMERY
F	79	1	MONTGOMERY
M	63	1	MONTGOMERY
M	84	1	MONTGOMERY
F	53	1	PRINCE GEORGE'S
TOTAL	**119**		

PARASITOLOGY

GENUS/SPECIES	#	JURISDICTION
BLASTOCYSTIS HOMINIS		
	1	PRINCE GEORGE'S
	1	BALTIMORE CITY
	1	HOWARD
DIENTAMOEBA FRAGILIS		
	2	PRINCE GEORGE'S
ENDOLIMAX		
	1	HOWARD
ENDOLIMAX NANA		
	2	BALTIMORE CITY
	1	PRINCE GEORGE'S
	2	MONTGOMERY
	1	BALTIMORE CITY
	1	HARFORD
	1	MONTGOMERY
	1	BALTIMORE CITY
	1	MONTGOMERY
	2	PRINCE GEORGE'S
	1	MONTGOMERY
	1	HOWARD
	1	FREDERICK
ENTAMOEBA COLI		
	3	MONTGOMERY
	1	PRINCE GEORGE'S
	1	HOWARD
ENTAMOEBA HARTMANNI		
	2	MONTGOMERY
ENTEROBIUS VERMICULARIS		
	2	TALBOT
	2	FREDERICK
	1	WASHINGTON
	1	MONTGOMERY
	1	WASHINGTON
	3	MONTGOMERY
GIARDIA LAMBLIA		
	1	PRINCE GEORGE'S
	1	MONTGOMERY
	1	PRINCE GEORGE'S
	1	WICOMICO
	4	HOWARD
HOOKWORM		
	1	PRINCE GEORGE'S
HYMENOLEPIS NANA		
	1	BALTIMORE CITY
IODAMOEBA BÜTSCHLII		
	1	BALTIMORE CITY
PLASMODIUM FALCIPARUM		
	2	FREDERICK
TRICHURIS TRICHIURA		
	3	FREDERICK
TOTAL	**54**	

WATER MICROBIOLOGY

	# TESTED	# NON-COMPLIANT
COMMUNITY	2	0
NON-COMMUNITY	305	93
TOTAL	**307**	**93**

FOOD PROTECTION

	TOTALS
FOOD	
NUMBER OF SAMPLES	43
NOTABLE PATHOGENS:	
CAMPYLOBACTER SP.	3
LISTERIA SP.	0
SALMONELLA SP.	1
CRABMEAT	
NUMBER OF SAMPLES	0
EXCEEDING STANDARDS[1]	0
NOTABLE PATHOGENS:	
LISTERIA INNOCUA	0
SHELLFISH	
NUMBER OF SAMPLES	0
EXCEEDING STANDARDS[2]	0
SHELLFISH GROWING WATERS	
NUMBER OF SAMPLES	145
OTHER	
CLOSTRIDIUM BOLULINUM	4
TOTAL NUMBER OF SAMPLES	**188**
TOTAL STANDARDS EXCEEDED	**0**

STANDARDS

[1]CRABMEAT FRESH
ESCHERICHIA COLI AT < 36 MPN/100 GRAMS
STANDARD PLATE COUNT AT < 100

[2]SHELLFISH
FECAL COLIFORMS AT < 230 MPN/100 GRAMS
STANDARD PLATE COUNT AT < 500,000 PER GRAM

VIRUS ISOLATION

ISOLATE	SEX	AGE	#	JURISDICTION
ADENOVIRUS				
	M	1	1	PRINCE GEORGE'S
COXSACKIEVIRUS B2				
	M	6	1	WASHINGTON
COXSACKIEVIRUS B4				
	M	1	1	ALLEGANY
	M	10	1	WICOMICO
ECHOVIRUS 9				
	M	27	1	BALTIMORE CITY
ENTEROVIRUS 68				
	M	19	1	BALTIMORE
	F	53	1	PRINCE GEORGE'S
	F	0	1	PRINCE GEORGE'S
	F	3	1	PRINCE GEORGE'S
	F	21	1	WICOMICO
HERPES SIMPLEX VIRUS TYPE 1				
	F	18	1	ALLEGANY
	M	18	1	ALLEGANY
	F	76	1	BALTIMORE
	F	65	1	CALVERT
	F	23	1	BALTIMORE CITY
INFLUENZA A VIRUS				
	M	47	1	PRINCE GEORGE'S
PARAINFLUENZA VIRUS 1				
	M	0	1	ANNE ARUNDEL
	M	82	1	BALTIMORE
	F	20	1	BALTIMORE
	M	2	1	PRINCE GEORGE'S
	F	44	1	PRINCE GEORGE'S
	F	19	1	WICOMICO
PARAINFLUENZA VIRUS 2				
	M	0	1	PRINCE GEORGE'S
	F	6	1	WICOMICO
	M	0	1	BALTIMORE CITY
RHINOVIRUS				
	F	36	1	BALTIMORE
	F	21	1	PRINCE GEORGE'S
	M	0	1	BALTIMORE CITY
TOTAL		**28**		

VIRAL POLYMERASE CHAIN REACTION (PCR)

ISOLATE	SEX	AGE	#	JURISDICTION
HERPES SIMPLEX VIRUS TYPE 1				
	F	18	3	ALLEGANY
	F	23	1	BALTIMORE
	M	25	1	BALTIMORE CITY
	F	16	1	CARROLL
	F	24	1	CECIL
	F	19	1	CHARLES
	F	25	1	CHARLES
	M	23	1	HOWARD
	F	19	1	PRINCE GEORGE'S
	F	21	1	PRINCE GEORGE'S
	F	22	2	PRINCE GEORGE'S

HERPES SIMPLEX VIRUS TYPE 2

F	18	2	ALLEGANY
F	23	2	ALLEGANY
F	19	1	ANNE ARUNDEL
F	39	1	ANNE ARUNDEL
F	41	1	ANNE ARUNDEL
F	24	1	BALTIMORE
U	21	1	BALTIMORE CITY
F	0	1	BALTIMORE CITY
F	16	1	BALTIMORE CITY
F	17	2	BALTIMORE CITY
F	18	2	BALTIMORE CITY
F	19	1	BALTIMORE CITY
F	25	1	BALTIMORE CITY
M	21	2	BALTIMORE CITY
M	23	1	BALTIMORE CITY
M	29	1	BALTIMORE CITY
M	31	1	BALTIMORE CITY
M	45	1	BALTIMORE CITY
M	69	1	BALTIMORE CITY
U	21	1	BALTIMORE CITY
F	34	1	CARROLL
F	20	1	CHARLES
F	21	1	CHARLES
M	23	1	CHARLES
M	27	1	FREDERICK
M	38	1	FREDERICK
F	18	1	MONTGOMERY
F	19	1	PRINCE GEORGE'S
F	21	1	PRINCE GEORGE'S
M	22	1	PRINCE GEORGE'S
M	29	1	PRINCE GEORGE'S
M	21	1	SOMERSET
M	27	1	WICOMICO
F	26	1	WORCESTER

2009 PANDEMIC INFLUENZA A H1/N1

U	14	1	ALLEGANY
U	19	1	ALLEGANY
F	0	1	ALLEGANY
F	10	3	ALLEGANY
F	11	9	ALLEGANY
F	12	8	ALLEGANY
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F	47	1	WICOMICO
F	5	2	WICOMICO
F	55	1	WICOMICO
F	6	3	WICOMICO
F	60	1	WICOMICO
F	7	3	WICOMICO
F	9	1	WICOMICO
M	1	1	WICOMICO
M	10	2	WICOMICO
M	11	4	WICOMICO
M	12	2	WICOMICO
M	13	6	WICOMICO
M	15	1	WICOMICO
M	17	2	WICOMICO
M	18	4	WICOMICO
M	19	9	WICOMICO
M	20	4	WICOMICO
M	21	5	WICOMICO
M	22	5	WICOMICO
M	23	2	WICOMICO
M	24	1	WICOMICO
M	25	1	WICOMICO
M	4	3	WICOMICO
M	42	1	WICOMICO
M	46	1	WICOMICO
M	5	1	WICOMICO
M	6	2	WICOMICO
M	7	2	WICOMICO
M	8	3	WICOMICO
M	9	1	WICOMICO
F	13	1	WORCESTER
F	14	1	WORCESTER
F	15	1	WORCESTER
F	17	1	WORCESTER
F	21	1	WORCESTER
F	26	1	WORCESTER
F	4	2	WORCESTER
F	5	1	WORCESTER
F	8	1	WORCESTER
F	9	1	WORCESTER
M	10	1	WORCESTER
M	11	1	WORCESTER
M	12	1	WORCESTER
M	3	2	WORCESTER
M	37	1	WORCESTER
M	46	1	WORCESTER
M	5	3	WORCESTER
M	6	1	WORCESTER
M	7	3	WORCESTER
INFLUENZA A(H3)			
M	47	1	PRINCE GEORGE'S
INFLUENZA B VIRUS			
U	5	1	BALTIMORE CITY
TOTAL	**1,327**		

VIRAL HEPATITIS

ORGANISM	# SPECIMENS	# POSITIVES	JURISDICTION
HEPATITIS A			
	2	0	PRINCE GEORGE'S
SUBTOTAL	**2**	**0**	
HEPATITIS B			
	54	1	ALLEGANY
	141	1	ANNE ARUNDEL
	42	0	BALTIMORE
	464	6	BALTIMORE CITY
	1	0	CALVERT
	15	0	CARROLL
	120	2	CECIL
	1	0	CHARLES
	2	0	DORCHESTER
	71	1	FREDERICK
	11	0	GARRETT
	22	0	HARFORD
	16	0	HOWARD
	1	0	KENT
	215	11	MONTGOMERY
	365	5	PRINCE GEORGE'S
	3	0	QUEEN ANNE'S
	2	0	SAINT MARY'S
	1	0	SOMERSET
	11	0	TALBOT
	38	0	WASHINGTON
	82	0	WICOMICO
SUBTOTAL	**1,678**	**27**	
HEPATITIS C			
	50	0	ALLEGANY
	149	20	ANNE ARUNDEL
	52	1	BALTIMORE
	358	89	BALTIMORE CITY
	1	0	CALVERT
	17	1	CARROLL
	69	9	CECIL
	13	0	CHARLES
	1	1	DORCHESTER
	83	6	FREDERICK
	10	1	GARRETT
	40	1	HARFORD
	1	0	HOWARD
	2	0	KENT
	31	3	MONTGOMERY
	216	5	PRINCE GEORGE'S
	2	0	QUEEN ANNE'S
	4	0	SAINT MARY'S

1	0	SOMERSET
11	0	TALBOT
19	3	WASHINGTON
14	1	WICOMICO
SUBTOTAL		
1,144	**141**	
TOTALS		
2,824	**168**	

RABIES

SOURCE	#	JURISDICTION
BAT	1	ANNE ARUNDEL
CAT	1	PRINCE GEORGES
FOX	1	SOMERSET
RACCOON	3	BALTIMORE
	1	CARROLL
	1	DORCHESTER
	1	FREDERICK
	1	HARFORD
	5	MONTGOMERY
	3	PRINCE GEORGES
	1	SAINT MARYS
	4	WORCESTER
SKUNK	1	CECIL
TOTAL POSITIVES	**24**	
TOTAL SPECIMENS	**337**	

CHLAMYDIOPHILIA PSITTACI
(CHLAMYDIA)

REPORTED QUARTERLY
NO REPORT THIS MONTH

CD4 FLOW CYTOMETRY WORKLOAD

REPORTED QUARTERLY
NO REPORT THIS MONTH

BLOOD LEAD

MARYLAND

I	<10	103
IIA	10-14	2
IIB	15-19	4
III	20-44	3
IV	45-69	0
V	>69	0
TOTAL		**112**

WASHINGTON DC

I	<10	1
IIA	10-14	0
IIB	15-19	0
III	20-44	0
IV	45-69	0
V	>69	0
TOTAL		**1**

NEWBORN & CHILDHOOD SCREENING
PRESUMPTIVE POSITIVES

DISORDERS	#
PHENYLKETONURIA	3
MAPLE SYRUP URINE DISEASE	2
HOMOCYSTINURIA	4
TYROSINEMIA	14
ARGININEMIA	0
CITRULLINEMIA	0
GALACTOSEMIA	1
BIOTINIDASE DEFICIENCY	0
HYPOTHYROIDISM	82
HEMOGLOBIN -DISEASE	32
HEMOGLOBIN -BENIGN	538
CONGENITAL ADRENAL HYPERPLASIA (CAH)	39
CYSTIC FIBROSIS	5
FATTY ACID OXIDATIONS	3
ORGANIC ACIDEMIAS	17
ACYLCARNITINE - BORDERLINE	11
ACYLCARNITINE - OTHERS	0

MONTHLY TOTALS

# OF SPECIMENS SCREENED	12,771
NUMBER OF TESTS	990,083
% UNSATISFACTORY SPECIMENS	3.3

YEAR-TO-DATE CONFIRMED CASES

CONDITIONS	# CONFIRMED
MCAD	4
3MCC	2
SCAD	4
VLCAD	1
GA-I	1
IVA	1
LCHAD	1
MMA	1
ARGININOSUCCINATE LYASE DEFICIENCY (ASA)	1
PKU- CLINICALLY SIGNIFICANT VARIANT	2
TRANSIENT TYRODINEMIA	4
VARIANT HYPERPHENYLALANINEMIA (NOT CLINICALLY SIGNIFICANT)	3
CITRULINEMIA I (CIT-I)	1
CITRIN DEFICIENCY	1
GALACTOSEMIA - VARIANT	1
GALACTOSE EPIMERASE DEFICIENCY	1
HYPOTHYROIDISM - PRIMARY	27
OTHER HYPOTHYROIDISM	8
SICKLE CELL DISEASE -SS	50
SICKLE CELL DISEASE -SC	27
SICKLE CELL DISEASE - CC	8
SICKLE CELL DISEASE - VARIANT	3
FV -DISEASE	5
SICKLE CELL DISEASE - S BETA THALASSEMIA	2
CYSTIC FIBROSIS	15

ENVIRONMENTAL CHEMISTRY

SAMPLE TYPES	# NON-COMPLIANT	# TESTED
ASBESTOS		
AIR	0	0
BULK	1	22
AIR QUALITY		
PM $_{2.5}$	0	515
RADIATION		
AIR/CHARCOAL FILTERS	0	64
MILK	0	3
WIPES	0	39
RAW WATER	0	6
VEGETATION	0	0
OTHER	0	0
DRINKING WATER		
METALS		
COMMUNITY	14	27
NON-COMMUNITY	5	15
PRIVATE WELLS	49	246
PESTICIDES & PCBs		
COMMUNITY	0	27
NON-COMMUNITY	0	27
PRIVATE WELLS	0	11
VOLATILE ORGANIC COMPOUNDS		
COMMUNITY	1	175
NON-COMMUNITY	0	52
PRIVATE WELLS	3	138
RADIATION		
COMMUNITY	2	35
NON-COMMUNITY	0	0
PRIVATE WELLS	1	14
INORGANICS		
COMMUNITY	0	13
NON-COMMUNITY	6	72
PRIVATE WELLS	5	137
FOOD CHEMISTRY		
SUSPECTED TAMPERING	0	0
MICROSCOPIC FILTH	0	5
LABELING	0	0
SURVEILLANCE	0	0
CHEMICAL CONTAMINATION	0	0
TOTAL	**87**	**1,643**

VIRAL LOAD SPECIMENS

HIV-1 RNA COPIES/ML	$<10^3$	10^3—10^4	10^4—10^5	$>10^5$	**TOTALS**
ALLEGANY	11	2	3	0	**16**
FREDERICK	4	0	0	1	**5**
MONTGOMERY	98	14	11	2	**125**
PRINCE GEORGE'S	103	18	11	8	**140**
SOMERSET	1	0	0	0	**1**
WASHINGTON	4	1	0	0	**5**
WICOMICO	0	0	1	0	**1**
SUBTOTALS	**221**	**35**	**26**	**11**	**293**
DEPT. OF CORRECTIONS	13	4	1	0	**18**
TOTALS	**234**	**39**	**27**	**11**	**311**

HIV ANTIBODY SCREENING

SUBMITTER	TOTAL SPECIMENS	# EIA POSITIVE	% EIA POSITIVE	# WB POSITIVE	% WB POSITIVE
CORRECTIONAL INSTITUTIONS	104	1	0.96%	1	100.00%
DHMH - DISEASE CONTROL	1	0	0.00%	0	0.00%
FAMILY PLANNING (NON-GOVT)	126	0	0.00%	0	0.00%
HEALTH CENTERS (NON-GOVT)	656	66	10.06%	61	92.42%
HLTH DEPT, NON-STD, FAM PLAN	435	2	0.46%	0	0.00%
HLTH DEPT, NON-STD, OB/GYN	72	0	0.00%	0	0.00%
HLTH DEPT, NON-STD, OTHER	640	55	8.59%	53	96.36%
HLTH DEPT, STD CLINICS	919	20	2.18%	18	90.00%
HOSPITAL, OTHER	157	12	7.64%	12	100.00%
HOSPITAL, PUBLIC	24	1	4.17%	1	100.00%
JUVENILE SERVICES	73	1	1.37%	0	0.00%
LABORATORIES (NON-HOSPITAL)	338	21	6.21%	14	66.67%
PEDIATRIC - CHILD HEALTH	5	0	0.00%	0	0.00%
PRIVATE PHYSICIANS	7	0	0.00%	0	0.00%
PRIVATE STUDENT HEALTH CENTERS	39	0	0.00%	0	0.00%
PUBLIC STUDENT HEALTH CENTERS	262	0	0.00%	0	0.00%
UNKNOWN, NOT SPECIFIED	1	0	0.00%	0	0.00%
TOTALS	**3,859**	**179**	**4.64%**	**160**	**89.39%**

MAILING LABEL

Critical Link
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