CRITICAL LINK

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A Publication of the Maryland Department of Health and Mental Hygiene

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The Laboratories Administration—Maryland's State Public Health Laboratory

Hexavalent Chromium Update at the Maryland State Public Health Laboratory

Chromium-6 goes from industrial tool to deadly carcinogen

Hexavalent chromium, also known as chromium-6 (Cr VI), is a chemical compound that contain the element chromium in the +6 oxidation state. It exists in the environment primarily in two valence forms, trivalent chromium (Cr III) which occurs naturally and hexavalent chromium (Cr VI) that is commonly produced in industrial processes. Both exhibit vastly different effects on human health.

Trivalent chromium is a mineral in multi-vitamins and a nutrient essential for sugar and lipid metabolism. On the other hand, the Environmental Working Group (EWG) and the National Toxicology Program report that hexavalent chromium is a "probable carcinogen." According to the EPA, hexavalent chromium is a known human carcinogen via inhalation exposure. Studies have shown that inhaled chromium-6 caused lung tumors in animals and resulted in an increased risk of lung cancer in humans. Also, studies have linked chromium-6 exposure to stomach and gastrointestinal cancers in humans and animals. It has also been found to cause damage to the gastrointestinal tract, kidneys, lymph nodes, and liver in animals.

Fetuses, infants, and children have higher sensitivity to carcinogenic chemicals. According to the National Academy of Sciences, children's developing organ systems are more vulnerable than those of adults to damage from toxic chemical exposures.

Industrial uses of hexavalent chromium compounds were widespread in some industries and manufacturing until the 1990s when it was banned in some applications. It is a common component in producing stainless steel and super-alloys; pigments in dyes, paints, inks, and plastics; anticorrosive agents in paints, primers, and other surface coatings; industrial cooling towers, and chromic acid electroplated onto metal parts to provide a decorative or protective coating. Chromium-6 gets into drinking water when it is discharged from steel and pulp mills, metal-plating, welding, and leather-tanning facilities. The chemical also can leach and pollute groundwater through erosion of soils and rock.

The EWG recently released results of a study that analyzed drinking water in 35 cities across the U.S., and detected hexavalent chromium in 31 out of 35 tap water samples. Samples were taken from these cities because local water utilities had previously detected potentially significant levels of hexavalent chromium. The report showed that samples tested from 25 cities including Bethesda, MD and Washington, DC had levels of hexavalent chromium higher than the "safe limit" proposed in California.

(Continued on page 2)

Newborn Screening Chief Consults in Tanzania

Sickle cell disease endemic in most sub-Saharan African countries

This past December, along with Jelili Ojodu, MPH, the U.S. Association of Public Health Laboratories (APHL) Newborn Screening and Genetics Director, I spent several days in Tanzania at the request of APHL's Global Health Program.

The trip to Tanzania was a part of an APHL initiative to collaborate with developing countries building their laboratory capacities in newborn screening (NBS). Sickle cell testing is serving as a model. Currently, Tanzania does not offer NBS, and sickle cell disease (SCD) is endemic in the country (and in most sub-Saharan African countries). Hence the testing for hemoglobinopathies is essential in developing a NBS test menu. Tanzania has one of the highest number of births of SCD individuals in the world, estimated to be between 8,000 and 11,000 per year.

On our first day in Tanzania, we met with Dr. Julie Makani, (a Wellcome Trust Training

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January 2011
Volume 15, Number 1

CRITICAL LINK

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The Critical Link is published monthly
by the staff of the
Laboratories Administration
Department of Health & Mental Hygiene
201 W. Preston Street
Baltimore, Maryland 21201
(Phone 410-767-6909)

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Hexavalent Chromium Update at the Maryland State Public Health Laboratory

The five cities with the highest levels of hexavalent chromium were Norman, OK; Honolulu, HI; Riverside, CA; Madison, WI; and San Jose, CA.

Currently, there is no enforceable federal standard requiring utilities to test for hexavalent chromium in drinking water. However, the EPA has a legally enforceable standard for "total chromium" at 100 parts per billion (ppb) that require utilities to test water even though the data does not show the precise contribution from chromium-6. A total chromium test is a less specific measurement that includes trivalent and hexavalent chromium.

California has a legal limit of 50 ppb for total chromium in drinking water. The California EPA has *proposed* a "public health goal" of 0.06 ppb as a standard for maximum concentration of hexavalent chromium in tap water to reduce the risk of cancer. California is the only state that requires water utilities to test for hexavalent chromium.

The Laboratories Administration's Division of Environmental Chemistry analyzes water samples. Water samples are usually submitted by the Maryland Department of the Environment. The analytical method used is sensitive, accurate, precise, and has demonstrated a wide linear dynamic range. It has the capacity for rapid throughput in addressing environmental public health needs. The target compound can be measured at very low concentration down to one to two parts per billion ranges.

Program Officers or Sanitarians who suspect hexavalent chromium contamination of a site or matrix should contact the Trace Metals Laboratory at 410-767-6944 or 410-767-4388 for guidance on sample collection, preservation, storage, and transport to the laboratory.

This article is prepared by
Taiyin Wei and Deborah Miller-Tuck
of the Division of Environmental Chemistry

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(Continued from page 1)

Newborn Screening Chief Consults in Tanzania

Fellow at the Muhimbili University of Health and Allied Sciences) and her team. They are currently involved in a study that will provide a better understanding of the molecular, genetic, and environmental mechanisms determining the severity and course of SCD in Africa.
Dr. Makani's laboratory has been using electrophoresis, HPLC, and molecular testing in their study. The day included a tour of the laboratory facilities at the Muhimbili University of Health and Allied Sciences. The laboratory was well organized and staff had a good understanding of QA/QC.

On the second day, we were surprised to be ushered into a lecture hall filled with medical students, postgraduate students, and the Department of Pediatrics of the Muhimbili University of Health and Allied Sciences staff. They all came to hear us discuss population newborn screening with special emphasis on SCD. There was a lot of enthusiasm regarding the prospect of NBS in Tanzania.

Later that morning,we met with a group of stakeholders with vested interests in the newborn screening initiative. These stakeholders included representatives from Muhimbili Hospital, Muhimbili University of Health and Allied Sciences, Family and Child Health, Ministry of Health, CDC Tanzania, and the APHL. NBS implementation was discussed at length and the formation of an advisory committee was strongly suggested to collectively move the initiative forward. Participants determined it would be possible to start the country's newborn screening initiative in Dar es Salaam, Tanzania for SCD in the near future. The meeting concluded with an understanding that the APHL will follow up with Dr. Makani and continue working to support their training needs. APHL will also work with the Muhimbili University of Health and Allied Sciences and the Ministry of Health in Tanzania to provide the start up testing materials and platforms for sickle cell disease in newborns.

In the afternoon, we visited the Ministry of Health laboratories. They were well equipped, including a state-of-the-art training laboratory. It is conceivable that continuing collaboration will lead to implementation of NBS in 6-8 months.

For me, this was also an opportunity to return to Tanzania, the country of my birth, to visit with friends and relatives, and to again speak Swahili, the language I learned growing up in Tanzania. I especially enjoyed being able to give something back to Tanzania after emigrating many years ago, and look forward to the possibility of returning to provide additional NBS training sometime in the future.

This article written by Dr. Fizza Majid.

Laboratory Statistics

Reported by the
Laboratories Administration
covering results from the month of
November 2010

ENTERIC BACTERIOLOGY

GENUS SEROVAR

SEX	AGE	#	JURISDICTION
CAMPYLOBACTER			
M	0	1	OUT OF STATE
CAMPYLOBACTER JEJUNI			
U	82	1	BALTIMORE
F	71	1	BALTIMORE
M	58	1	BALTIMORE
M	41	1	BALTIMORE
M	3	1	BALTIMORE
M	22	1	CHARLES
F	19	1	OUT OF STATE
M	48	1	OUT OF STATE
ESCHERICHIA COLI, SEROTYPE O103:H2			
M	41	1	ANNE ARUNDEL
M	35	1	BALTIMORE CITY
F	13	1	OUT OF STATE
F	2	1	OUT OF STATE
ESCHERICHIA COLI, SEROTYPE O111			
F	28	1	PRINCE GEORGE'S
ESCHERICHIA COLI, SEROTYPE O111:H8			
M	2	1	OUT OF STATE
ESCHERICHIA COLI, SEROTYPE O157:H7			
U	9	1	ANNE ARUNDEL
F	9	1	BALTIMORE CITY
F	16	1	CARROLL
U	13	1	CARROLL
F	22	1	MONTGOMERY
M	22	1	MONTGOMERY
F	1	2	OUT OF STATE
ESCHERICHIA COLI, SEROTYPE O157:NON-MOTILE			
M	29	1	BALTIMORE
ESCHERICHIA COLI, SEROTYPE O26:H11			
M	1	1	OUT OF STATE
ESCHERICHIA COLI, SEROTYPE O45:H2			
F	24	1	ANNE ARUNDEL
F	16	1	OUT OF STATE
F	26	1	OUT OF STATE
F	26	1	OUT OF STATE
M	11	1	OUT OF STATE
SALMONELLA			
F	61	1	ANNE ARUNDEL
M	1	1	ANNE ARUNDEL
F	31	1	BALTIMORE
M	10	1	BALTIMORE
F	18	1	BALTIMORE CITY
F	22	1	CALVERT
F	22	1	CALVERT
F	1	1	CARROLL
F	67	1	MONTGOMERY
M	0	2	MONTGOMERY
U	1	1	OUT OF STATE
F	46	1	OUT OF STATE
F	45	1	OUT OF STATE
F	31	1	OUT OF STATE
F	1	1	OUT OF STATE
F	0	1	OUT OF STATE
M	49	1	OUT OF STATE
M	3	1	OUT OF STATE
M	2	2	OUT OF STATE
M	0	1	OUT OF STATE
F	77	1	PRINCE GEORGE'S
F	0	1	WASHINGTON
F	91	1	WASHINGTON
SALMONELLA SER. 4,12:I:-			
M	68	1	PRINCE GEORGE'S
SALMONELLA SER. 4,5,12:I:-			
U	1	1	BALTIMORE CITY
F	2	1	BALTIMORE CITY
F	31	1	OUT OF STATE
F	10	1	OUT OF STATE
M	36	1	OUT OF STATE
M	3	1	OUT OF STATE
M	1	2	OUT OF STATE
SALMONELLA SER. AGONA			
M	18	1	BALTIMORE
SALMONELLA SER. DERBY			
M	22	1	WASHINGTON
SALMONELLA SER. ENTERITIDIS			
U	0	1	ANNE ARUNDEL
F	0	1	ANNE ARUNDEL
U	67	1	BALTIMORE
F	85	2	BALTIMORE
F	38	1	BALTIMORE
U	0	3	BALTIMORE CITY
U	33	2	BALTIMORE CITY
U	5	1	BALTIMORE CITY
F	0	1	BALTIMORE CITY
F	73	1	BALTIMORE CITY
F	57	1	BALTIMORE CITY
F	52	1	BALTIMORE CITY
F	48	1	BALTIMORE CITY
F	38	1	BALTIMORE CITY
F	18	1	BALTIMORE CITY
M	0	2	BALTIMORE CITY
M	78	1	BALTIMORE CITY
M	60	1	BALTIMORE CITY
M	58	1	BALTIMORE CITY
M	57	1	BALTIMORE CITY
M	48	2	BALTIMORE CITY
M	43	1	BALTIMORE CITY
M	33	1	BALTIMORE CITY
M	2	1	BALTIMORE CITY
M	1	4	BALTIMORE CITY
M	0	1	BALTIMORE CITY
M	81	1	MONTGOMERY
U	4	1	OUT OF STATE
F	24	1	OUT OF STATE
F	23	1	OUT OF STATE
F	9	1	OUT OF STATE
F	6	1	OUT OF STATE
F	3	1	OUT OF STATE
M	44	1	OUT OF STATE
M	43	1	OUT OF STATE
M	39	1	OUT OF STATE
M	7	1	OUT OF STATE
M	3	1	OUT OF STATE
M	52	2	WASHINGTON
M	6	1	WASHINGTON
F	55	1	WICOMICO
F	16	1	WICOMICO
SALMONELLA SER. HEIDELBERG			
F	0	1	UNKNOWN
SALMONELLA SER. INFANTIS			
M	40	1	BALTIMORE
M	23	1	BALTIMORE CITY
F	72	1	MONTGOMERY
SALMONELLA SER. ISRAEL			
F	0	1	BALTIMORE CITY
F	19	1	BALTIMORE CITY
SALMONELLA SER. JAVIANA			
F	4	1	ANNE ARUNDEL
M	15	1	BALTIMORE
F	15	1	BALTIMORE CITY
F	2	1	MONTGOMERY
M	31	1	MONTGOMERY
M	5	1	MONTGOMERY
U	4	1	OUT OF STATE
F	32	1	OUT OF STATE
F	22	1	OUT OF STATE
F	3	1	OUT OF STATE
F	15	1	WICOMICO
M	50	1	WICOMICO
SALMONELLA SER. LITCHFIELD			
F	26	1	BALTIMORE CITY
M	20	1	BALTIMORE CITY
SALMONELLA SER. MONTEVIDEO			
M	0	1	BALTIMORE
SALMONELLA SER. MUENSTER			
M	76	1	HARFORD
F	51	1	OUT OF STATE
SALMONELLA SER. NESSZIONA			
M	42	1	BALTIMORE
F	57	1	BALTIMORE
F	6	1	BALTIMORE
F	4	3	BALTIMORE
F	4	1	BALTIMORE
F	0	1	BALTIMORE
M	15	1	BALTIMORE
M	10	1	BALTIMORE
SALMONELLA SER. NEWPORT			
M	4	1	MONTGOMERY
F	86	2	OUT OF STATE
F	10	1	OUT OF STATE
M	31	2	OUT OF STATE
F	2	1	WICOMICO
M	49	1	WICOMICO
M	3	1	WICOMICO

SALMONELLA SER. ORANIENBURG

F	86	1	OUT OF STATE

SALMONELLA SER. PARATYPHI A

M	0	2	BALTIMORE CITY

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

M	29	1	HARFORD
F	0	1	OUT OF STATE
F	0	1	PRINCE GEORGE'S
M	43	1	PRINCE GEORGE'S
M	4	1	WASHINGTON

SALMONELLA SER. SAINTPAUL

F	55	1	BALTIMORE
M	55	1	BALTIMORE
M	43	1	BALTIMORE

SALMONELLA SER. SCHWARZENGRUND

M	1	1	ANNE ARUNDEL
M	7	1	BALTIMORE

SALMONELLA SER. THOMPSON

F	74	1	CARROLL
M	67	1	OUT OF STATE

SALMONELLA SER. TYPHIMURIUM

F	22	1	BALTIMORE
F	1	1	BALTIMORE
F	3	1	BALTIMORE CITY
M	39	1	FREDERICK
M	2	1	FREDERICK
F	17	1	HARFORD
M	47	1	HARFORD
F	1	1	MONTGOMERY
F	17	1	OUT OF STATE
F	2	1	OUT OF STATE
M	64	1	OUT OF STATE
M	6	1	OUT OF STATE
M	1	1	OUT OF STATE
F	24	1	PRINCE GEORGE'S
F	7	1	TALBOT
M	6	1	WASHINGTON

SALMONELLA SER. WELTEVREDEN

M	77	1	MONTGOMERY

SHIGELLA FLEXNERI II:3,4

M	23	1	MONTGOMERY

SHIGELLA SONNEI

F	58	1	BALTIMORE
F	6	2	BALTIMORE
F	5	1	BALTIMORE CITY
F	2	1	OUT OF STATE
M	59	1	OUT OF STATE

TOTAL 199

ISOLATES - REFERENCE

GENUS SPECIES

SOURCE	#	JURISDICTION

CORYNEBACTERIUM SPECIES

BREAST	1	ALLEGANY

KLEBSIELLA PNEUMONIAE

U	1	BALTIMORE CITY

LISTERIA MONOCYTOGENES

BLOOD	1	FREDERICK

TOTAL 3

ISOLATES - MISCELLANEOUS

GENUS SPECIES

SOURCE	#	JURISDICTION

ENTEROBACTER AMNIGENUS BIOGROUP II

BLOOD	1	BALTIMORE CITY

ESCHERICHIA COLI

VAGINAL	1	MONTGOMERY

GARDNERELLA VAGINALIS

VAGINAL	8	PRINCE GEORGE'S
VAGINAL	1	SOMERSET

GRAM-NEGATIVE BACILLUS

BLOOD	2	BALTIMORE CITY

KLEBSIELLA PNEUMONIAE

SPUTUM	1	WASHINGTON

PANTOEA AGGLOMERANS

CSF	1	BALTIMORE CITY

PSEUDOMONAS AERUGINOSA

CSF	1	BALTIMORE CITY
SPUTUM	2	WASHINGTON

PSEUDOMONAS PUTIDA

BRAIN	1	BALTIMORE CITY

STAPHYLOCOCCUS AUREUS

WOUND	2	BALTIMORE CITY
NASAL	1	CARROLL
VAGINAL	1	SOMERSET

STAPHYLOCOCCUS, COAGULASE NEGATIVE

BLOOD	4	BALTIMORE CITY

STREPTOCOCCUS, ALPHA-HEMOLYTIC

BLOOD	1	BALTIMORE CITY
MOUTH	1	CARROLL

STREPTOCOCCUS, BETA HEMOLYTIC GROUP A

THROAT	1	ALLEGANY

STREPTOCOCCUS, BETA HEMOLYTIC NON-GROUP A

THROAT	12	ALLEGANY

STREPTOCOCCUS, BETA HEMOLYTIC GROUP B

VAGINAL	3	ANNE ARUNDEL
BLOOD	1	BALTIMORE CITY
CERVIX	1	PRINCE GEORGE'S
VAGINAL	5	PRINCE GEORGE'S

VEILLONELLA SPECIES

BLOOD	1	BALTIMORE CITY

TOTAL 53

SEXUALLY TRANSMITTED DISEASES

GENUS SPECIES

SEX	#	JURISDICTION

SYPHILIS SEROLOGY

F	1	ANNE ARUNDEL
M	1	ANNE ARUNDEL
M	5	BALTIMORE
F	12	BALTIMORE CITY
M	27	BALTIMORE CITY
F	1	CALVERT
M	1	CALVERT
M	1	CARROLL
M	1	FREDERICK
M	1	HOWARD
F	7	MONTGOMERY
M	4	MONTGOMERY
F	14	PRINCE GEORGE'S
M	33	PRINCE GEORGE'S
F	1	WASHINGTON
M	1	WORCESTER

TOTAL 111

CHLAMYDIA TRACHOMATIS

F	9	ALLEGANY
M	2	ALLEGANY
U	1	ALLEGANY
F	19	ANNE ARUNDEL
M	3	ANNE ARUNDEL
F	26	BALTIMORE
M	13	BALTIMORE
U	2	BALTIMORE
F	12	BALTIMORE CITY
M	22	BALTIMORE CITY
U	1	BALTIMORE CITY
F	1	CALVERT
M	4	CALVERT
F	1	CAROLINE
M	2	CAROLINE
F	3	CARROLL
M	2	CARROLL
F	2	CECIL
M	3	CECIL
F	17	CHARLES
M	10	CHARLES
F	3	DORCHESTER
M	1	DORCHESTER
F	6	FREDERICK
M	2	FREDERICK
F	3	GARRETT
F	3	HARFORD
M	7	HARFORD
F	1	HOWARD
M	2	HOWARD
F	2	KENT
M	2	KENT
F	13	MONTGOMERY
M	2	MONTGOMERY
F	51	PRINCE GEORGE'S
M	45	PRINCE GEORGE'S
U	1	PRINCE GEORGE'S
F	3	QUEEN ANNE'S
M	1	QUEEN ANNE'S
F	3	SAINT MARY'S
M	3	SAINT MARY'S
F	5	SOMERSET
M	5	SOMERSET
F	2	TALBOT
M	2	TALBOT
F	3	WASHINGTON
M	5	WASHINGTON
F	18	WICOMICO
M	7	WICOMICO
F	3	WORCESTER
M	2	WORCESTER

TOTAL 361

NEISSERIA GONORRHOEAE

F	1	BALTIMORE CITY
M	1	MONTGOMERY
F	7	PRINCE GEORGE'S
M	15	PRINCE GEORGE'S
M	1	WICOMICO

TOTAL 25

MYCOBACTERIOLOGY

ISOLATE	SEX	AGE	#	JURISDICTION
MYCOBACTERIUM ABSCESSUS				
	M	64	1	WICOMICO
MYCOBACTERIUM AVIUM COMPLEX				
	F	63	2	ANNE ARUNDEL
	F	72	1	ANNE ARUNDEL
	M	68	1	ANNE ARUNDEL
	M	82	1	ANNE ARUNDEL
	F	64	1	BALTIMORE
	F	74	1	BALTIMORE
	F	77	1	BALTIMORE
	M	77	1	BALTIMORE
	F	46	1	BALTIMORE CITY
	F	47	1	BALTIMORE CITY
	F	67	1	BALTIMORE CITY
	M	37	2	BALTIMORE CITY
	M	60	4	BALTIMORE CITY
	M	61	1	BALTIMORE CITY
	M	78	2	BALTIMORE CITY
	F	68	1	CARROLL
	F	72	1	CARROLL
	M	70	1	CARROLL
	F	54	1	MONTGOMERY
	F	69	1	MONTGOMERY
	M	67	2	MONTGOMERY
	M	28	1	PRINCE GEORGE'S
	M	36	1	PRINCE GEORGE'S
	M	37	1	PRINCE GEORGE'S
	M	47	1	WASHINGTON
	M	78	1	WASHINGTON
	M	79	1	WASHINGTON
	F	84	1	WICOMICO
	M	57	1	WICOMICO
	M	67	1	WICOMICO
MYCOBACTERIUM CHELONAE				
	M	48	1	BALTIMORE
	F	0	1	UNKNOWN
MYCOBACTERIUM FORTUITUM COMPLEX				
	M	81	1	BALTIMORE
	M	25	1	BALTIMORE CITY
	M	31	1	OUT OF STATE
	M	66	2	OUT OF STATE
	M	37	1	PRINCE GEORGE'S
	M	56	1	PRINCE GEORGE'S
MYCOBACTERIUM GORDONAE				
	M	69	1	BALTIMORE
	M	26	1	PRINCE GEORGE'S
	M	57	1	WICOMICO
MYCOBACTERIUM KANSASII				
	M	75	1	FREDERICK
MYCOBACTERIUM MARINUM				
	M	69	1	WASHINGTON
MYCOBACTERIUM TUBERCULOSIS				
	M	27	1	BALTIMORE CITY
	M	44	1	BALTIMORE CITY
	M	79	1	BALTIMORE CITY
	M	25	1	CAROLINE
	F	55	1	MONTGOMERY
	M	19	1	MONTGOMERY
	M	32	1	MONTGOMERY
	F	21	1	OUT OF STATE
	F	3	1	OUT OF STATE
	F	70	1	OUT OF STATE
	F	47	1	PRINCE GEORGE'S
MYCOBACTERIUM TUBERCULOSIS COMPLEX				
	F	21	1	BALTIMORE CITY
	F	39	1	BALTIMORE CITY
	M	29	1	BALTIMORE CITY
	M	44	1	BALTIMORE CITY
	M	55	1	BALTIMORE CITY
	M	69	1	BALTIMORE CITY
	M	79	1	BALTIMORE CITY
	M	27	2	HOWARD
	M	28	4	KENT
	F	44	8	MONTGOMERY
	M	32	8	MONTGOMERY
	M	49	1	MONTGOMERY
	M	67	6	MONTGOMERY
	U	49	2	MONTGOMERY
	F	21	4	OUT OF STATE
	F	39	1	PRINCE GEORGE'S
SCOTOCHROMOGENIC MYCOBACTERIA				
	F	0	1	UNKNOWN
TOTAL			**107**	

MYCOBACTERIUM SUSCEPTIBILITY RESULTS

17 ISOLATES IDENTIFIED
0 DRUG RESISTANT STRAINS FOUND

#	JURISDICTION	DRUG(S)

[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. africanum*
M. bovis	*M. microti*
M. bovis, BCG	*M. canettii*

PARASITOLOGY

GENUS/SPECIES	#	JURISDICTION
BLASTOCYSTIS HOMINIS		
	6	MONTGOMERY
CHILOMASTIX MESNILI		
	4	MONTGOMERY
CRYPTOSPORIDIUM		
	1	HOWARD
DIENTAMOEBA FRAGILIS		
	3	MONTGOMERY
	1	MONTGOMERY
ENDOLIMAX NANA		
	3	PRINCE GEORGE'S
	2	MONTGOMERY
	3	PRINCE GEORGE'S
	1	MONTGOMERY
	2	PRINCE GEORGE'S
	1	MONTGOMERY
ENTAMOEBA COLI		
	14	PRINCE GEORGE'S
	1	MONTGOMERY
ENTAMOEBA HARTMANNI		
	2	CARROLL
ENTAMOEBA HISTOLYTICA/ ENTAMOEBA DISPAR COMPLEX		
	1	WICOMICO
ENTEROBIUS VERMICULARIS		
	1	MONTGOMERY
	1	CARROLL
	1	CARROLL
GIARDIA LAMBLIA		
	1	MONTGOMERY
	8	PRINCE GEORGE'S
IODAMOEBA BÜTSCHLII		
	1	MONTGOMERY
	1	BALTIMORE CITY
	1	MONTGOMERY
	3	BALTIMORE
PLASMODIUM FALCIPARUM		
	2	BALTIMORE
TOTAL	**65**	

WATER MICROBIOLOGY

	# TESTED	# NON-COMPLIANT
COMMUNITY	0	0
NON-COMMUNITY	263	67
TOTAL	**263**	**67**

FOOD PROTECTION

	TOTALS
FOOD	
NUMBER OF SAMPLES	41
NOTABLE PATHOGENS:	
CAMPYLOBACTER SP.	0
CLOSTRIDIUM DIFFICILE	0
ENTEROCOCCUS	0
E. COLI	0
E. FAECALIS	0
LISTERIA SP.	0
MRSA	0
SALMONELLA SP.	0
VRE	0
CRABMEAT	
NUMBER OF SAMPLES	6
EXCEEDING STANDARDS[1]	0
NOTABLE PATHOGENS:	
LISTERIA INNOCUA	0
SHELLFISH	
NUMBER OF SAMPLES	3
EXCEEDING STANDARDS[2]	0
TOTAL STANDARDS EXCEEDED	0
SHELLFISH GROWING WATERS	
NUMBER OF SAMPLES	358
TOTAL NUMBER OF SAMPLES	**408**

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				
	U	50	1	BALTIMORE
HERPES SIMPLEX VIRUS TYPE 1				
	F	18	1	WICOMICO
HERPES SIMPLEX VIRUS TYPE 2				
	F	80	1	CAROLINE
PARAINFLUENZA VIRUS 1				
	F	18	1	ALLEGANY
PARAINFLUENZA VIRUS 2				
	F	1	1	BALTIMORE
TOTAL			**5**	

VIRAL POLYMERASE CHAIN REACTION (PCR)

ISOLATE	SEX	AGE	#	JURISDICTION
HERPES SIMPLEX VIRUS TYPE 1				
	F	16	1	ANNE ARUNDEL
	F	30	1	ANNE ARUNDEL
	F	18	1	BALTIMORE
	F	23	1	BALTIMORE
	M	22	1	BALTIMORE CITY
	M	24	1	BALTIMORE CITY
	M	24	1	CARROLL
	F	21	1	FREDERICK
	F	39	1	FREDERICK
	F	20	1	PRINCE GEORGE'S
	F	23	1	PRINCE GEORGE'S
	F	35	1	PRINCE GEORGE'S
	M	19	1	PRINCE GEORGE'S
	M	20	1	PRINCE GEORGE'S
	F	18	1	WICOMICO
	F	20	1	WICOMICO
HERPES SIMPLEX VIRUS TYPE 2				
	F	19	2	ALLEGANY
	F	23	1	ANNE ARUNDEL
	M	21	1	ANNE ARUNDEL
	F	16	1	BALTIMORE
	F	22	1	BALTIMORE
	F	26	1	BALTIMORE
	F	34	1	BALTIMORE
	U	25	1	BALTIMORE CITY
	U	35	1	BALTIMORE CITY
	F	0	1	BALTIMORE CITY
	F	17	3	BALTIMORE CITY
	F	21	1	BALTIMORE CITY
	F	23	1	BALTIMORE CITY
	F	24	1	BALTIMORE CITY
	F	25	3	BALTIMORE CITY
	F	30	1	BALTIMORE CITY
	F	34	2	BALTIMORE CITY
	F	36	1	BALTIMORE CITY
	F	40	1	BALTIMORE CITY
	F	46	1	BALTIMORE CITY
	M	0	1	BALTIMORE CITY
	M	21	2	BALTIMORE CITY
	M	23	2	BALTIMORE CITY
	M	24	2	BALTIMORE CITY
	M	26	1	BALTIMORE CITY
	M	46	1	BALTIMORE CITY
	M	61	1	BALTIMORE CITY
	M	62	1	BALTIMORE CITY
	F	23	1	DORCHESTER
	F	30	1	HOWARD
	M	25	1	MONTGOMERY
	F	21	1	PRINCE GEORGE'S
	F	22	2	PRINCE GEORGE'S
	F	23	1	PRINCE GEORGE'S
	F	30	1	PRINCE GEORGE'S
	F	31	1	PRINCE GEORGE'S
	M	20	2	PRINCE GEORGE'S
	M	25	1	PRINCE GEORGE'S
	M	26	1	PRINCE GEORGE'S
	M	30	1	PRINCE GEORGE'S
	F	20	1	WICOMICO
	M	21	1	WICOMICO
	M	31	1	WICOMICO
INFLUENZA A(H3)				
	M	0	1	ANNE ARUNDEL
	F	0	2	BALTIMORE CITY
	M	70	1	PRINCE GEORGE'S
TOTAL			**75**	

VIRAL HEPATITIS

ORGANISM	# SPECIMENS	# POSITIVES	JURISDICTION
HEPATITIS B			
	40	0	ALLEGANY
	124	0	ANNE ARUNDEL
	35	0	BALTIMORE
	270	2	BALTIMORE CITY
	5	0	CALVERT
	12	0	CARROLL
	92	1	CECIL
	6	0	CHARLES
	46	0	FREDERICK
	15	0	GARRETT
	33	0	HARFORD
	16	0	HOWARD
	357	3	MONTGOMERY
	290	2	PRINCE GEORGE'S
	3	0	QUEEN ANNE'S
	17	0	SAINT MARY'S
	3	0	SOMERSET
	15	0	TALBOT
	2	0	UNKNOWN
	35	0	WASHINGTON
	53	1	WICOMICO
SUBTOTAL	**1,469**	**9**	
HEPATITIS C			
	36	2	ALLEGANY
	147	30	ANNE ARUNDEL
	46	1	BALTIMORE
	203	41	BALTIMORE CITY
	5	1	CALVERT
	14	1	CARROLL
	76	11	CECIL
	10	0	CHARLES
	55	1	FREDERICK
	20	1	GARRETT
	53	0	HARFORD
	7	1	HOWARD
	94	0	MONTGOMERY
	158	5	PRINCE GEORGE'S
	3	0	QUEEN ANNE'S
	18	0	SAINT MARY'S
	5	0	SOMERSET
	15	0	TALBOT
	1	0	UNKNOWN
	15	1	WASHINGTON
	5	0	WICOMICO
SUBTOTAL	**986**	**96**	
TOTALS	**2,455**	**105**	

RABIES

SOURCE	#	JURISDICTION
CAT	1	BALTIMORE
FOX	1	SAINT MARY'S
	1	WASHINGTON
RACCOON	1	ANNE ARUNDEL
	1	BALTIMORE
	4	BALTIMORE CITY
	1	FREDERICK
	1	HARFORD
	1	HOWARD
	1	PRINCE GEORGE'S
	2	QUEEN ANNE'S
	1	SOMERSET
	1	WICOMICO
	2	WORCESTER
SKUNK	1	GARRETT
TOTAL POSITIVES	**20**	
TOTAL SPECIMENS	**234**	

CHLAMYDIOPHILIA PSITTACI
(CHLAMYDIA)

REPORTED QUARTERLY
NO REPORT THIS MONTH

CD4 FLOW CYTOMETRY WORKLOAD

REPORTED QUARTERLY
NO REPORT THIS MONTH

NEWBORN & CHILDHOOD SCREENING

PRESUMPTIVE POSITIVES

DISORDERS	#
PHENYLKETONURIA (PKU)	0
MAPLE SYRUP URINE DISEASE (MSUD)	16
HOMOCYSTINURIA	12
TYROSINEMIA	8
ARGININEMIA	0
CITRULLINEMIA	0
GALACTOSEMIA	0
BIOTINIDASE DEFICIENCY	12
HYPOTHYROIDISM	65
HEMOGLOBIN -DISEASE	15
HEMOGLOBIN -BENIGN	439
CONGENITAL ADRENAL HYPERPLASIA (CAH)	4
CYSTIC FIBROSIS	0
FATTY ACID OXIDATIONS	4
ORGANIC ACIDEMIAS	6
ACYLCARNITINE - BORDERLINE	6
ACYLCARNITINE - OTHERS	0

MONTHLY TOTALS

# OF SPECIMENS SCREENED	11,701
NUMBER OF TESTS	68,171
% UNSATISFACTORY SPECIMENS	3.9

2010 YEAR-TO-DATE CONFIRMED CASES

CONDITIONS	# CONFIRMED
MEDIUM CHAIN ACYL-CoA DEHYDROGENASE DEFICIENCY (MCAD)	5
SHORT CHAIN ACYL-CoA DEHYDROGENASE DEFICIENCY (SCAD)	10
VERY LONG-CHAIN ACY-Co-A DEHYDROGENASE DEFICIENCY(VLCAD)	1
ELEVATED FORMIMINO GLUTAMIC ACID (FIGLU)	1
3-METHYLCROTONYL-CoA CARBOXYLASE DEFICIENCY (3-MCC)	3
METHYLMALONIC ACIDEMIA (MMA)	1
GLUTARIC ACIDURIA TYPE 1 (GA-1)	1
BRANCHED CHAIN KETOACIDOSIS (BCK/MSUD)	1
GALACTOSEMIA, CLASSICAL	1
GALACTOSE EPIMERASE DEFICIENCY	2
GALACTOSEMIA - VARIANT -DG	4
GALACTOSEMIA - UNKNOWN VARIANT	1
PARTIAL BIOTINIDASE DEFICIENCY	2
BIOTINIDASE DEFICIENCY	1
PROBABLE BIOTINIDASE CARRIER	4
PROBABLE GN	1
CONGENITAL ADRENAL HYPERPLASIA-SALT WASTING	2
CONGENITAL ADRENAL HYPERPLASIA-UNCLASSIFIED	1
HYPOPITUITARISM	1
HYPOTHYROIDISM - PRIMARY	22
OTHER HYPOTHYROIDISM	11
TBG DEFICIENCY	11
SICKLE CELL DISEASE -SS	37
SICKLE CELL DISEASE -SC	25
SICKLE CELL DISEASE -S BETA THALASSEMIA	9
SICKLE CELL DISEASE- BETA 0 THALASSEMIA	1
SICKLE CELL DISEASE-SV	1
SICKLE CELL TRAIT	1
HEMOGLOBIN VARIANT	1
CYSTIC FIBROSIS	7
CFTR-RELATED METABOLIC SYNDROME (CRMS)	1
TRANSIENT TYROSINEMIA	5

ENVIRONMENTAL CHEMISTRY

SAMPLE TYPES	# NON-COMPLIANT	# TESTED
ASBESTOS		
AIR	0	0
BULK	0	3
AIR QUALITY		
PM $_{2.5}$	0	246
RADIATION		
AIR/CHARCOAL FILTERS	0	72
MILK	0	0
WIPES	0	39
RAW WATER	0	8
VEGETATION	0	0
OTHER	0	2
DRINKING WATER		
METALS		
COMMUNITY	15	27
NON-COMMUNITY	8	21
PRIVATE WELLS	29	119
PESTICIDES & PCBs		
COMMUNITY	0	155
NON-COMMUNITY	0	24
PRIVATE WELLS	0	0
VOLATILE ORGANIC COMPOUNDS		
COMMUNITY	5	162
NON-COMMUNITY	0	73
PRIVATE WELLS	0	25
RADIATION		
COMMUNITY	2	35
NON-COMMUNITY	0	4
PRIVATE WELLS	0	23
INORGANICS		
COMMUNITY	0	37
NON-COMMUNITY	5	48
PRIVATE WELLS	4	110
FOOD CHEMISTRY		
SUSPECTED TAMPERING	0	0
MICROSCOPIC FILTH	0	0
LABELING	0	0
SURVEILLANCE	0	76
CHEMICAL CONTAMINATION	0	0
TOTAL	**68**	**1,309**

VIRAL LOAD SPECIMENS

HIV-1 RNA COPIES/ML	$<10^3$	10^3—10^4	10^4—10^5	$>10^5$	**TOTALS**
ALLEGANY	8	1	0	0	**9**
FREDERICK	2	1	1	0	**4**
MONTGOMERY	41	7	6	3	**57**
PRINCE GEORGE'S	80	8	7	4	**99**
WICOMICO	3	0	0	0	**3**
SUBTOTALS	**134**	**17**	**14**	**7**	**172**
DEPARTMENT OF CORRECTIONS	6	0	0	0	**6**
TOTALS	**140**	**17**	**14**	**7**	**178**

HIV ANTIBODY SCREENING

SUBMITTER	TOTAL SPECIMENS	# EIA POSITIVE	% EIA POSITIVE	# WB POSITIVE	% WB POSITIVE
CORRECTION FACILITY JUVENILE	81	1	1.23%	1	100.00%
CORRECTIONAL INSTITUTIONS	177	1	0.56%	0	0.00%
FAMILY PLANNING (NON-GOVERNMENT)	165	0	0.00%	0	0.00%
HEALTH CENTERS (NON-GOVERNMENT)	556	43	7.73%	42	97.67%
HLTH DEPT, NON-STD, FAMILY PLANNING	330	0	0.00%	0	0.00%
HLTH DEPT, NON-STD, OB/GYN	73	2	2.74%	1	50.00%
HLTH DEPT, NON-STD, OTHER	715	48	6.71%	44	91.67%
HLTH DEPT, STD CLINICS	950	12	1.26%	10	83.33%
HOSPITAL, OTHER	119	7	5.88%	7	100.00%
HOSPITAL, PUBLIC	27	0	0.00%	0	0.00%
LABORATORIES (NON-HOSPITAL)	289	8	2.77%	4	50.00%
PEDIATRIC - CHILD HEALTH	5	0	0.00%	0	0.00%
PRIVATE STUDENT HEALTH CTRS	35	0	0.00%	0	0.00%
PUBLIC STUDENT HEALTH CTRS	274	2	0.73%	0	0.00%
TOTALS	**3,796**	**124**	**3.27%**	**109**	**87.90%**

MAILING LABEL

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