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

Challenges and Changes Post 9/11

Environmental Chemistry Division's Evolving Mission

The years after September 11, 2001 can be considered "Times of Change" that required emerging laboratory technologies to cope with the challenges facing state public health laboratories across the U.S.

Change is something that all laboratories face in dealing with challenges to provide testing methods for protection of the environment, drinking water, food supply, and health and safety of residents. This has been achieved by using state-of-the-art technologies to provide better analytical services that are fast, accurate, and legally defensible.

The Laboratories Administration, through joint efforts with the Centers for Disease Control and Prevention (CDC) and the Food and Drug Administration (FDA), has received funds to purchase targeted state-of-the-art technologies and obtained technical training as we face

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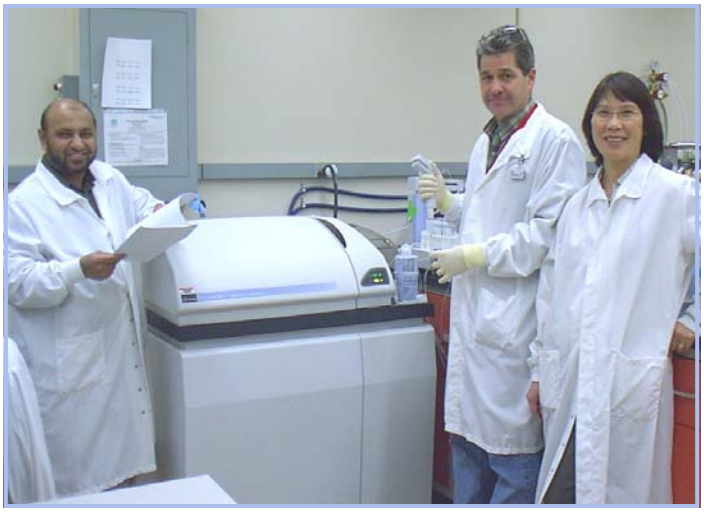

(Left to right) Syed Haq, Paul McCafferty, and Taiyin Wei with the inductively coupled plasma-mass spectrometer (ICP-MS) used to test for toxic metals in human blood and urine. Photo: Georgia Corso

Controlled Dangerous Substances in Assisted Living Facilities

Revision of COMAR Calls for Inspections by the Division of Drug Control

The Division of Drug Control (DDC) embarked on a new area of inspections when the revised regulations in COMAR 10.07.14 for assisted living facilities were adopted. The focus of the inspections is on registration with DDC, for proper storage and safety of controlled, dangerous substances (CDS), record keeping, destruction of CDS, and

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Georgia Corso

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the analytical demands of emerging chemical and radiological emergencies.

Since 2004, the Laboratories Administration's Division of Environmental Chemistry (DEC) has been actively involved in developing and validating human biomonitoring and food safety methods to analyze urine, blood, and foods for different classes of toxic industrial compounds and radionuclides. The DEC's laboratories routinely receive urine and blood specimens from private and emergency room physicians for analysis and for conducting special investigations. In addition, the Division, as part of the biomonitoring and emergency preparedness and response effort, is involved in methods development and validation of selected chemical warfare agents and toxic industrial compounds in urine and blood.

Environmental public health statistics show that individuals are exposed to high levels of environmental hazards from a variety of sources, with consequences in health outcomes.[1] There are a number of naturally occurring sources of environmental contaminants. Exposure to chemicals also can come from the activities of a diverse industrial, military, and agricultural economy. According to the Environmental Protection Agency's Toxic Release Inventory Report,[2] hundreds of regular landfill and "Superfund" sites dispersed throughout the United States are potential sources of thousands of pounds per square mile of toxic compound releases.

Testing results for groundwater, surface water, and soil samples has identified contamination with heavy metals, phosphorous, volatile organic compounds, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), radioactive elements, endocrine disruptors, and petroleum hydrocarbons. Some of these toxics are recognized carcinogens in air, suspected carcinogens in air and water, suspected cardiovascular or blood toxicants in air, suspected neurological toxicants in air and water, and suspected reproductive toxicants in chronic diseases/health outcomes.

There are identifiable geophysical and environmental setting problems with: arsenic in drinking water in different aquifers and in small community water systems; mercury in fish harvested from ponds, lakes, and rivers; volatile organic compounds (trichloroethylene (TCE), tetrachloroethylene (PERC)), carbon tetrachloride in household products, building materials, and cigarette smoke; phthalates (polyvinylchloride (PVC), mosquito repellants, food packaging); pesticides from contaminated foods and water; radionuclides in water and soils; perchlorate in groundwater from military installations and amusement parks; and polybrominated diphenylethers (PBDEs) used in electronics and furniture. These contaminants have increased rapidly and have doubled every 2 to 5 years.

The EPA is also concerned about the non-cancer health effects of chronic exposure to a number of pollutants. Pharmaceuticals, personal care products, and endocrine disruptors are an issue of increasing international attention.[3] This is due to their potential environmental impacts, and they have recently been recognized as threats to human and animal health. The source of exposure to these items includes food, water, air, and soil, and involve more than 85,000 synthetic organic compounds (e.g., dichlorodiphenyltrichloroethane (DDT), 1,1-Dichloro-2,2-bis(p-chlorophenyl) ethylene (DDE), PCB, phthalates, pesticides, phytoestrogens.)[4,5]

The highest environmental safety priorities in Maryland are drinking

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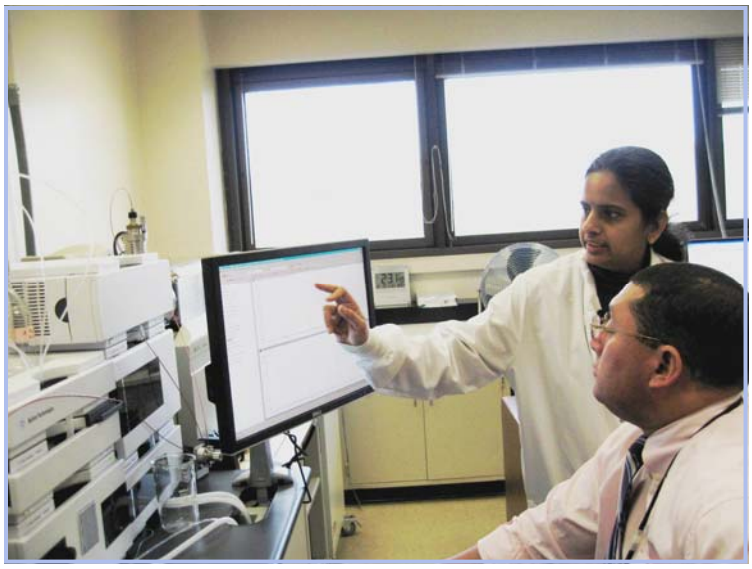
water, water quality, waste management (septic, sewage, municipal, hazardous waste sites), and ambient air. These priorities are directly linked with the CDC's highest public health priorities for chronic diseases such as cancer, respiratory diseases (including asthma), cardiovascular diseases, and childhood lead poisoning.[6]

Mass spectrometry, especially liquid chromatography tandem mass spectrometry (LC/MS/MS), is a powerful technique for identifying and quantifying environmental toxics and chemical warfare agents, identifying unknowns, studying molecular structures, and probing the fundamental principles of chemistry.[7] Mass spectrometry is essentially a technique for "weighing" molecules, which cannot done with a conventional balance or scale. Instead, mass spectrometry is based upon the motion of a charged particle, called an ion, traveling in an electric or magnetic field. The "mass to charge ratio" of the ion affects this motion. Since the charge of an electron is known, the mass to charge ratio is usually the measurement of an ion's mass.

No matter what the unique application is, it requires rapid access for robust, accurate, and high-quality information. From proteomics to food safety, to chemical and pharmaceutical applications, to forensics and chemical terrorism investigations - mass spectrometry, particularly liquid chromatography tandem mass spectrometry, is the most practical analytical platform designed to solve specific testing challenges in a very specific way. LC/MS/MS offers the latest engineering innovations to handle the most complex analytical applications today, while adding simplicity throughout the laboratory's analytical workflow. These instrument platforms provide fast, accurate, reproducible, and precise exact mass-measured data.

These activities are continuously evolving and require an active, regulated laboratory surveillance program, with a well-coordinated plan for efficient data gathering, information exchange, networking, and accreditation.



Dr. Prince Kassim (foreground) and Dr. Rajashree Ravi test for toxic enviromental chemicals using the liquid chromatography tandem mass spectrometer (LC/MS/MS). Photo: Taiyin Wei

Organization of the Division of Environmental Chemistry

The DEC houses specialized chemistry laboratories whose activities are organized into four groups.[8]

1. Radiological Health

The Radiation Laboratory utilizes instruments including gamma spectrometers with Germanium detectors, gross alpha /gross beta gas proportional counters, liquid scintillation counters, and an alpha spectrometer with 12 detectors. The laboratory routinely analyzes multi-media environmental samples such as drinking water, wastewater, groundwater, soils, sludges, sediments, vegetation, milk, aquatic tissues, and ambient air. This analysis is in support of federal and State environmental regulations (e.g., Safe Drinking Water Act (SDWA), Clean Air Act (CAA), Code of Maryland Regulations (COMAR)) and uses approved EPA, CDC, and other published methods. The laboratory actively participates in the FDA's Food Emergency Response Network (FERN) and the EPA Water Laboratory Alliance (WLA) to monitor for radionuclide contamination in foods and water in the event of a radiological emergency. The laboratory, in conjunction with MDE, monitors the Calvert Cliffs Nuclear Power Plant and maintains a state of readiness in the event of an accidental or intentional discharge. Additionally, the laboratory is actively involved in methods development, validation, and implementation involving radiological contamination of water, food, and urine for emergency preparedness.

2. Inorganics Analytical

The Inorganics Analytical Laboratory tests drinking and waste water, and water samples from the Chesapeake Bay and its tributaries in support of federal and state environmental regulations (e.g., SDWA, Clean Water Act (CWA), Resource Conservation and Recovery Act (RCRA), and COMAR)) using approved EPA and other published methods. The tests performed by the laboratory include physical and aggregate properties such as alkalinity, color, conductivity, hardness, and solids; inorganic, non-metallic constituents such

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Reza Hajarian (left) and Jim Demsky (right) stand before the Total Organic Carbon Analyzer (TOC) that measures the quality of drinking water. Photo: Georgia Corso

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as chloride, fluoride, ammonia, nitrate, nitrite, orthophosphate, and sulfate; and aggregate organic constituents such as biological oxygen demand, chemical oxygen demand, and total organic carbon. Flow injection analyzers, titration systems, spectrophotometers, and conductivity meters are among the many instruments employed to perform these tests.

3. Organics Analytical

The Organics Analytical Laboratory provides testing and technical consultation to determine the safety and suitability of public drinking water, effectiveness of wastewater treatment plants and their discharge of "clean" effluents, and the impact of agricultural run-off on the quality of the Chesapeake Bay and its tributaries. It also supports the MDE in environmental investigations of oil spills, illegal dumping of waste material, permits compliance, and special projects.

This laboratory tests for pesticides, herbicides, semi-volatile organic compounds and PCBs in drinking water, wastewater, soils, sediments and sludges using high performance liquid chromatographs equipped with fluorescence detectors, gas chromatographs equipped with electron capture detectors, and gas chromatographs-mass spectrometers. It also tests for disinfectant by-products in drinking water using gas chromatographs equipped with electron capture detectors, and for volatile organic compounds in drinking water, wastewater, and sediments using gas chromatograph-mass spectrometers.

4. Chemical Emergency Preparedness & Response

The Chemical Emergency Preparedness and Response Section provides and maintains an analytical infrastructure for Maryland's capability and capacity to expeditiously analyze, respond to, and mitigate the effects of such chemical emergencies as terrorist events, accidental spills, natural disasters, and the potential threat of white powders.

This laboratory has validated and remains proficient in methods for: the analysis of toxic metals in human urine and blood using inductively coupled plasma-mass spectrometer (ICP-MS); testing for organophosphorus nerve agent metabolites, and ricinine/abrine in human urine by LC/MS/MS; and analyzing cyanide and volatile organic compounds in blood by gas chromatograph–mass spectrometery. In addition, this laboratory characterizes environmental samples, white powders, foods, and consumer products suspected of tampering, adulteration or posing a public health threat. Human urine and blood specimens are tested for biomonitoring and surveillance by physicians and area hospitals, and for special investigations of potential exposure to toxic industrial compounds.

This laboratory is designated an LRN Level 2 Chemical Laboratory and maintains Clinical Laboratory Improvement Amendments (CLIA) certification for the analysis of toxic industrial chemicals and metabolites of selected chemical warfare agents. A chemical terrorism (CT) coordinator is available 24/7/365. The CT Coordinator is responsible for providing guidance and information regarding proper chemical and radiological specimen collection, labeling, triaging, packaging, and shipping.

Under the emergency preparedness and response and biomonitoring program, the DEC most recently expanded its instrumentation, accreditation, and regulatory commitments by becoming a member of the EPA's Environmental Response Laboratory Network and the Water Laboratory Alliance.

Environmental Response Laboratory Network

After September 11, 2001, threats concerning the possible release of hazardous toxic industrial chemicals, radionuclides, and chemical warfare agents into the environment increased. As a result, the EPA identified the need to expand laboratory capacity and capability to support analyses of environmental samples, as set forth in

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several Homeland Security Presidential Directives. In 2005, the Department of Homeland Security formed the Integrated Consortium of Laboratory Networks (ICLN.) The ICLN brings the assets of federal response networks together to provide laboratory support for the full range of analytical testing necessary to respond to a national emergency. The ERLN works closely with other ICLN national laboratory networks, including the CDC's Laboratory Response Network, and the jointly operated USDA Food Safety and Inspection Service/FDA's FERN.

On March 28, 2008, EPA's Office of Emergency Management created the ERLN to provide support for response activities with a focus on Toxic Industrial Chemicals (TICs) and an emerging capacity for radiochemistry, chemical warfare agents, and limited biological agents. The ERLN is designed to leverage currently existing resources for analysis of TICs. The ERLN has also upgraded the capabilities and capacity of select laboratories for specialized analyses such as chemical warfare agents. Participants in Phase 1 of ERLN development include EPA's regional and program laboratories, Lawrence Livermore National Laboratory's Forensic Science Center, and Florida and Virginia environmental and public health laboratories. Phase 2,[9] initiated in October 2009, will add other federal, state and local laboratories, and laboratories at major utilities and in the private sector. The goal of the ERLN is to provide sufficient environmental laboratory test capability and capacity to test for chemical, biological, and radiological contaminants in all environmental matrices.[10]

The ERLN will work with the laboratory community to prepare for environmental emergencies, respond to environmental contamination, and support clean up to prevent future exposure. The Association of Public Health Laboratories (APHL) is instrumental in providing input on the ERLN membership criteria, assessing the needs and capabilities of public health environmental laboratories, and providing training opportunities to assist public health response to emergencies.[10] Current ERLN activities include: (1) developing fixed and mobile chemical warfare detection laboratories; (2) developing protocols to protect the health and safety of laboratory facilities and workers from contamination; (3) building capacity and enhancing radiochemistry; and (4) exercising to test the Drinking Water Regional Laboratory Response Plans in the event of a water security emergency.[12]

Since emergencies are local, ERLN member laboratories will have different responsibilities based on their routine capabilities and capacities during a response. Some laboratories will perform routine tests for possible contamination and send the samples to a confirmatory laboratory to perform analyses that are more complicated, and coordinate the necessary emergency response. In some cases, when a confirmatory laboratory needs help identifying contaminants, it will send the samples to a reference laboratory that can perform the highest level of analysis on environmental samples and identify the source of contamination. Public Health Environmental Laboratories test air, water, soil, and surfaces to identify contaminants, assess the extent of exposure, and evaluate post-remediation activities. If a laboratory is not able to perform the testing services required, it may call upon other laboratories, public or private, for assistance.

The EPA's Homeland Security Laboratory Response Center (HSLRC) in the Office of Emergency Management will coordinate ERLN activities and the network's relations with other EPA offices. The HSLRC also will oversee membership requirements, quality assurance and methods development. Additionally, the ten EPA regional laboratory organizations will serve as local centers for exchange of information and coordination.

Water Laboratory Alliance

The WLA, an integral component of the ERLN structure, supports response to drinking water emergencies. The ERLN relies on the alliance of drinking water laboratories to monitor and respond to drinking water emergencies. The WLA provides the water testing sector with an

Figure source: Water Security Division, EPA Office of Water

integrated nation-wide network of laboratories with the capability and capacity to support monitoring and surveillance, response and recovery, and remediation of intentional and unintentional contamination in the event of exposure to chemical, biological, and radiological contaminants. A key function of the WLA is to address water contamination incidents that may require additional analytical support and a broader response than an individual utility, state, or federal laboratory can provide. The WLA and ERLN provide a framework to address issues such as sample brokerage, analytical method selection, secure data transfer, and legal authority. The ERLN will rely on this alliance of drinking water laboratories to monitor and respond to drinking water emergencies in cooperation with

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drinking water utilities, state public health laboratories, state environmental laboratories, emergency response personnel, and other drinking water program offices.[11, 12]

In the event of a natural disaster, terrorist activity, or unintentional accident affecting the water sector, a large number of environmental samples will be collected, most likely overwhelming any one laboratory's capacity and/or capability to analyze the samples within the necessary turnaround time. In such a situation, the laboratories in the Alliance, in a non-obligatory manner, will work to provide an approach for water utility, state, and EPA Regional laboratories to work together to meet the analytical needs presented.

Information for WLA membership is provided at http://www.epa.gov/erln/join.html. For other general information, please contact:
Ms. Latisha Mapp, EPA HQ at (202) 564-1390 or e-mail at mapp.latisha@epa.gov,
Ms. Cindy Caporale, EPA Region 3, at (410) 305-2732 or e-mail at caporale.cindy@epa.gov,
Ms. Linda Ames MDE at (410) 537-3712 or e-mail at lames@mde.state.md.us, or
Dr. Prince A. Kassim at (410) 767-5838 or e-mail at kassimp@dhmh.state.md.us.

Article written by Taiyin Wei of the Division of Environmental Chemistry

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Controlled Dangerous Substances in Assisted Living Facilities

destruction reporting procedures. To prepare the assisted living facilities community for the visits by DDC inspectors, a letter was sent in October 2009 to the 1,382 licensed facilities explaining the need to register with DDC and that inspections would be taking place in the near future.

Fred Evans, a pharmacist and a DDC Inspector, who is an expert in long term care pharmacy procedures, was invited to be a guest lecturer at the "Leading by Example" conference. Remedi Senior Care Pharmacy hosted the event on October 21, 2009, at the Maritime Institute in Linthicum Heights, Maryland. Evans' presentation focused on the safety and regulations pertaining to CDS in long term care and assisted living facilities. Approximately 150 individuals attended this conference, which was intended for Directors of Nursing, Administrators, and nurses providing care in long term care and assisted living facilities. At the conclusion of the conference, several individuals stated that his presentation was very informative and answered many of their questions related to CDS issues.

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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.

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Controlled Dangerous Substances in Assisted Living Facilities

Mr. Evans was also invited to speak at an assisted living seminar on November 12, 2009 sponsored by Lifespan Network at the Beacon Institute in Columbia, Maryland. Lifespan is an organization dedicated to education and legislative advocacy for healthcare-related facilities. The title of this seminar was Medication, Drugs, and Controlled Dangerous Substance Safety in Assisted Living. The seminar covered topics on Maryland Medication Laws and Regulations, Medication Use and the Elderly, The Role and Responsibility of the Delegating Nurse, and Mr. Evans' presentation on Controlled Dangerous Substances. He brought the audience of over 80 individuals up-to-date on the requirements for a CDS registration, the importance of safeguarding controlled substances, record keeping, and the inspection process that DDC is currently conducting. The attendees were provided with a copy of the letter sent to all assisted living facilities, an application for CDS registration, the inspection report currently in use and a sample CDS destruction report form. A question and answer period following the presentation provided the opportunity to discuss some of the issues in greater detail. After the seminar, many attendees expressed their thanks for explaining what was happening, why registration with DDC was necessary, and that the information provided was very helpful. Lifespan will hold a similar seminar in the future and expressed their intent to invite Mr. Evans to speak on these topics again. A similar request was expressed by a representative from the Baltimore County Department of Aging. Comments similar to those received at the seminars are being received during visits to the facilities. They are happy we are visiting and providing helpful information regarding the safeguarding of controlled substances. DDC also has received thank you notes as a result of the recommendations during inspection visits. To quote a few:

Mr. Fred Evans, of the Laboratories Administration's Division of Drug Control. Photo: Michael Wajda

"Thank you for your visit and inspection at our community. Based on your findings we have instituted the following plan of correction..."

"Pursuant to your inspection, we conducted an in-service meeting for our professional staff. Thank you for your assistance in improving the quality of our operation."

Very few of the 1,380 assisted living facilities are registered with DDC. These facilities range in size from two beds to 164 beds. Subsequent to the presentations at the seminars and the inspection visits, CDS registration applications began to arrive on a daily basis. As the DDC continues to make the CDS requirements presence known to the long term care and assisted living communities, many more applications for registration are expected to be received in the near future.

This article written by Georgette Zoltani.

Laboratory Statistics

Reported from the
Laboratories Administration
during the month of
December 2009

ENTERIC BACTERIOLOGY

GENUS SEROVAR	SEX	AGE	#	JURISDICTION
CAMPYLOBACTER JEJUNI				
	F	41	1	ALLEGANY
	U	0	1	BALTIMORE
	F	10	1	BALTIMORE
	M	50	1	BALTIMORE
	M	48	1	BALTIMORE
	M	14	1	BALTIMORE
	M	10	1	BALTIMORE
	M	0	1	BALTIMORE
	M	0	1	BALTIMORE CITY
	M	56	1	CECIL
	M	86	1	MONTGOMERY
	F	39	1	OUT OF STATE
	F	17	1	OUT OF STATE
	U	39	1	TALBOT
	M	42	1	TALBOT
	M	57	2	WICOMICO
ESCHERICHIA COLI, SEROTYPE O26:H11				
	F	44	1	OUT OF STATE
	F	38	1	OUT OF STATE
	F	4	1	OUT OF STATE
SALMONELLA				
	M	42	1	ANNE ARUNDEL
	F	31	1	BALTIMORE
	F	19	1	BALTIMORE
	F	6	1	BALTIMORE
	F	26	1	BALTIMORE CITY
	M	4	1	BALTIMORE CITY
	F	2	2	CHARLES
	F	35	1	FREDERICK
	F	2	1	FREDERICK
	M	50	1	HARFORD
	M	0	1	MONTGOMERY
	F	38	1	OUT OF STATE
	M	39	1	OUT OF STATE
	M	63	1	WASHINGTON
	M	51	1	WICOMICO
SALMONELLA GIVE				
	M	0	1	MONTGOMERY
	M	3	2	MONTGOMERY
SALMONELLA OSLO				
	M	0	1	BALTIMORE CITY
SALMONELLA SER 4,12:I:-				
	M	0	1	ANNE ARUNDEL
	F	5	1	BALTIMORE
	U	1	1	BALTIMORE

SALMONELLA SER 4,5,12:I:-

M	0	1	BALTIMORE CITY
M	2	1	OUT OF STATE

SALMONELLA SER 6,7:-:1,5

U	2	1	BALTIMORE
U	1	1	BALTIMORE

SALMONELLA SER BAREILLY

M	1	1	OUT OF STATE

SALMONELLA SER BERTA

M	89	1	FREDERICK

SALMONELLA SER ENTERITIDIS

F	57	1	ALLEGANY

SALMONELLA SER ENTERITIDIS

M	5	1	BALTIMORE
F	0	1	BALTIMORE CITY

SALMONELLA SER ENTERITIDIS

F	4	1	OUT OF STATE
M	18	1	OUT OF STATE

SALMONELLA SER ENTERITIDIS

M	16	1	PRINCE GEORGE'S
M	13	1	PRINCE GEORGE'S

SALMONELLA SER HADAR

U	63	1	CHARLES

SALMONELLA SER JAVIANA

M	81	1	WORCESTER

SALMONELLA SER LITCHFIELD

F	0	1	BALTIMORE
F	44	1	BALTIMORE

SALMONELLA SER MONTEVIDEO

M	26	1	CALVERT

SALMONELLA SER NEWPORT

F	49	1	BALTIMORE
M	0	2	BALTIMORE

SALMONELLA SER PANAMA

U	0	1	BALTIMORE CITY

SALMONELLA SER SCHWARZENGRUND

F	13	1	FREDERICK
M	5	1	MONTGOMERY

SALMONELLA SER TYPHIMURIUM

M	68	2	ANNE ARUNDEL
M	12	1	BALTIMORE
M	12	1	CHARLES
M	3	1	OUT OF STATE
M	20	1	PRINCE GEORGE'S

SALMONELLA SER. 4,5,12:I:-

F	4	1	OUT OF STATE
M	50	1	OUT OF STATE
M	14	3	TALBOT

SALMONELLA SER. BAREILLY

M	14	1	OUT OF STATE
M	15	1	OUT OF STATE
M	1	1	OUT OF STATE
M	2	1	OUT OF STATE

SALMONELLA SER. ENTERITIDIS

F	18	1	ALLEGANY
U	3	1	BALTIMORE
U	3	2	BALTIMORE
F	36	1	BALTIMORE
F	12	1	BALTIMORE
M	67	1	BALTIMORE
M	54	1	BALTIMORE
M	30	1	BALTIMORE
U	0	1	BALTIMORE CITY
M	39	2	BALTIMORE CITY
M	37	2	BALTIMORE CITY
M	22	1	BALTIMORE CITY
M	5	1	BALTIMORE CITY
M	3	1	BALTIMORE CITY
M	61	1	CALVERT
M	47	1	FREDERICK
U	19	1	MONTGOMERY
F	59	1	MONTGOMERY
F	37	1	OUT OF STATE
F	24	1	OUT OF STATE
F	1	1	OUT OF STATE
M	45	1	OUT OF STATE
M	34	1	OUT OF STATE
M	12	1	OUT OF STATE

SALMONELLA SER. INFANTIS

F	43	1	BALTIMORE

SALMONELLA SER. JAVIANA

F	8	1	OUT OF STATE
M	64	1	OUT OF STATE
M	6	1	OUT OF STATE
M	2	1	OUT OF STATE
F	10	1	WICOMICO

SALMONELLA SER. NEWPORT

F	90	1	BALTIMORE
F	46	1	BALTIMORE
M	44	1	BALTIMORE
F	51	1	OUT OF STATE
F	22	1	OUT OF STATE
F	12	2	OUT OF STATE
M	73	1	OUT OF STATE
M	4	1	OUT OF STATE

SALMONELLA SER. PARATYPHI A

F	11	1	BALTIMORE CITY

SALMONELLA
SER. PARATYPHI B VAR L(+) TARTRATE +

F	6	1	OUT OF STATE
M	5	2	OUT OF STATE
F	50	1	OUT OF STATE

SALMONELLA SER. TYPHIMURIUM

M	0	1	BALTIMORE
F	8	1	BALTIMORE CITY
F	64	1	OUT OF STATE
M	6	1	OUT OF STATE
M	2	1	OUT OF STATE
M	0	1	OUT OF STATE
M	1	1	OUT OF STATE

SHIGELLA FLEXNERI

M	40	1	BALTIMORE CITY
U	0	1	UNKNOWN

SHIGELLA FLEXNERI IV

M	0	1	BALTIMORE CITY

SHIGELLA FLEXNERI VARIANT X - :7,8

M	49	1	OUT OF STATE

SHIGELLA SONNEI

F	15	1	BALTIMORE
U	0	2	BALTIMORE CITY
F	9	1	BALTIMORE CITY
F	4	1	BALTIMORE CITY
M	10	1	BALTIMORE CITY
F	57	1	MONTGOMERY
F	71	1	OUT OF STATE
M	39	1	OUT OF STATE
M	0	1	UNKNOWN

YERSINIA ENTEROCOLITICA

M	7	2	ALLEGANY
M	87	1	BALTIMORE CITY

TOTAL 153

ISOLATES - REFERENCE

GENUS SPECIES	SOURCE	#	JURISDICTION
CLOSTRIDIUM PERFRINGENS	STOOL	1	CALVERT
DIPHTHEROIDS	EYE	1	ANNE ARUNDEL
GRAM-NEGATIVE BACILLUS	BLOOD	1	BALTIMORE
HAEMOPHILUS INFLUENZAE TYPE E	EAR	1	WASHINGTON
STAPHYLOCOCCUS AUREUS	SPUTUM	1	BALTIMORE CITY

TOTAL 5

ISOLATES - MISCELLANEOUS

GENUS SPECIES	SOURCE	#	JURISDICTION
ALCALIGENES FAECALIS	SPUTUM	1	WASHINGTON
BREVIBACTERIUM CASEI	BLOOD	1	BALTIMORE CITY
CITROBACTER AMALONATICUS	ABSCESS	1	MONTGOMERY
ENTEROBACTER CLOACAE	BLOOD	1	BALTIMORE CITY
ESCHERICHIA COLI	CSF	1	BALTIMORE CITY
	WOUND	1	MONTGOMERY
GARDNERELLA VAGINALIS	VAGINAL	10	PRINCE GEORGE'S
	VAGINAL	2	SOMERSET
HAEMOPHILUS INFLUENZAE	BLOOD	1	BALTIMORE CITY
KLEBSIELLA PNEUMONIAE	SPUTUM	2	WASHINGTON
MORGANELLA MORGANII	SPUTUM	1	WASHINGTON
PROTEUS MIRABILIS	SPUTUM	1	WASHINGTON
PSEUDOMONAS AERUGINOSA	SPUTUM	1	WASHINGTON
PSEUDOMONAS PICKETTII	CSF	1	BALTIMORE CITY
SERRATIA MARCESCENS	SPUTUM	2	WASHINGTON
STAPHYLOCOCCUS AUREUS	BLOOD	1	BALTIMORE CITY
	WOUND	1	BALTIMORE CITY
	WOUND	1	BALTIMORE CITY
	NASAL	9	CARROLL
	WOUND	2	CARROLL
	VAGINAL	4	MONTGOMERY
	SPUTUM	2	WASHINGTON
STAPHYLOCOCCUS, COAGULASE NEGATIVE	CSF	1	BALTIMORE CITY
	VAGINAL	2	MONTGOMERY
STREPTOCOCCUS ALPHA-HEMOLYTIC	BLOOD	1	BALTIMORE CITY
STREPTOCOCCUS BETA HEMOLYTIC GROUP A	THROAT	1	ALLEGANY
STREPTOCOCCUS BETA HEMOLYTIC NON-GROUP A	THROAT	11	ALLEGANY
STREPTOCOCCUS BETA HEMOLYTIC GROUP B	VAGINAL	1	ANNE ARUNDEL
	VAGINAL	1	ANNE ARUNDEL
	BLOOD	2	BALTIMORE CITY
	VAGINAL	1	HOWARD
	VAGINAL	1	MONTGOMERY
	CERVIX	2	PRINCE GEORGE'S
	VAGINAL	11	PRINCE GEORGE'S

TOTAL 82

SEXUALLY TRANSMITTED DISEASES

GENUS SPECIES

SEX	#	JURISDICTION
SYPHILIS SEROLOGY		
M	2	ANNE ARUNDEL
F	1	BALTIMORE
M	2	BALTIMORE
F	11	BALTIMORE CITY
M	22	BALTIMORE CITY
U	4	BALTIMORE CITY
M	1	CALVERT
M	1	CARROLL
F	1	CHARLES
M	1	FREDERICK
F	2	MONTGOMERY
M	7	MONTGOMERY
F	14	PRINCE GEORGE'S
M	25	PRINCE GEORGE'S
F	1	QUEEN ANNE'S
M	1	TALBOT
F	1	WASHINGTON
F	1	WICOMICO
M	1	WICOMICO
M	1	WORCESTER
TOTAL	**100**	
CHLAMYDIA TRACHOMATIS		
F	5	ALLEGANY
M	8	ALLEGANY
F	25	ANNE ARUNDEL
M	20	ANNE ARUNDEL
F	22	BALTIMORE
M	15	BALTIMORE
U	1	BALTIMORE
F	11	BALTIMORE CITY
M	44	BALTIMORE CITY
F	1	CALVERT
F	3	CARROLL
M	3	CARROLL
F	2	CECIL
M	2	CECIL
F	13	CHARLES
M	2	CHARLES
U	1	CHARLES
F	3	DORCHESTER
M	3	DORCHESTER
F	9	FREDERICK
M	2	FREDERICK
F	2	GARRETT
M	2	GARRETT
F	5	HARFORD
M	1	HARFORD
F	6	HOWARD
M	1	HOWARD
F	2	KENT
M	1	KENT
F	17	MONTGOMERY
M	2	MONTGOMERY
F	73	PRINCE GEORGE'S
M	77	PRINCE GEORGE'S
U	3	PRINCE GEORGE'S
M	1	QUEEN ANNE'S
F	3	SAINT MARY'S
F	1	SOMERSET
M	1	SOMERSET
F	2	TALBOT
M	2	TALBOT
F	5	WASHINGTON
M	2	WASHINGTON
F	23	WICOMICO
M	3	WICOMICO
F	4	WORCESTER
M	2	WORCESTER
TOTAL	**436**	
NEISSERIA GONORRHOEAE		
F	3	ALLEGANY
M	1	ALLEGANY
F	1	BALTIMORE
M	2	BALTIMORE
F	1	CARROLL
F	1	CECIL
M	1	CECIL
M	1	DORCHESTER
M	1	HARFORD
F	1	HOWARD
M	1	MONTGOMERY
F	9	PRINCE GEORGE'S
M	21	PRINCE GEORGE'S
F	4	WICOMICO
M	3	WICOMICO
M	1	WORCESTER
TOTAL	**52**	

PENICILLIN RESISTANT GONORRHEA

REPORTED QUARTERLY 4-01-09 TO 6-30-09

SEX	AGE	#	JURISDICTION
F	23	1	PRINCE GEORGE'S
M	23	1	PRINCE GEORGE'S
M	26	1	BALTIMORE
TOTAL		**3**	

MYCOBACTERIOLOGY

ISOLATE

SEX	AGE	#	JURISDICTION
ACID-FAST BACILLUS			
F	36	1	OUT OF STATE
MYCOBACTERIUM AVIUM COMPLEX			
F	51	1	ANNE ARUNDEL
U	63	1	BALTIMORE
F	51	1	BALTIMORE
F	55	1	BALTIMORE
F	60	1	BALTIMORE
F	71	1	BALTIMORE
M	46	2	BALTIMORE
M	53	1	BALTIMORE
M	76	1	BALTIMORE
F	40	1	BALTIMORE CITY
M	31	1	BALTIMORE CITY
M	50	2	BALTIMORE CITY
M	73	1	BALTIMORE CITY
F	83	1	CALVERT
F	49	1	CARROLL
M	69	1	CECIL
M	68	1	FREDERICK
F	52	1	HARFORD
F	54	1	MONTGOMERY
F	69	1	MONTGOMERY
M	43	1	MONTGOMERY
M	47	1	MONTGOMERY
M	60	1	MONTGOMERY
M	69	2	MONTGOMERY
F	51	1	OUT OF STATE
M	21	1	PRINCE GEORGE'S
F	73	1	WASHINGTON
M	55	1	WASHINGTON
M	55	1	WICOMICO
M	76	1	WICOMICO
MYCOBACTERIUM FORTUITUM COMPLEX			
F	36	1	BALTIMORE
M	28	1	BALTIMORE
M	81	1	BALTIMORE
F	7	1	BALTIMORE CITY
F	24	1	HOWARD
M	30	1	MONTGOMERY
M	43	1	MONTGOMERY
M	48	1	MONTGOMERY
M	86	1	MONTGOMERY
M	88	1	OUT OF STATE
M	41	1	PRINCE GEORGE'S
M	72	1	PRINCE GEORGE'S
M	53	1	WICOMICO
MYCOBACTERIUM GORDONAE			
F	55	1	BALTIMORE
M	48	1	BALTIMORE
M	86	1	BALTIMORE
M	59	1	BALTIMORE CITY
F	52	1	FREDERICK
M	44	1	OUT OF STATE
M	62	1	OUT OF STATE
F	46	1	PRINCE GEORGE'S
M	23	1	PRINCE GEORGE'S
M	48	1	TALBOT
M	28	2	WICOMICO
MYCOBACTERIUM KANSASII			
M	95	1	BALTIMORE CITY
M	66	1	WICOMICO
MYCOBACTERIUM SZULGAI			
M	45	1	CECIL
MYCOBACTERIUM TUBERCULOSIS			
U	44	1	BALTIMORE
F	32	1	BALTIMORE
F	33	1	BALTIMORE
M	60	1	BALTIMORE
U	0	1	BALTIMORE CITY
F	28	1	BALTIMORE CITY
M	41	1	BALTIMORE CITY
M	73	1	BALTIMORE CITY
M	78	1	BALTIMORE CITY
F	26	1	FREDERICK
F	44	1	HARFORD
F	51	1	HARFORD
F	23	1	MONTGOMERY
F	36	1	MONTGOMERY
F	41	1	MONTGOMERY
F	79	1	MONTGOMERY
M	21	1	MONTGOMERY
M	24	1	MONTGOMERY
F	20	1	OUT OF STATE
F	37	1	OUT OF STATE
F	40	1	OUT OF STATE
F	59	1	OUT OF STATE

M	67	1	OUT OF STATE
F	1	1	WICOMICO
M	25	1	WICOMICO
M	53	1	WICOMICO
F	79	1	WORCESTER
MYCOBACTERIUM TUBERCULOSIS COMPLEX			
M	22	1	ANNE ARUNDEL
U	44	1	BALTIMORE
F	32	3	BALTIMORE
M	60	1	BALTIMORE
M	45	2	BALTIMORE CITY
M	57	2	BALTIMORE CITY
M	73	1	BALTIMORE CITY
M	31	2	CARROLL
F	51	5	HARFORD
M	39	3	HARFORD
F	33	1	HOWARD
F	18	2	MONTGOMERY
F	21	2	MONTGOMERY
F	23	2	MONTGOMERY
F	75	2	MONTGOMERY
M	21	5	MONTGOMERY
M	24	2	MONTGOMERY
M	30	1	MONTGOMERY
M	45	2	MONTGOMERY
M	52	1	MONTGOMERY
M	74	1	MONTGOMERY
F	50	1	OUT OF STATE
M	25	1	OUT OF STATE
M	48	1	OUT OF STATE
F	19	4	PRINCE GEORGE'S
F	27	1	PRINCE GEORGE'S
F	66	3	PRINCE GEORGE'S
M	22	1	PRINCE GEORGE'S
M	29	2	PRINCE GEORGE'S
M	30	1	PRINCE GEORGE'S
M	42	1	TALBOT
F	79	2	WORCESTER
RAPIDLY GROWING MYCOBACTERIA			
M	88	1	OUT OF STATE
M	48	1	WICOMICO
SCOTOCHROMOGENIC MYCOBACTERIA			
M	25	1	WICOMICO

TOTAL 152

MYCOBACTERIUM SUSCEPTIBILITY RESULTS

18 ISOLATES IDENTIFIED
3 DRUG RESISTANT STRAINS FOUND

#	JURISDICTION	DRUG(S)
1	BALTIMORE	STREPTOMYCIN
1	BALTIMORE	ISONIAZID
1	MONTGOMERY	ISONIAZID

[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
ASPERGILLUS FUMIGATUS				
	F	37	1	ALLEGANY
	M	61	1	BALTIMORE CITY
	M	27	1	CECIL
	M	45	1	MONTGOMERY
	M	88	1	MONTGOMERY
	U	0	1	PRINCE GEORGE'S
ASPERGILLUS NIGER				
	U	0	1	ALLEGANY
	F	59	1	CHARLES
	F	52	1	HARFORD
	M	38	1	TALBOT
ASPERGILLUS TERREUS				
	F	92	1	BALTIMORE
ASPERGILLUS VERSICOLOR				
	U	80	1	MONTGOMERY
CANDIDA ALBICANS				
	M	39	1	CALVERT
	F	41	2	MONTGOMERY
	F	48	1	MONTGOMERY
	M	37	1	MONTGOMERY
	M	91	1	MONTGOMERY
	F	19	2	PRINCE GEORGE'S
	F	20	1	PRINCE GEORGE'S
	F	21	1	PRINCE GEORGE'S
	F	22	4	PRINCE GEORGE'S
	F	86	1	PRINCE GEORGE'S
	F	20	1	SOMERSET
CANDIDA GLABRATA				
	F	82	1	MONTGOMERY
CANDIDA PARAPSILOSIS				
	F	61	1	BALTIMORE
CHRYSOSPORIUM SPECIES				
	U	68	1	CARROLL
FUSARIUM SPECIES				
	U	0	1	ALLEGANY
HISTOPLASMA CAPSULATUM				
	M	32	1	TALBOT
MYCELIA STERILIA				
	F	49	1	BALTIMORE CITY
	F	60	1	BALTIMORE CITY
	F	60	1	CHARLES
NOCARDIA NOVA				
	F	48	2	TALBOT
PAECILOMYCES SPECIES				
	F	47	1	ANNE ARUNDEL
PENICILLIUM SPECIES				
	F	47	1	ANNE ARUNDEL
	M	61	1	BALTIMORE CITY
	F	66	1	MONTGOMERY
	M	45	1	MONTGOMERY
	F	18	1	PRINCE GEORGE'S
	F	20	1	PRINCE GEORGE'S
	F	23	1	PRINCE GEORGE'S
	M	79	1	TALBOT
PITHOMYCES SPECIES				
	M	74	1	ANNE ARUNDEL
RAMICHLORIDIUM SCHULZERI				
	F	32	1	BALTIMORE CITY
TRICHOPHYTON RUBRUM				
	U	52	1	ALLEGANY
	M	75	1	CECIL
TRICHOPHYTON TONSURANS				
	M	4	1	BALTIMORE CITY
	M	7	1	TALBOT
YEAST				
	F	26	1	BALTIMORE CITY
	F	47	1	BALTIMORE CITY
	F	78	1	BALTIMORE CITY
	M	52	1	BALTIMORE CITY
	M	53	1	BALTIMORE CITY
	M	54	1	BALTIMORE CITY
	M	64	1	BALTIMORE CITY
	U	51	1	MONTGOMERY
	F	39	1	MONTGOMERY
	F	79	1	MONTGOMERY
	M	45	1	MONTGOMERY
	M	68	1	MONTGOMERY
	M	73	1	MONTGOMERY
	M	88	1	MONTGOMERY
	F	65	1	PRINCE GEORGE'S
	F	71	1	PRINCE GEORGE'S
	M	33	1	PRINCE GEORGE'S
	M	44	1	PRINCE GEORGE'S
	M	66	2	PRINCE GEORGE'S

TOTAL 73

PARASITOLOGY

GENUS/SPECIES	#	JURISDICTION
AMBLYOMMA AMERICANUM		
	1	MONTGOMERY
BLASTOCYSTIS HOMINIS		
	1	PRINCE GEORGE'S
CHILOMASTIX MESNILI		
	1	FREDERICK
DIENTAMOEBA FRAGILIS		
	2	MONTGOMERY
ENDOLIMAX NANA		
	2	HOWARD
	1	MONTGOMERY
	1	PRINCE GEORGE'S
	1	MONTGOMERY
	1	FREDERICK
	3	MONTGOMERY
ENTAMOEBA COLI		
	4	PRINCE GEORGE'S
ENTAMOEBA HARTMANNI		
	1	ANNE ARUNDEL
ENTEROBIUS VERMICULARIS		
	1	BALTIMORE CITY
	1	WASHINGTON
	2	WICOMICO
GIARDIA LAMBLIA		
	1	PRINCE GEORGE'S
	1	HOWARD
HOOKWORM EGGS		
	2	BALTIMORE CITY
MICROSPORIDIUM		
	3	MONTGOMERY
	3	BALTIMORE CITY
PLASMODIUM VIVAX		
	1	BALTIMORE CITY

TOTAL 34

WATER MICROBIOLOGY

	# TESTED	# NON-COMPLIANT
COMMUNITY	2	0
NON-COMMUNITY	310	70
TOTAL	**312**	**70**

FOOD PROTECTION

	TOTALS
FOOD	
NUMBER OF SAMPLES	52
NOTABLE PATHOGENS:	
CAMPYLOBACTER SP.	8
LISTERIA SP.	0
SALMONELLA SP.	8
CRABMEAT	
NUMBER OF SAMPLES	0
EXCEEDING STANDARDS[1]	0
NOTABLE PATHOGENS:	
LISTERIA INNOCUA	0
SHELLFISH	
NUMBER OF SAMPLES	0
EXCEEDING STANDARDS[2]	0
TOTAL STANDARDS EXCEEDED	16
SHELLFISH GROWING WATERS	
NUMBER OF SAMPLES	72
OTHER	
CLOSTRIDIUM BOTULINUM	0
TOTAL NUMBER OF SAMPLES	**124**

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	8	1	ALLEGANY
	F	5	1	ANNE ARUNDEL
	M	1	1	CALVERT
	M	5	1	CALVERT
	M	4	1	CALVERT
	M	0	1	TALBOT
	F	5	1	WICOMICO
	M	4	1	WICOMICO
ECHOVIRUS 30				
	M	1	1	CECIL
ENTEROVIRUS 68				
	F	24	1	CARROLL
HERPES SIMPLEX VIRUS TYPE 1				
	M	49	1	ALLEGANY
	M	18	1	ALLEGANY
	M	19	1	ALLEGANY
	F	21	1	CARROLL
INFLUENZA B VIRUS				
	F	20	1	SOMERSET
PARAINFLUENZA VIRUS 1				
	F	32	1	BALTIMORE CITY
PARAINFLUENZA VIRUS 2				
	M	2	1	ALLEGANY
	U	0	1	ANNE ARUNDEL
	M	1	1	CALVERT
	M	4	1	FREDERICK
	M	5	1	PRINCE GEORGE'S
	M	1	1	PRINCE GEORGE'S
	U	72	1	WASHINGTON
RESPIRATORY SYNCYTIAL VIRUS				
	F	2	1	ANNE ARUNDEL
	M	0	1	ANNE ARUNDEL
	F	0	1	ANNE ARUNDEL
	F	3	1	BALTIMORE
	F	0	1	CALVERT
	F	83	1	WICOMICO
	F	64	1	WICOMICO
	F	0	1	BALTIMORE CITY
	M	1	1	BALTIMORE CITY
TOTAL			**32**	

VIRAL POLYMERASE CHAIN REACTION (PCR)

ISOLATE	SEX	AGE	#	JURISDICTION
HERPES SIMPLEX VIRUS TYPE 1				
	F	19	1	ALLEGANY
	F	20	1	ALLEGANY
	M	19	1	ALLEGANY
	F	17	1	ANNE ARUNDEL
	F	18	1	BALTIMORE
	F	20	1	BALTIMORE
	F	23	2	BALTIMORE
	F	25	1	BALTIMORE
	F	27	1	BALTIMORE
	M	16	1	BALTIMORE
	M	33	1	BALTIMORE
	F	0	1	BALTIMORE CITY
	F	16	1	BALTIMORE CITY
	F	18	1	BALTIMORE CITY
	F	20	2	BALTIMORE CITY
	F	21	1	BALTIMORE CITY
	F	23	1	BALTIMORE CITY
	M	0	1	BALTIMORE CITY
	M	18	1	BALTIMORE CITY
	M	28	1	BALTIMORE CITY
	M	29	1	BALTIMORE CITY
	M	31	1	BALTIMORE CITY
	M	38	1	BALTIMORE CITY
	F	20	1	CAROLINE
	F	18	1	CARROLL
	F	25	1	CARROLL
	F	37	1	CARROLL
	M	22	1	CECIL
	F	16	1	HARFORD
	F	19	1	HARFORD
	F	23	1	HARFORD
	F	26	1	HARFORD
	F	18	1	PRINCE GEORGE'S
	F	20	6	PRINCE GEORGE'S
	F	23	1	PRINCE GEORGE'S
	F	35	1	PRINCE GEORGE'S
	M	19	1	PRINCE GEORGE'S
	F	17	1	WASHINGTON
	F	17	1	WICOMICO
HERPES SIMPLEX VIRUS TYPE 2				
	F	29	1	ALLEGANY
	M	29	1	ALLEGANY
	F	23	1	ANNE ARUNDEL
	F	21	1	BALTIMORE
	F	24	1	BALTIMORE
	F	34	1	BALTIMORE
	M	57	1	BALTIMORE
	U	17	1	BALTIMORE CITY
	U	20	1	BALTIMORE CITY
	F	0	6	BALTIMORE CITY
	F	16	1	BALTIMORE CITY
	F	18	4	BALTIMORE CITY
	F	20	1	BALTIMORE CITY
	F	21	4	BALTIMORE CITY
	F	22	3	BALTIMORE CITY
	F	24	1	BALTIMORE CITY
	F	25	1	BALTIMORE CITY
	F	26	4	BALTIMORE CITY
	F	27	1	BALTIMORE CITY
	F	34	1	BALTIMORE CITY
	F	44	1	BALTIMORE CITY
	F	45	1	BALTIMORE CITY
	M	0	4	BALTIMORE CITY
	M	18	1	BALTIMORE CITY
	M	19	1	BALTIMORE CITY
	M	20	4	BALTIMORE CITY
	M	21	1	BALTIMORE CITY
	M	22	4	BALTIMORE CITY
	M	23	2	BALTIMORE CITY
	M	24	2	BALTIMORE CITY
	M	26	2	BALTIMORE CITY
	M	27	3	BALTIMORE CITY
	M	29	1	BALTIMORE CITY
	M	31	1	BALTIMORE CITY
	M	33	2	BALTIMORE CITY
	M	34	1	BALTIMORE CITY
	M	37	2	BALTIMORE CITY
	M	44	1	BALTIMORE CITY
	M	46	1	BALTIMORE CITY
	M	61	1	BALTIMORE CITY
	F	23	1	CALVERT
	F	35	1	CARROLL
	M	22	1	CARROLL
	F	22	1	CECIL
	F	28	1	CECIL
	F	23	1	CHARLES
	F	24	1	CHARLES
	F	33	1	CHARLES
	F	22	1	DORCHESTER
	F	18	1	FREDERICK
	F	48	1	FREDERICK
	M	32	1	FREDERICK
	F	21	1	HARFORD
	F	25	1	HARFORD
	F	30	1	HOWARD
	F	19	1	MONTGOMERY
	F	22	1	MONTGOMERY
	F	45	1	MONTGOMERY
	M	39	1	MONTGOMERY

F	17	1	PRINCE GEORGE'S
F	21	4	PRINCE GEORGE'S
F	23	1	PRINCE GEORGE'S
F	27	1	PRINCE GEORGE'S
F	30	1	PRINCE GEORGE'S
F	34	1	PRINCE GEORGE'S
M	19	1	PRINCE GEORGE'S
M	26	1	PRINCE GEORGE'S
M	28	1	PRINCE GEORGE'S
M	32	1	PRINCE GEORGE'S
M	43	1	PRINCE GEORGE'S
M	65	1	PRINCE GEORGE'S
M	30	1	TALBOT
F	18	1	WICOMICO
F	20	1	WICOMICO
F	31	1	WICOMICO
INFLUENZA A(H1/N1) NOVEL A			
F	0	1	ANNE ARUNDEL
M	21	1	ANNE ARUNDEL
F	38	1	BALTIMORE
F	56	1	BALTIMORE
F	60	1	BALTIMORE
F	62	1	BALTIMORE
F	72	1	BALTIMORE
M	26	1	BALTIMORE
U	5	1	BALTIMORE CITY
U	54	1	BALTIMORE CITY
F	1	1	BALTIMORE CITY
F	3	1	BALTIMORE CITY
F	39	1	BALTIMORE CITY
F	5	2	BALTIMORE CITY
F	65	1	BALTIMORE CITY
M	34	1	BALTIMORE CITY
M	37	1	BALTIMORE CITY
M	59	1	BALTIMORE CITY
M	7	1	BALTIMORE CITY
M	9	1	BALTIMORE CITY
M	0	1	CALVERT
F	57	1	CECIL
F	53	1	CHARLES
F	37	1	FREDERICK
F	46	1	HARFORD
F	0	1	MONTGOMERY
F	19	1	PRINCE GEORGE'S
F	21	1	PRINCE GEORGE'S
M	0	1	PRINCE GEORGE'S
M	20	1	PRINCE GEORGE'S
M	51	1	PRINCE GEORGE'S
M	73	1	PRINCE GEORGE'S
U	23	1	WASHINGTON
F	19	1	WASHINGTON
M	28	1	WASHINGTON
M	54	1	WASHINGTON
M	58	1	WASHINGTON
F	21	1	WICOMICO
F	22	1	WICOMICO
F	56	1	WICOMICO
INFLUENZA A(H3)			
U	81	1	MONTGOMERY
F	97	1	MONTGOMERY
INFLUENZA B VIRUS			
F	20	1	SOMERSET
TOTAL		**201**	

VIRAL HEPATITIS

ORGANISM	# SPECIMENS	# POSITIVES	JURISDICTION
HEPATITIS A			
	1	0	ANNE ARUNDEL
SUBTOTAL	**1**	**0**	
HEPATITIS B			
	52	0	ALLEGANY
	173	6	ANNE ARUNDEL
	39	0	BALTIMORE
	415	9	BALTIMORE CITY
	2	0	CALVERT
	16	0	CARROLL
	129	1	CECIL
	8	0	CHARLES
	37	0	FREDERICK
	13	0	GARRETT
	14	0	HARFORD
	16	1	HOWARD
	231	10	MONTGOMERY
	336	5	PRINCE GEORGE'S
	3	0	QUEEN ANNE'S
	4	0	SAINT MARY'S
	1	0	SOMERSET
	6	0	TALBOT
	27	1	WASHINGTON
	76	1	WICOMICO
SUBTOTAL	**1,598**	**34**	
HEPATITIS C			
	51	5	ALLEGANY
	195	51	ANNE ARUNDEL
	46	2	BALTIMORE
	175	45	BALTIMORE CITY
	15	1	CARROLL
	62	8	CECIL
	12	0	CHARLES
	39	2	FREDERICK
	19	0	GARRETT
	28	0	HARFORD
	9	0	HOWARD
	29	1	MONTGOMERY
	186	5	PRINCE GEORGE'S
	4	0	QUEEN ANNE'S
	4	1	SAINT MARY'S
	1	1	SOMERSET
	6	0	TALBOT
	10	1	WASHINGTON
	14	1	WICOMICO
SUBTOTAL	**905**	**124**	
TOTALS	**2,504**	**158**	

RABIES

SOURCE	#	JURISDICTION
BAT	1	FREDERICK
RACCOON	1	ANNE ARUNDEL
	1	BALTIMORE
	3	CAROLINE
	1	CARROLL
	1	FREDERICK
	1	HARFORD
	4	MONTGOMERY
	1	QUEEN ANNES
	1	SOMERSET
	1	TALBOT
	1	WORCESTER
SKUNK	1	PRINCE GEORGES
TOTAL POSITIVES	**18**	
TOTAL SPECIMENS	**242**	

CHLAMYDIOPHILIA PSITTACI
(CHLAMYDIA)

REPORTED QUARTERLY
10-1-09 TO 12-31-09 NONE REPORTED

CD4 FLOW CYTOMETRY WORKLOAD

COMPARING CURRENT QUARTER TO SAME QUARTER LAST YEAR

DATES	Level 1 <14%	Level 2 14%-28%	Level 3 ≥29%	TOTAL
10/01/09 - 12/31/09	123	400	309	832
10/01/08 - 12/31/08	174	414	300	888

BLOOD LEAD

MARYLAND			
	I	<10	104
	IIA	10-14	5
	IIB	15-19	4
	III	20-44	5
	IV	45-69	0
	V	>69	0
TOTAL			**118**
WASHINGTON DC			
	I	<10	0
	IIA	10-14	0
	IIB	15-19	0
	III	20-44	0
	IV	45-69	0
	V	>69	0
TOTAL			**0**

NEWBORN & CHILDHOOD SCREENING

PRESUMPTIVE POSITIVES

DISORDERS	#
PHENYLKETONURIA (PKU)	1
MAPLE SYRUP URINE DISEASE (MSUD)	0
HOMOCYSTINURIA	4
TYROSINEMIA	6
ARGININEMIA	0
CITRULLINEMIA	2
GALACTOSEMIA	1
BIOTINIDASE DEFICIENCY	16
HYPOTHYROIDISM	110
HEMOGLOBIN -DISEASE	18
HEMOGLOBIN -BENIGN	590
CONGENITAL ADRENAL HYPERPLASIA (CAH)	63
CYSTIC FIBROSIS	2
FATTY ACID OXIDATIONS	2
ORGANIC ACIDEMIAS	12
ACYLCARNITINE - BORDERLINE	1
ACYLCARNITINE - OTHERS	0

MONTHLY TOTALS

# OF SPECIMENS SCREENED	12,667
NUMBER OF TESTS	985,345
% UNSATISFACTORY SPECIMENS	3.1

YEAR-TO-DATE CONFIRMED CASES - 2009 YEAR END

CONDITIONS	# CONFIRMED
MEDIUM CHAIN ACYL CoA DEHYDROGENASE DEFICIENCY (MCAD)	5
3-METHYLCROTONYL CoA CARBOXYLASE DEFICIENCY (3MCC)	2
SHORT CHAIN ACYL CoA DEHYDROGENASE DEFICIENCY (SCAD)	4
ISOBUTYRYL CoA DEHYDROGENASE DEFICIENCY (IBG)	1
VERY LONG CHAIN ACYL CoA DEHYDROGENASE DEFICIENCY (VLCAD)	1
GLUTARIC ACIDEMIA TYPE 1 (GA-I)	1
ISOVALERIC ACID CoA DEHYDROGENASE DEFICIENCY (IVA)	1
LONG CHAIN 3-HYDROXYACYL CoA DEHYDROGENASE DEFICIENCY (LCHAD)	1
METHYLMALONIC ACIDEMIA (MMA)	1
ARGININOSUCCINATE LYASE DEFICIENCY (ASA)	1
PHENYLKETONURIA (PKU) - CLINICALLY SIGNIFICANT VARIANT	2
CLINICALLY SIGNIFICANT VARIANT HYPERPHENYLALANINEMIA (NOT CLASSICAL)	1
TRANSIENT TYROINEMIA	4
VARIANT HYPERPHENYLALANINEMIA (NOT CLINICALLY SIGNIFCANT)	3
CITRULINEMIA I (CIT-I)	1
CITRULINEMIA I (CIT-II)	1
CITRIN DEFICIENCY	1
GALACTOSEMIA-CLASSICAL GALT DEFICIENCY	1
GALACTOSEMIA - VARIANT	2
BIOTINIDASE DEFICIENCY	1
GALACTOSE EPIMERASE DEFICIENCY	1
PARTIAL BIOTINIDASE DEFICIENCY	1
CONGENITAL ADRENAL HYPERPLASIA (CAH) - CLASSICAL SALT WASTING	1
HYPOTHYROIDISM - PRIMARY	32
OTHER HYPOTHYROIDISM	19
SECONDARY HYPOTHYROIDISM	2
SICKLE CELL DISEASE -SS	77
SICKLE CELL DISEASE -SC	46
SICKLE CELL DISEASE - CC	9
SICKLE CELL DISEASE - VARIANT	3
FV -DISEASE	7
SICKLE CELL DISEASE -S BETA THALASSEMIA	3
CYSTIC FIBROSIS	15

ENVIRONMENTAL CHEMISTRY

SAMPLE TYPES	# NON-COMPLIANT	# TESTED
ASBESTOS		
AIR	0	0
BULK	11	16
AIR QUALITY		
$PM_{2.5}$	0	0
RADIATION		
AIR/CHARCOAL FILTERS	0	64
MILK	0	0
WIPES	0	79
RAW WATER	0	22
VEGETATION	0	0
OTHER	0	0
DRINKING WATER		
METALS		
COMMUNITY	22	27
NON-COMMUNITY	11	25
PRIVATE WELLS	53	207
PESTICIDES & PCBs		
COMMUNITY	0	78
NON-COMMUNITY	0	41
PRIVATE WELLS	0	4
VOLATILE ORGANIC COMPOUNDS		
COMMUNITY	1	136
NON-COMMUNITY	0	74
PRIVATE WELLS	0	59
RADIATION		
COMMUNITY	0	33
NON-COMMUNITY	0	0
PRIVATE WELLS	0	14
INORGANICS		
COMMUNITY	0	52
NON-COMMUNITY	3	73
PRIVATE WELLS	9	148
FOOD CHEMISTRY		
SUSPECTED TAMPERING	0	0
MICROSCOPIC FILTH	0	0
LABELING	0	0
SURVEILLANCE	0	0
CHEMICAL CONTAMINATION	0	0
TOTAL	**110**	**1,152**

VIRAL LOAD SPECIMENS

HIV-1 RNA COPIES/ML	$<10^3$	10^3—10^4	10^4—10^5	$>10^5$	TOTALS
ALLEGANY	14	2	0	0	**16**
ANNE ARUNDEL	1	0	0	0	**1**
MONTGOMERY	103	9	8	1	**121**
PRINCE GEORGE'S	105	16	13	5	**139**
WASHINGTON	6	2	1	0	**9**
WICOMICO	2	1	2	1	**6**
SUBTOTALS	231	30	24	7	**292**
DEPT. OF CORRECTIONS	35	6	8	0	**49**
TOTALS	**266**	**36**	**32**	**7**	**341**

HIV ANTIBODY SCREENING

SUBMITTER	TOTAL SPECIMENS	# EIA POSITIVE	% EIA POSITIVE	# WB POSITIVE	% WB POSITIVE
CORRECTIONAL INSTITUTIONS	238	4	1.68%	4	100.00%
FAMILY PLANNING (NON-GOVERNMENT)	113	1	0.88%	1	100.00%
HEALTH CENTERS (NON-GOVERNMENT)	637	69	10.83%	68	98.55%
HLTH DEPT, NON-STD, FAMILY PLAN	417	3	0.72%	0	0.00%
HLTH DEPT, NON-STD, OB/GYN	60	2	3.33%	1	50.00%
HLTH DEPT, NON-STD, OTHER	508	46	9.06%	45	97.83%
HLTH DEPT, STD CLINICS	877	19	2.17%	13	68.42%
HOSPITAL, OTHER	151	14	9.27%	13	92.86%
HOSPITAL, PUBLIC	32	0	0.00%	0	0.00%
JUVENILE SERVICES	67	1	1.49%	0	0.00%
LABORATORIES (NON-HOSPITAL)	404	13	3.22%	8	61.54%
PEDIATRIC - CHILD HEALTH	8	0	0.00%	0	0.00%
PRIVATE PHYSICIANS	13	0	0.00%	0	0.00%
PRIVATE STUDENT HEALTH CENTERS	22	0	0.00%	0	0.00%
PUBLIC STUDENT HEALTH CENTERS	202	1	0.50%	0	0.00%
TOTALS	**3,749**	**173**	**4.61%**	**153**	**88.44%**

MAILING LABEL

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