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John M. Colmers, Secretary

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CRITICAL LINK

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Maryland Department of Health & Mental Hygiene

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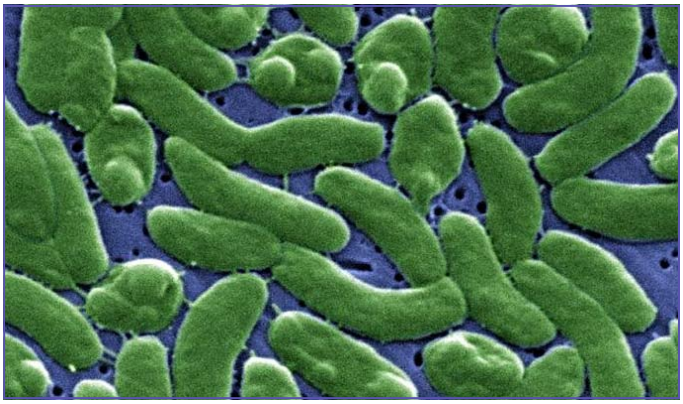
Summer, Saline, and Shellfish

Shellfish (oysters, clams, scallops and mussels) are bivalve, plankton filter-feeders that concentrate bacteria. The concentrated microbes are both potential enteric pathogens indicative of pollution[1] and opportunistic, naturally-occurring environmental bacteria such as vibrios. An oyster filters from five to eight liters of water an hour, and when the Chesapeake had flourishing populations, it is estimated that they would filter the entire volume of the Bay every 3-5 days.[2] Shellfish effectively kept the bay clean. But now we have only 1% of that population,[3] because of over-harvesting (going from tonging and raking to dredging), pollution from animal and industrial sources, silt from unprotected development near the water's edge, and disease from introduction of foreign varieties of other mollusks.

Bacterial Concentration in Oysters

There has not been a case of shellfish-borne food poisoning from pollution of environmental waters since the 1950s, thanks to efforts of the Maryland Department of the Environment (MDE), the U.S. Environmental Protection Agency (EPA), the U.S. Food and Drug Administration (FDA), and the Maryland Department of Health and Mental Hygiene (DHMH.) Now there is a non-pollution issue emerging. Naturally occurring vibrio bacteria present a potential threat of diarrhea outbreaks. Diarrhea is a major cause of morbidity and mortality worldwide. Oysters are the most significant source of human vibrio infections.[4] Clams, the other shellfish that may be eaten raw, grow in cooler waters and/or bottom beds and this may offer some protection.[11]



This scanning electron micrograph (SEM) depicts a grouping of *Vibrio vulnificus* bacteria; Mag. 13184x. (Photo courtesy of CDC PHIL.)

Several factors influence the rise in vibrio counts in oysters. Elevated temperatures are conducive to better growth. Salinity level favors certain vibrio growth. *Vibrio cholera* is non-halophilic because it does not need much salt and will have an advantage in brackish water. *Vibrio parahaemolyticus* is halophilic and is found in estuarine waters with a salt concentration in the range from 1 to 8%. *Vibrio alginolyticus* is marine because it enjoys the higher salt content of offshore waters. These environmental bacteria thrive especially during a drought when the Bay salinity rises as tributaries are

(Continued on page 2)

Inside this issue:

Summer, Saline, and Shellfish	*Page 1*
Environmental Microbiology Division	*Page 5*
LABORATORY STATISTICS	*Page 6*

(Continued from page 1)

not feeding their usual amounts of fresh water to the Bay and during the summer when water temperature rises.

Shellfish are different from other seafood, in that when one eats shellfish, one also eats what the shellfish has ingested including the microorganisms, so it's risky to consume it raw. *Vibrio parahaemolyticus*, which causes about half the diarrhea in Japan, is the principle vibrio causing diarrheic disease and wound infection in the U.S. the disease-causing capabilities of *v. parahaemolyticus* are not surprising, it being a cousin of *Vibrio cholera*. However *v. cholera,* found in the Chesapeake Bay, tend not to cause the severely dehydrating disease. Usually symptoms of watery diarrhea, abdominal cramping, nausea, vomiting, fever, and chills occur within 24 hours of ingestion of *V. parahaemolyticus*-contaminated raw shellfish. The gastroenteritis is usually self-limiting and does not require antibiotics, and lasts for about 3 days. Rarely, severe disease may progress to sepsis in immunocompromised patients.[5]

Another cousin worth mentioning here is *Vibrio vulnificus*. The species name means "wound inflicting" and the diarrheal disease it causes has been called "Neptune's Revenge." It is virulent not only as a causal agent of gastroenteritis but also as a particularly invasive pathogen that can cause an external wound infection progressing to sepsis in certain individuals. Susceptible people at especially high risk have underlying predisposing factors such as cancer, diabetes, inflammatory bowel disease, kidney disease, alcoholism, HIV infection, steroid therapy, liver disease, low stomach acid (taking antacids), impaired iron metabolism of hemachromatosis, anemia, or immunocompromising conditions. Liver disease, for example, allows this bacterium to circumvent the reticuloendothelial system and lower chemotaxis ability of host immune cells. *V. vulnificus* is adept at scavenging iron from serum. In short, disease progression may be very rapid, progressing from initial infection to death within 24 hours.[6, 7]

In the Northern Hemisphere, the oyster season used to be during the months that had an 'r' in them. The colder months were safer and, during the summer spawning season, the oysters are bland and small. The phrase "Oysters 'R' in Season" protected both the oysters and us. However, with the introduction of floating near-shore aquaculture, the season has been artificially extended to all months of the year.

The classification[8] of deep channel waters does not reflect the water quality of near-shore waters where there is less dilution and flushing movement, and where the buffer of safety from waterway entering pollutants is absent.[8, 9] This new shellfish farming method in the summer can present a dual risk to consumers, enteric as well as environmental pathogens.

Addressing the Problem

Some states issue notices to their citizens by requiring warnings to be posted for restaurant patrons with underlying disease that could predispose them to septicemia. The FDA has established an education campaign to caution the public. The Interstate Shellfish Sanitation Conference (ISSC) has also registered concern about free-living, non-cholera vibrios. The ISSC is made up of cooperative members from industry (watermen, packers, and distributors), academic institutions, federal and state regulatory agencies (FDA, MDE, EPA, CDC, the National Oceanic and Atmospheric Administration, and the Maryland Department of Natural Resources), state public and environmental health departments, fisheries, agriculture, marine resources, wildlife conservationists and interested parties from other countries. The states involved are either coastal or have industry participating in processing or shipping shellfish.

The ISSC promotes a program of uniform procedures and guidelines to regulate shellfish harvesting from beds, boats and beyond to insure safe and healthy products consumed in the U.S.[10] MDE regulations require bacterial analysis of 30 water samples under all possible conditions and may take 3 years to complete. The MDE categories are "approved," "conditionally approved," "restricted," and "prohibited."[8] An interim control proposal put forth by the ISSC includes the development of recommendations through committee discussions to exchange information on *V. parahaemolyticus* illnesses, evaluate costs and benefits and inform the industry through education at the regional level.

A review of strategies that could be implemented to reduce *V. parahaemolyticus* related illnesses include: 1. acquiring information to improve FDA's regional *V. parahaemolyticus* risk assessment and cost/benefit analyses, 2. report of findings to Vibrio Management Committee *V. parahaemolyticus* Subcommittee, and 3. develop recommendations to present at a biennial meeting.

If the waters of a state are associated with two or more confirmed *V. parahaemolyticus* illnesses within three years or there is an average bed water temperature above 81°F for over 30 days,[11] there are remedial provisions as part of the contingency plan. These provisions include:

- identifying affected growing areas,
- sending oyster samples for testing,
- preventing harvesting from areas,
- recalling oysters from affected areas,
- notifying affected industry and health departments of potential problems, and
- issuing health advisories to the public and implementing post-harvest processing treatment.

(Continued on page 3)

(Continued from page 2)
Summer, Saline, and Shellfish

In an effort to reduce the chance for a recurrence of a recent *V. parahaemolyticus*-linked illness, a neighboring state enforces the following measures: watermen must spend less time out on the boat and ice their harvest within two hours of catch. Inspections have also been instituted. Maintaining every link in the cold chain throughout the process, from the boat to consumption, is critical. Integral members in this process are the watermen, buyers/distributors at the wharf, packers, transporters, eating establishments, retailers and finally the consumers. Several years ago, the Laboratories Administration's Southern Maryland Regional Laboratory was involved in a case in which the bacterial count jumped dramatically from safe to violative because the transport truck was not refrigerated properly.[12] The consumer must assume responsibility for maintaining a cold temperature for the shellfish until actual ingestion.

Sample Testing in the Laboratory

Analysis methods used to monitor *V. parahaemolyticus* include screening, identification and enumeration.[13] Shellfish samples arrive in the laboratory on ice in protective plastic bags in coolers within 30 hours of collection from growing areas. A weighed aliquot of scrubbed and aseptically shucked oysters is homogenized in a blender with phosphate buffered saline to yield a 1:10 dilution from which further serial 10-fold dilutions can be made in triplicate. Following overnight incubation at 35°C, a carefully removed loopful of broth from the very top of each tube is streaked for isolation onto a Thiosulfate Citrate Bile salts Sucrose (TCBS) plate. Even though there is enough salt in a blood agar plate to support *V. parahaemolyticus* the TCBS is both selective for vibrios (to exclude look-alikes such as *Escherichia coli* and even some of its fresh-water relatives such as Aeromonas) and differential among vibrios (to distinguish them from cousins *V. cholera* and *V. alginolyticus* that do not ferment sucrose).[14]

The plates are incubated overnight at 35°C and examined for typical colonies. A few representative colonies are transferred to tubes containing sterile 2% NaCl and mixed thoroughly to achieve uniform suspensions for inoculating a micro-identification system. This system consists of 20 tubules, each one determining a biochemical characteristic contributing to the final identification of the vibrio. Alternative identification schemes involve specialized media (all containing 2 to 3% NaCl) such as Arginine Glucose Slants, T_1N_0 and T_1N_3 broths, motility media and urea agar (which is a simple screen for pathogenic strains).[15]

(Continued on page 4)

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201 W. Preston Street, Baltimore, MD 21201

(Phone 410-767-6909)

Critical Link:

Production Manager
Georgia Corso

Editorial Board:

Jack DeBoy, Dr. P.H.
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Questions concerning technical content of this newsletter may be referred to Dr. Jack DeBoy at 410-767-6100

(Continued from page 3)
Summer, Saline, and Shellfish

Pathogenicity correlates with the presence of two virulence factors, thermostable direct hemolysin (tdh) [referred to as the Kanagawa phenomenon] and the tdh-related hemoysin (trh) expressed by the tdh and trh genes respectively.[13] While most strains associated with clinical isolates tend to carry one or both of these gene, another virulence marker, O3:K6, has recently emerged. It is divided into two sets, T3SS1, (similar to a factor in Yersinia species) and T3SS2.[16, 17, 18] There also are molecular diagnostic techniques to detect these genetic determinants.

Enumeration is accomplished by the serial 10-fold dilutions of 1:10, 1:100, 1:1,000 and 1:10,000 in triplicate. By a mathematical formula the approximate count can be calculated to yield the most probable number (MPN) of microorganisms per milliliter from the three highest dilutions to show growth in any of the three tubes at each dilution. This method assumes that bacteria are not clustered together, but separate, so that each growth unit represents an individual bacterium. It's particularly useful for low bacterial counts (<100/g). All possible combinations have been formatted in the 3-tube MPN table. McCrady devised this quantitative determination in 1915. Extrapolating from the MPN of *V. parahaemolyticus* colony-forming units (CFUs) per gram of meat (which should not exceed 5,000) and testing representative colonies identified as *V. parahaemolyticus* for tdh and trh can then give the number of tdh+ and trh+ colonies per 0.1 gram. This level should not exceed 5.[11, 13]

Outlook

V. parahaemolyticus is being found now in oysters from what used to be colder waters of Alaska,[18,19] suggesting that climatic changes may play a role in expansion of habitat boundaries. We have to heighten our awareness and be proactive with preventive measures regarding those warm-water-loving potential pathogens. The shell game may be riskier in upcoming summers, so it would be wise to exercise due caution.

This article is written by Dr. Robert Waltersdorff.

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Multi-angle Imaging SpectroRadiometer (MISR) image of the Chesapeake Bay acquired on March 24, 2000 during Terra orbit 1417. Image credit: NASA/GSFC/JPL, MISR Science Team

Environmental Microbiology Division

Over the past three years, several key individuals including the Division Chief of the Laboratories Administration's Environmental Microbiology Division left State Service . This provided an opportunity to review the Division's mission and bring in new personnel to better meet Maryland's continuing and evolving need for mandated laboratory services and for outbreak and investigative capabilities.

Over the past two years, the Division's responsibilities for regulating outside laboratories have been transferred to other agencies. The inspection and regulation of commercial water testing laboratories was transferred to the Maryland Department of the Environment, the agency with statutory and regulatory authority over that program. Similarly, last year the position and responsibilities of the State's Dairy Laboratory Evaluation Officer, and that position's responsibilities for inspecting dairy laboratories and certifying dairy laboratorians, was transferred to the Department of Health and Mental Hygiene's Office of Food Protection and Consumer Health Services. These changes have allowed the Division to focus its energies into its analytical testing programs: Maryland's surface water and beach monitoring programs, milk and dairy product testing programs, shellfish waters and food monitoring programs, and laboratory based routine and special investigations related to water and foodborne outbreaks, as well as food-related intoxications (e.g., botulism, mycotoxicoses).

Simultaneously, the Laboratories Administration embarked on a two-year-long recruitment effort to fill many of the Division's vacant positions. In April of this year two new supervisors were hired and a new Division Chief was hired in June. Over the next few years, with these new scientists on board, the Division will reevaluate its test menu and consider possible new mission directions while maintaining current quality analytical testing.

One of the Division's new supervisors is Corinne Shaw, B.A., M.S. Corinne, who supervises the Shellfish, Foods, and Special Investigations Laboratories, earned a Bachelor of Arts Degree in Biology, a Masters of Science Degree in Food Science in 1987, and additional course work in molecular biology in 2004. Corinne has many years of experience performing and supervising food microbiology, chemistry, and quality assurance at a number of large commercial food processing companies. Before joining the Laboratories Administration, she was a research assistant at Goucher College, performing a wide range of molecular tests, including PCR, plasmid construction and gene sequence interpretation.

The Division's other new supervisor is Dr. Yelena Yuditsky. Dr. Yuditsky, who supervises the Water, Dairy and Prep Laboratories, earned an M.D. Degree in General Medicine from the Kiev Medical Institute in 1989. She also earned a Bachelors Degree in Biology from the University of Maryland Baltimore County in 1993. Before joining the Laboratories Administration, Dr. Yuditsky spent seven years as Supervisor for staff and operations for an analytical core laboratory at Johns Hopkins University. Before that she spent several years as a senior research technician using a wide range of biological and molecular procedures, software applications, and instrumentation. Dr. Yuditsky has collaborated on over a dozen papers published in peer-reviewed scientific journals.

The Division also welcomed its new Division Chief, Chengru Zhu, B.V.Sc., M.Sc., Ph.D. Dr. Zhu obtained his Bachelor of Veterinary Science and Master of Science in Veterinary Microbiology degrees from the University of Yangzhou, Peoples Republic of China. He began his professional career as a research associate and group leader at the Diagnostic Laboratory in the Yangzhou Veterinary Station. In 1996, Dr. Zhu earned a Ph.D. in Microbiology and Immunology from the University of Montreal School of Medicine.

Dr. Zhu then spent four years as a postdoctoral fellow, two at the University of Saskatchewan, followed by two at the University of Maryland School of Medicine. From 2001 he worked first as an instructor at the University of Maryland's School of Medicine and was appointed in 2005 an Assistant Professor. From 2005 through early June of this year he served as a Research Assistant Professor at the University of New Mexico School of Medicine in Albuquerque. Over the past 12 years, Dr. Zhu has carried out several research projects and published over 20 papers in peer-reviewed scientific journals. As a researcher he gained much expertise working with enteropathogens, studying foodborne infections, developing vaccines and vaccine vectors, and developing methods to characterize enteric pathogens.

Over the next few months we hope many of you will have an opportunity to speak to or meet Ms. Shaw, Dr. Yuditsky, and Dr. Zhu to discuss your environmental microbiology needs and related issues. The Environmental Microbiology Division's main phone number is 410-767-6125.

This article written by Dr. Jack DeBoy

Laboratory Statistics

NS – Not Speciated
VRE – Vancomycin Resistant
NG – No Growth
NT – Non-Typeable
SP – Species

* This genus has recently been given a new genus name. The genus name in parenthesis is the old name.
** Formerly a part of the *Trichosporon beigelii* complex.
***Alpha streptococci other than *S. pneumoniae* and *Enterococcus*

REPORTED 04/01/07 - 04/30/07

ENTERIC BACTERIOLOGY

GENUS SEROVAR	SEX	AGE	#	JURISDICTION
CAMPYLOBACTER JEJUNI				
	F		1	CHARLES
	F	71	1	HARFORD
	F	32	1	MONTGOMERY
	F	75	1	MONTGOMERY
	M	51	1	OUT OF STATE
SALMONELLA ENTERITIDIS				
	M	4	1	ANNE ARUNDEL
	M	24	1	FREDERICK
	F		1	HARFORD
	M	11	1	QUEEN ANNE'S
	M		1	WICOMICO
	F	1	1	BALTIMORE CITY
	M	4	1	BALTIMORE CITY
	U		1	BALTIMORE CITY
SALMONELLA I 6,8:NONMOTILE				
	M	61	1	TALBOT
SALMONELLA JAVIANA				
	F	24	1	HARFORD
SALMONELLA NEWPORT				
	M	29	1	HARFORD
SALMONELLA ORANIENBURG				
	M	1	1	WICOMICO
	U	79	1	OUT OF STATE
SALMONELLA SCHWARZENGRUND				
	F	24	1	ANNE ARUNDEL
SALMONELLA TELELKEBIR				
	F	79	1	OUT OF STATE
SALMONELLA TENNESSEE				
	F	6	1	CALVERT
SALMONELLA TYPHI				
	U	30	1	BALTIMORE
	F	4	1	PRINCE GEORGE'S
SALMONELLA TYPHIMURIUM				
	M	1	1	HOWARD
SHIGELLA FLEXNERI IV				
	M	36	1	CECIL
SHIGELLA SONNEI				
	M	2	1	CALVERT
	M	10	1	CALVERT
	F	49	1	MONTGOMERY
	M		1	BALTIMORE CITY
YERSINIA ENTEROCOLITICA				
	F	15	1	OUT OF STATE
TOTAL			**30**	

ISOLATES – THROAT CULTURES

COUNTY	GROUP A[1]	NON-GROUP A
ALLEGANY	3	8
BALTIMORE CITY	1	1
BALTIMORE	4	11
MONTGOMERY	4	1
PRINCE GEORGE'S	0	3
SOMERSET	2	6
TALBOT	1	0
WICOMICO	2	7
TOTAL	**17**	**37**

[1] *Streptococcus pyogenes*

BACTERIOLOGY IDENTIFICATIONS
Referrals

GENUS SPECIES	SOURCE	#	JURISDICTION
HAEMOPHILUS INFLUENZAE NON-TYPEABLE			
		4	BALTIMORE CITY
HAEMOPHILUS INFLUENZAE SEROTYPE E			
		1	KENT
HAEMOPHILUS INFLUENZAE SEROTYPE F			
		2	BALTIMORE CITY
NEISSERIA MENINGITIDIS SEROGROUP B			
		1	HARFORD
NEISSERIA MENINGITIDIS SEROGROUP C			
		1	PRINCE GEORGE'S
NEISSERIA MENINGITIDIS SEROGROUP Y			
		1	WICOMICO
TOTAL		**10**	

ISOLATES – MISCELLANEOUS

GENUS SPECIES	SOURCE	#	JURISDICTION
ACINETOBACTER CALCOACETICUS-BAUMANNII COMPLEX			
	TOE	2	FREDERICK
ACINETOBACTER LWOFFII			
	FOOT	1	FREDERICK
BACILLUS SPECIES			
	FOOT	2	FREDERICK
CITROBACTER FREUNDII COMPLEX			
	TOE	1	FREDERICK
CORYNEBACTERIUM SPECIES			
	PENIS	1	CECIL
	TOE	1	FREDERICK
	WOUND	1	PRINCE GEORGES
ENTEROBACTER CLOACAE			
	UTERINE	1	BALTIMORE CITY
ENTEROCOCCUS FAECALIS			
	BLOOD	2	BALTIMORE CITY
ENTEROCOCCUS HIRAE			
	VULVA	1	PRINCE GEORGE'S
ESCHERICHIA COLI			
	BLOOD	1	BALTIMORE CITY

WOUND	1	CARROLL
SPUTUM	1	FREDERICK
GARDNERELLA VAGINALIS		
CERVIX	1	HOWARD
VAGINAL	2	MONTGOMERY
VAGINAL	18	SOMERSET
KLEBSIELLA OXYTOCA		
FOOT	1	FREDERICK
KLEBSIELLA PNEUMONIAE		
CSF	1	BALTIMORE CITY
PROTEUS MIRABILIS		
UTERINE	1	BALTIMORE CITY
TOE	1	FREDERICK
PROTEUS SPECIES		
VAGINAL	3	PRINCE GEORGES
PSEUDOMONAS AERUGINOSA		
TOE	1	FREDERICK
WOUND	1	FREDERICK
SPUTUM	1	WICOMICO
STAPHYLOCOCCUS AUREUS		
HIP	1	BALTIMORE
BLOOD	2	BALTIMORE CITY
KNEE	1	CARROLL
LIP	1	CARROLL
WOUND	1	CARROLL
FOOT	3	FREDERICK
TOE	2	FREDERICK
STAPHYLOCOCCUS EPIDERMIDIS		
BLOOD	2	BALTIMORE CITY
STAPHYLOCOCCUS SPECIES		
LESION	1	CECIL
PENIS	2	CECIL
FOOT	4	FREDERICK
TOE	10	FREDERICK
CERVIX	1	HOWARD
VULVA	1	PRINCE GEORGE'S
STREPTOCOCCUS ALPHA-HEMOLYTIC		
BLOOD	1	BALTIMORE CITY
CSF	1	BALTIMORE CITY
STREPTOCOCCUS BETA-HEMOLYTIC GROUP A		
CSF	1	BALTIMORE CITY
STREPTOCOCCUS BETA-HEMOLYTIC GROUP B		
VAGINAL	2	ANNE ARUNDEL
VAGINAL	1	CECIL
FOOT	2	FREDERICK
VAGINAL	4	HOWARD
VAGINAL	3	MONTGOMERY
VAGINAL	3	PRINCE GEORGE'S
VAGINAL	9	SOMERSET
STREPTOCOCCUS INTERMEDIUS		
BLOOD	1	BALTIMORE CITY
STREPTOCOCCUS NON-HEMOLYTIC		
BLOOD	3	BALTIMORE CITY
STREPTOCOCCUS SALIVARIUS		
BLOOD	2	BALTIMORE CITY
STREPTOCOCCUS UBERIS		
VULVA	1	PRINCE GEORGE'S
TOTAL	**113**	

SEXUALLY TRANSMITTED DISEASES

GENUS SPECIES		
SEX	#	JURISDICTION
NEISSERIA GONORRHEAE		
F	3	ALLEGANY
F	2	ANNE ARUNDEL
M	4	ANNE ARUNDEL
F	1	BALTIMORE
M	2	BALTIMORE
M	1	CALVERT
F	2	CAROLINE
M	2	CAROLINE
M	1	CARROLL
M	1	CHARLES
F	1	DORCHESTER
M	2	DORCHESTER
F	1	FREDERICK
F	1	HARFORD
M	2	HARFORD
F	3	MONTGOMERY
M	5	MONTGOMERY
F	16	PRINCE GEORGE'S
M	35	PRINCE GEORGE'S
M	1	ST. MARY'S
F	2	TALBOT
M	0	TALBOT
F	1	WASHINGTON
F	5	WICOMICO
M	3	WICOMICO
M	5	BALTIMORE CITY
TOTAL	**102**	
SYPHILIS SEROLOGY		
F	1	ALLEGANY
M	1	ALLEGANY
F	7	ANNE ARUNDEL
M	9	ANNE ARUNDEL
F	10	BALTIMORE
M	21	BALTIMORE
U	2	BALTIMORE
M	1	CAROLINE
F	1	CARROLL
F	2	CECIL
M	1	CECIL
F	1	DORCHESTER
M	1	DORCHESTER
M	2	FREDERICK
F	2	HARFORD
M	2	HARFORD
U	1	HARFORD
F	2	HOWARD
M	3	HOWARD
F	4	MONTGOMERY
M	13	MONTGOMERY
U	1	MONTGOMERY
F	17	PRINCE GEORGE'S
M	35	PRINCE GEORGE'S
U	3	PRINCE GEORGE'S
F	1	SOMERSET
M	1	SOMERSET
F	2	TALBOT
U	1	TALBOT
M	2	WASHINGTON
U	1	WASHINGTON
F	4	WICOMICO
M	6	WICOMICO
F	1	WORCESTER
F	30	BALTIMORE CITY
M	43	BALTIMORE CITY
U	3	BALTIMORE CITY
F	1	OUT OF STATE
TOTAL	**239**	
CHLAMYDIA TRACHOMATIS		
F	7	ALLEGANY
M	1	ALLEGANY
F	27	ANNE ARUNDEL
M	16	ANNE ARUNDEL

	U	2	ANNE ARUNDEL
	F	28	BALTIMORE
	M	15	BALTIMORE
	F	1	CALVERT
	M	1	CALVERT
	F	2	CAROLINE
	M	2	CAROLINE
	F	1	CARROLL
	M	2	CARROLL
	F	3	CECIL
	M	2	CECIL
	F	14	CHARLES
	M	6	CHARLES
	F	3	DORCHESTER
	M	3	DORCHESTER
	F	10	FREDERICK
	M	1	FREDERICK
	F	1	GARRETT
	M	2	GARRETT
	F	7	HARFORD
	M	6	HARFORD
	F	9	HOWARD
	M	5	HOWARD
	F	2	KENT
	M	4	KENT
	F	24	MONTGOMERY
	M	12	MONTGOMERY
	F	88	PRINCE GEORGE'S
	M	35	PRINCE GEORGE'S
	F	3	QUEEN ANNE'S
	F	3	ST. MARY'S
	F	4	SOMERSET
	M	1	SOMERSET
	F	5	TALBOT
	M	1	TALBOT
	F	4	WASHINGTON
	M	5	WASHINGTON
	F	17	WICOMICO
	M	15	WICOMICO
	F	2	WORCESTER
	M	1	WORCESTER
	F	4	BALTIMORE CITY
	M	19	BALTIMORE CITY
	F	3	OUT OF STATE
	M	2	OUT OF STATE
TOTAL		**431**	

MYCOBACTERIOLOGY

GENUS SPECIES	SEX	AGE	#	JURISDICTION
MYCOBACTERIUM TUBERCULOSIS				
	F	47	1	ANNE ARUNDEL
	F	82	1	PRINCE GEORGE'S
	M	69	1	BALTIMORE CITY
MYCOBACTERIUM TUBERCULOSIS COMPLEX				
	F	47	1	ANNE ARUNDEL
	F	32	1	BALTIMORE
	M	45	1	BALTIMORE
	M	56	1	BALTIMORE
	M	60	1	BALTIMORE
	M	55	1	HARFORD
	M	59	1	HOWARD
	F	21	1	MONTGOMERY
	F	76	1	MONTGOMERY
	M	35	1	MONTGOMERY
	M	39	1	MONTGOMERY
	M	52	1	MONTGOMERY
	M	80	1	MONTGOMERY
	F	28	1	PRINCE GEORGE'S
	M	26	1	PRINCE GEORGE'S
	M	41	1	PRINCE GEORGE'S
	M	44	2	PRINCE GEORGE'S
	M	49	1	PRINCE GEORGE'S
	M	58	1	PRINCE GEORGE'S
	M	66	1	PRINCE GEORGE'S
	M	21	2	SOMERSET
	M		1	BALTIMORE CITY
	M	28	1	BALTIMORE CITY
	M	50	1	BALTIMORE CITY
	M	65	1	OUT OF STATE
MYCOBACTERIUM ABSCESSUS				
	F	22	1	CARROLL
	F	25	1	MONTGOMERY
	M	61	1	OUT OF STATE
MYCOBACTERIUM AVIUM COMPLEX				
	F	68	1	ANNE ARUNDEL
	F	70	1	ANNE ARUNDEL
	F	31	1	BALTIMORE
	F	49	1	BALTIMORE
	F	89	1	BALTIMORE
	M	81	1	CARROLL
	F	47	1	FREDERICK
	F	68	1	FREDERICK
	M	67	1	FREDERICK
	U	50	1	HARFORD
	F	51	1	HOWARD
	M	77	1	HOWARD
	F	69	1	MONTGOMERY
	F	51	1	PRINCE GEORGE'S
	M	41	2	PRINCE GEORGE'S
	M	75	1	PRINCE GEORGE'S
	F		1	QUEEN ANNE'S
	M	49	1	QUEEN ANNE'S
	M	62	1	WASHINGTON
	F	77	1	WICOMICO
	F	87	1	WICOMICO
	F	92	1	WICOMICO
	M	65	1	WICOMICO
	M	66	1	WICOMICO
	M	72	1	WICOMICO
	F	77	1	WORCESTER
	F	13	1	BALTIMORE CITY
	F	52	1	BALTIMORE CITY
	M	30	1	BALTIMORE CITY
	M	39	1	BALTIMORE CITY
	M	41	1	BALTIMORE CITY
	M	42	1	BALTIMORE CITY
	M	44	1	BALTIMORE CITY
	M	56	1	BALTIMORE CITY
	M	57	1	BALTIMORE CITY
	M	79	1	BALTIMORE CITY
	F	66	1	OUT OF STATE
MYCOBACTERIUM FORTUITUM				
	M	60	1	BALTIMORE
	F	66	1	HARFORD
	F	36	1	MONTGOMERY
MYCOBACTERIUM FORTUITUM COMPLEX				
	F	27	1	PRINCE GEORGE'S
	M	51	1	BALTIMORE CITY
	M	61	1	OUT OF STATE
MYCOBACTERIUM GORDONAE				
	M	42	1	ANNE ARUNDEL
	M	39	1	MONTGOMERY
	F	52	1	BALTIMORE CITY
	M	76	1	BALTIMORE CITY
MYCOBACTERIUM KANSASII				
	M	30	1	HARFORD
MYCOBACTERIUM MARINUM				
	M	71	1	ANNE ARUNDEL
TOTAL			**83**	

MYCOBACTERIUM SUSCEPTIBILITY RESULTS

DURING THE MONTH OF APRIL, 2007,
SUSCEPTIBILITY RESULTS ON 21 ISOLATES OF
M. TUBERCULOSIS COMPLEX * WERE IDENTIFIED.

TOTAL: 1 DRUG RESISTANT STRAIN FOUND

#	COUNTY	DRUG
1	PRINCE GEORGE'S	® to STREPTOMYCIN

® RESISTANT

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

MYCOLOGY

	SEX	AGE	#	JURISDICTION
GENUS SPECIES				
ACID FAST BACILLI				
	M	61	1	OUT OF STATE
ASPERGILLUS FLAVUS				
	M		1	ANNE ARUNDEL
	M	64	1	WICOMICO
ASPERGILLUS FUMIGATUS				
	F	79	1	ALLEGANY
	F		1	ANNE ARUNDEL
	U		1	ANNE ARUNDEL
	F	70	1	PRINCE GEORGE'S
	M	43	1	PRINCE GEORGE'S
	M	75	1	PRINCE GEORGE'S
ASPERGILLUS NIGER				
	F		1	ANNE ARUNDEL
ASPERGILLUS OCHRACEUS				
	F	86	1	PRINCE GEORGE'S
ASPERGILLUS SP (NOT A.FUMIGATUS)				
	F		1	CECIL
CANDIDA ALBICANS				
	F	16	1	ANNE ARUNDEL
	M	63	1	ANNE ARUNDEL
	F	18	1	BALTIMORE
	F	77	1	CALVERT
	F	82	1	CALVERT
	F	30	1	CECIL
	F	35	1	CECIL
	F	59	1	CECIL
	F	84	1	CECIL
	M	26	1	CECIL
	M	75	1	CECIL
	F	21	1	DORCHESTER
	M	83	1	FREDERICK
	F	25	1	HARFORD
	F	59	1	HOWARD
	F	21	1	MONTGOMERY
	F	26	1	MONTGOMERY
	F	27	1	MONTGOMERY
	F	38	1	MONTGOMERY
	F	39	1	MONTGOMERY
	F	50	1	MONTGOMERY
	F	71	1	MONTGOMERY
	F	73	1	MONTGOMERY
	F	82	1	MONTGOMERY
	M	32	1	MONTGOMERY
	M	72	1	MONTGOMERY
	F	18	3	PRINCE GEORGE'S
	F	20	2	PRINCE GEORGE'S
	F	24	1	PRINCE GEORGE'S
	F	25	1	PRINCE GEORGE'S
	F	32	1	PRINCE GEORGE'S
	F	49	1	PRINCE GEORGE'S
	F	52	1	PRINCE GEORGE'S
	F	63	1	PRINCE GEORGE'S
	F	64	1	PRINCE GEORGE'S
	F	67	1	PRINCE GEORGE'S
	F	72	1	PRINCE GEORGE'S
	F	75	2	PRINCE GEORGE'S
	F	86	1	PRINCE GEORGE'S
	M	26	1	PRINCE GEORGE'S
	M	41	1	PRINCE GEORGE'S
	M	55	1	PRINCE GEORGE'S
	M	65	2	PRINCE GEORGE'S
	M	67	1	PRINCE GEORGE'S
	M	75	1	PRINCE GEORGE'S
	M	82	1	PRINCE GEORGE'S
	F	18	1	SOMERSET
	F	19	2	SOMERSET
	F	20	4	SOMERSET
	F	22	1	SOMERSET
	F	23	1	SOMERSET
	M	20	1	SOMERSET
	M	23	1	SOMERSET
	M	60	1	SOMERSET
	F		1	BALTIMORE CITY
	F	21	1	BALTIMORE CITY
	M	45	1	BALTIMORE CITY
	M	55	1	BALTIMORE CITY
	M	60	1	BALTIMORE CITY
	M	76	1	BALTIMORE CITY
	U	77	1	BALTIMORE CITY
	F	20	1	OUT OF STATE
CANDIDA GLABRATA				
	F	89	1	BALTIMORE
	M	72	1	BALTIMORE
	F	73	1	MONTGOMERY
	F	25	1	PRINCE GEORGE'S
	M	82	1	PRINCE GEORGE'S
	M	84	1	PRINCE GEORGE'S
	M	55	1	BALTIMORE CITY
	M	76	1	BALTIMORE CITY
CANDIDA PARAPSILOSIS				
	M	74	1	BALTIMORE
	M	82	1	MONTGOMERY
	F	19	1	SOMERSET
	M	70	1	OUT OF STATE
CANDIDA TROPICALIS				
	M	86	1	FREDERICK
	M	91	1	PRINCE GEORGE'S
	M	45	1	BALTIMORE CITY
CRYPTOCOCCUS NEOFORMANS				
	M	33	1	OUT OF STATE
HISTOPLASMA CAPSULATUM				
	M	28	1	ST. MARY'S
MICROSPORUM CANIS				
	F	5	1	ALLEGANY
NOCARDIA ASTEROIDES				
	M	26	1	MONTGOMERY
PAECILOMYCES VARIOTTII				
	M	34	1	ANNE ARUNDEL
PENICILLIUM SP				
	M	49	1	ANNE ARUNDEL
	M	72	1	ANNE ARUNDEL
	U		2	ANNE ARUNDEL
	F	65	1	BALTIMORE
	M	73	1	TALBOT
	U	102	1	TALBOT

RHINOCLADIELLA SP				
	F	13	1	BALTIMORE CITY
SACCHAROMYCES CEREVISIAE				
	M	82	1	MONTGOMERY
	F	49	1	PRINCE GEORGE'S
	M	91	1	PRINCE GEORGE'S
STREPTOMYCES SP				
	M	76	1	SOMERSET
TRICHODERMA SP				
	F	25	1	PRINCE GEORGE'S
TRICHOPHYTON RUBRUM				
	M	74	1	BALTIMORE
	F	30	1	CARROLL
	F	83	1	TALBOT
	M	25	1	TALBOT
	M	47	1	BALTIMORE CITY
TRICHOPHYTON SP				
	M	10	1	CALVERT
TRICHOPHYTON TONSURANS				
	M	7	1	BALTIMORE
	M	58	1	BALTIMORE
	U	6	1	BALTIMORE
	M	3	1	CALVERT
	F	4	1	ST. MARY'S
WANGIELLA DERMATITIDIS				
	U		1	ANNE ARUNDEL
TOTAL			**128**	

PARASITOLOGY

GENUS SPECIES	#	JURISDICTION
PROTOZOA		
BLASTOCYSTIS HOMINIS	1	BALTIMORE CITY
	2	HOWARD
	5	MONTGOMERY
CHILOMASTIX MESNILI	1	MONTGOMERY
ENDOLIMAX NANA	2	FREDERICK
	1	HOWARD
	1	WASHINGTON
ENTAMOEBA COLI	2	HOWARD
GIARDIA LAMBLIA	1	CECIL
	1	WASHINGTON
IODAMOEBA BUTSCHLII	1	MONTGOMERY
TOTAL	**18**	
NEMATODES		
ENTEROBIUS VERMICULARIS		
	2	ST. MARY'S
TOTAL	**2**	

TICK IDENTIFICATION

NONE

WATER MICROBIOLOGY

	# TESTED	**# NON-COMPLIANT**
COMMUNITY	2	0
NON-COMMUNITY	428	42
TOTAL	**430**	**42**

FOOD SAFETY

FOOD AND SHELLFISH MICROBIOLOGY

	# OF SAMPLES	**NOTABLE PATHOGENS**
FOOD	0	0
		# STANDARDS EXCEEDED *
CRABMEAT	0	0
		# STANDARDS EXCEEDED **
SHELLFISH	0	0
SHELLFISH GROWING WATERS	138	
TOTAL	**138**	**0**

STANDARDS

*CRABMEAT-FRESH
ESCHERICHIA COLI = LESS THAN 36 MPN/100 GRAM
STANDARD PLATE COUNT = LESS THAN 100,000 PER GRAM

** SHELLFISH
FECAL COLIFORMS = LESS THAN 230 MPN/100 GRAM
STANDARD PLATE COUNT = LESS THAN 500,000 PER GRAM

VIRUS ISOLATION

ISOLATE	SEX	AGE	#	JURISDICTION
INFLUENZA A				
	M	34	1	DORCHESTER
	M	74	1	MONTGOMERY
	F	19	2	BALTIMORE CITY
	F	20	2	BALTIMORE CITY
	M	19	1	BALTIMORE CITY
SUBTOTAL			**7**	
INFLUENZA B				
	M	20	1	PRINCE GEORGE'S
	F	19	1	OUT OF STATE
SUBTOTAL			**2**	
HERPES SIMPLEX UNTYPABLE				
	F	20	1	BALTIMORE
	F	19	1	BALTIMORE CITY
	M	19	1	BALTIMORE CITY
	U	36	1	BALTIMORE CITY
SUBTOTAL			**4**	
HERPES SIMPLEX I				
	F	18	1	ALLEGANY
	F	21	1	ALLEGANY
	F	24	1	ALLEGANY
	M	20	1	ALLEGANY
	F	18	1	ANNE ARUNDEL
	F	32	1	ANNE ARUNDEL
	M	34	1	ANNE ARUNDEL
	F	17	1	BALTIMORE
	F	18	1	BALTIMORE
	F	20	1	BALTIMORE
	F	27	1	BALTIMORE
	F	31	1	BALTIMORE
	F	21	1	CHARLES
	F	19	1	PRINCE GEORGE'S

F	21	1	PRINCE GEORGE'S
F	22	1	PRINCE GEORGE'S
M	18	1	PRINCE GEORGE'S
U	21	1	PRINCE GEORGE'S
F	21	1	WICOMICO
F	18	1	BALTIMORE CITY
F	21	1	BALTIMORE CITY
M	19	1	BALTIMORE CITY
U	29	1	BALTIMORE CITY
U	42	1	BALTIMORE CITY
SUBTOTAL		**24**	
HERPES SIMPLEX II			
F	19	1	ANNE ARUNDEL
F	22	1	ANNE ARUNDEL
F	38	1	ANNE ARUNDEL
M	28	1	ANNE ARUNDEL
F	20	1	BALTIMORE
F	22	1	BALTIMORE
F	21	1	CHARLES
M	44	1	CHARLES
F	19	1	FREDERICK
F	30	1	FREDERICK
F	43	1	FREDERICK
M	24	1	FREDERICK
F	35	1	HOWARD
F	15	1	PRINCE GEORGE'S
F	18	1	PRINCE GEORGE'S
F	19	1	PRINCE GEORGE'S
F	21	1	PRINCE GEORGE'S
F	22	2	PRINCE GEORGE'S
F	24	1	PRINCE GEORGE'S
F	26	1	PRINCE GEORGE'S
M	19	1	PRINCE GEORGE'S
M	23	1	PRINCE GEORGE'S
M	24	1	PRINCE GEORGE'S
M	25	2	PRINCE GEORGE'S
M	26	1	PRINCE GEORGE'S
M	27	1	PRINCE GEORGE'S
F	23	1	WASHINGTON
F	46	1	WICOMICO
F		1	BALTIMORE CITY
F	15	1	BALTIMORE CITY
F	16	2	BALTIMORE CITY
F	18	2	BALTIMORE CITY
F	19	1	BALTIMORE CITY
F	20	2	BALTIMORE CITY
F	21	1	BALTIMORE CITY
F	22	2	BALTIMORE CITY
F	26	1	BALTIMORE CITY
F	34	1	BALTIMORE CITY
F	35	1	BALTIMORE CITY
F	52	1	BALTIMORE CITY
M		1	BALTIMORE CITY
M	22	1	BALTIMORE CITY
M	23	1	BALTIMORE CITY
M	25	1	BALTIMORE CITY
M	28	1	BALTIMORE CITY
M	30	1	BALTIMORE CITY
M	37	1	BALTIMORE CITY
M	52	1	BALTIMORE CITY
U	19	1	BALTIMORE CITY
U	21	1	BALTIMORE CITY
U	22	1	BALTIMORE CITY
U	34	1	BALTIMORE CITY
U	51	1	BALTIMORE CITY
U	61	1	BALTIMORE CITY
SUBTOTAL		**60**	
TOTAL		**97**	

VIRAL HEPATITIS

ORGANISM	# OF SPECIMENS	POSITIVES	JURISDICTION
HEPATITIS A			
	1	0	ALLEGANY
	2	0	ANNE ARUNDEL
	4	0	BALTIMORE
	8	0	CARROLL
	2	0	HOWARD
	1	0	SOMERSET
	2	0	BALTIMORE CITY
SUBTOTAL	**20**	**0**	
HEPATITIS B			
	19	0	ALLEGANY
	99	2	ANNE ARUNDEL
	63	1	BALTIMORE
	4	0	CALVERT
	9	0	CAROLINE
	59	1	CARROLL
	141	3	CECIL
	3	0	CHARLES
	1	0	DORCHESTER
	104	1	FREDERICK
	17	0	GARRETT
	81	1	HARFORD
	56	1	HOWARD
	4	0	KENT
	275	3	MONTGOMERY
	361	3	PRINCE GEORGE'S
	4	0	QUEEN ANNE'S
	2	0	ST. MARY'S
	12	0	SOMERSET
	13	0	TALBOT
	29	1	WASHINGTON
	121	0	WICOMICO
	6	0	WORCESTER
	337	8	BALTIMORE CITY
	13	0	OUT OF STATE
SUBTOTAL	**1,833**	**25**	
HEPATITIS C			
	18	5	ALLEGANY
	92	19	ANNE ARUNDEL
	82	16	BALTIMORE
	3	0	CALVERT
	9	0	CAROLINE
	59	13	CARROLL
	56	4	CECIL
	4	0	CHARLES
	107	5	FREDERICK
	17	0	GARRETT
	32	1	HARFORD
	19	2	HOWARD
	3	2	KENT
	53	5	MONTGOMERY
	237	4	PRINCE GEORGE'S
	5	0	QUEEN ANNE'S
	1	0	ST. MARY'S
	3	0	SOMERSET
	13	4	TALBOT
	22	7	WASHINGTON
	16	1	WICOMICO
	4	0	WORCESTER
	358	93	BALTIMORE CITY
	11	0	OUT OF STATE
SUBTOTAL	**1,224**	**181**	
TOTAL	**3,077**	**206**	

RABIES

SOURCE	#	JURISDICTION
COW	1	FREDERICK
DOG	1	MONTGOMERY
FOX	1	FREDERICK
	1	PRINCE GEORGE'S
	1	UNKNOWN
RACCOON	2	ALLEGANY
	1	BALTIMORE
	3	CARROLL
	4	CHARLES
	1	FREDERICK
	3	HARFORD
	5	PRINCE GEORGE'S
	1	QUEEN ANNE'S
	1	ST. MARY'S
	1	TALBOT
	1	BALTIMORE CITY
	1	UNKNOWN
SKUNK	2	CHARLES
	2	FREDERICK
	1	WASHINGTON
TOTAL POSITIVES	**34**	
TOTAL SPECIMENS	**301**	

CHLAMYDOPHILIA (CHLAMYDIA) PSITTACI

REPORTED QUARTERLY
NO REPORT THIS MONTH

CD4 FLOW CYTOMETRY WORKLOAD

REPORTED QUARTERLY
NO REPORT THIS MONTH

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 applies 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.

NEWBORN & CHILDHOOD SCREENING

STATISTICS FOR APRIL 2007

PRESUMPTIVE POSITIVES

DISORDERS	#
PHENYLKETONURIA	4
MAPLE SYRUP URINE DISEASE	3
HOMOCYSTINURIA	7
TYROSINEMIA	2
ARGININEMIA	1
CITRULLINEMIA	1
GALACTOSEMIA	2
BIOTINIDASE DEFICIENCY	2
HYPOTHYROIDISM	66
HEMOGLOBIN - DISEASE	18
HEMOGLOBIN - BENIGN	251
CONGENITAL ADRENAL HYPERPLASIA (CAH)	49
CYSTIC FIBROSIS	2
FATTY ACID OXIDATIONS	13
ORGANIC ACIDEMIAS	35
ACYLCARNITINE - BORDERLINE	4
ACYLCARNITINE - OTHERS	25

MONTHLY TOTALS

# OF SPECIMENS SCREENED	10,540
NUMBER OF TESTS	640,405
% OF UNSATISFACTORY SPECIMENS	5.2

YEAR-TO-DATE CONFIRMED CASES

CONDITIONS	# CONFIRMED
MCAD	2
3MCC	0
SCAD	0
VLCAD	1
GA-I	1
MAPLE SYRUP URINE DISEASE	1
PKU - CLINICALLY SIGNIFICANT VARIANT	1
VARIATANT HYPERPHENYLALANINEMIA - NOT CLINICALLY SIGNIFICANT	2
GALACTOSEMIA - CLASSICAL GALT DEFICIENCY	0
GALACTOSEMIA - VARIANT	0
BIOTINIDASE DEFICIENCY	0
GALACTOSE EPIMERASE DEFICIENCY	0
PARTIAL BIOTINIDASE DEFICIENCY	2
CAH - CLASSICAL SALT WASTING	1
CAH - NON-CLASSICAL	0
HYPOTHYROIDISM - PRIMARY	4
OTHER HYPOTHYROIDISM	3
SICKLE CELL DISEASE - SS	8
SICKLE CELL DISEASE - SC	2
SICKLE CELL DISEASE - S BETA THALASSEMIA	1
CYSTIC FIBROSIS	1

HIV ANTIBODY SCREENING – BLOOD (APRIL 2007)

SPECIMEN SOURCES	TOTAL	POSITIVE EIA	%	POSITIVE WB	%
HEALTH DEPARTMENTS AND CLINICS	2,346	116	4.94%	102	87.93%
HOSPITALS	119	9	7.56%	8	88.89%
DETENTION CENTERS	589	12	2.04%	7	58.33%
PRIVATE PHYSICIANS	12	0	0.00%	0	0.00%
STUDENT HEALTH CLINICS	308	1	0.32%	1	100.00%
EMPLOYEE HEALTH CLINICS	2	0	0.00%	0	0.00%
AUTOPSIES	294	12	4.08%	8	66.67%
ORGAN/TISSUE DONORS	45	0	0.00%	0	0.00%
TOTAL	**3,715**	**150**	**4.04%**	**126**	**84.00%**

ENVIRONMENTAL CHEMISTRY

SAMPLES	# NON-COMPLIANT	# TESTED
ASBESTOS		
AIR	0	0
BULK	6	10
AIR QUALITY		
$PM_{2.5}$	0	528
PM_{10}	0	0
RADIATION		
AIR/CHARCOAL FILTERS	0	58
MILK	0	4
WIPES	0	39
RAW WATER	0	13
VEGETATION	0	0
OTHER	0	2
DRINKING WATER		
METALS		
COMMUNITY	12	18
NON-COMMUNITY	4	11
PRIVATE WELLS	83	275
PESTICIDES & PCBs		
COMMUNITY	0	80
NON-COMMUNITY	0	32
PRIVATE WELLS	0	0
VOLATILE ORGANIC COMPOUNDS		
COMMUNITY	3	273
NON-COMMUNITY	0	41
PRIVATE WELLS	0	179
RADIATION		
COMMUNITY	23	68
NON-COMMUNITY	0	0
PRIVATE WELLS	0	0
INORGANICS		
COMMUNITY	0	5
NON-COMMUNITY	7	77
PRIVATE WELLS	12	221
FOOD CHEMISTRY		
SUSPECTED TAMPERING	0	0
MICROSCOPIC FILTH	0	0
LABELING	0	0
SURVEILLANCE	0	4
CHEMICAL CONTAMINATION	0	0
TOTAL	**150**	**1,938**

LEAD ENVIRONMENTAL

TEST	#	ELEV	BRL	UNSAT
TOTAL PAINT	**4**	**2**	**0**	**0**
TOTAL SOIL	**4**	**0**	**4**	**0**
DUST				
FLOOR	248	37	193	0
SILL	339	6	258	1
WELL	176	23	98	0
OTHER	11	2	8	0
TOTAL DUST	**774**	**68**	**557**	**1**
GRAND TOTAL	**782**	**70**	**561**	**1**

INTERPRETATION OF RESULTS:
# = Number of Samples Received
ELEV= Elevated
BRL= Below Reporting Limit
UNSAT = Unsatisfactory
PAINT Positive in excess of 0.5%
SOIL Action level 400 - 5,000 ppm
DUST Clearance limits: Floor/Other 40 ug/sq ft
Window Sill 250 ug/sq ft
Window Well 400 ug/sq ft

LEAD SCREENING - BLOOD LEAD

CLASS		RANGE ug/dl	TESTS # of
MARYLAND			
	I	<10	117
	IIA	10-14	7
	IIB	15-19	7
	III	20-44	3
	IV	45-69	1
	V	>69	0
TOTAL			**135**
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**

VIRAL LOAD SPECIMENS (APRIL 2007)

HIV–1 RNA Copies/ml	$<10^3$	$10^3 – 10^4$	$10^4 – 10^5$	$>10^5$	TOTALS
ALLEGANY CO HD	9	0	1	0	10
BALTIMORE CO HD	4	0	0	0	4
CHEVERLY HEALTH CTR-HAP	51	11	13	8	83
DYER/CLINTON HLTH CTR	12	1	1	0	14
FREDERICK CO HD DHA	0	0	1	0	1
MONTGOMERY CO HD DEU/HIV CLINIC	91	16	18	8	133
SOMERSET CO HD	0	1	0	0	1
SPRINGFIELD HOSP CTR	1	0	0	0	1
WICOMICO CO HD	1	0	0	0	1
TOTALS	**169**	**29**	**34**	**16**	**248**
DEPARTMENT OF CORRECTIONS	106	20	30	12	168
GRAND TOTALS	**275**	**49**	**64**	**28**	**416**

MAILING LABEL

Maryland Department of Health & Mental Hygiene
J. Mehsen Joseph Public Health Laboratory
201 West Preston Street
Baltimore Maryland 21201