

CRITICAL LINK



A Publication of the
Maryland Department of
Health and Mental Hygiene

The Laboratories Administration—Maryland's State Public Health Laboratory

Success Story from the Public Health Microbiology Gonorrhea Laboratory

**“Unsatisfactory”
result reports
reduced from
7% to less than 1%**

Up until the beginning of the summer of 2009, local health departments and health care providers were frustrated with the high number of reports of the result “unsatisfactory” due to overgrowth of patient normal flora.

On his first day as the Laboratories Administration's Chief of the Public Health Microbiology Division, Dr. Jafar Razeq was asked by Director Dr. Jack DeBoy to pay special attention to this problem.

After a thorough inspection of hundreds of GC culture plates over a period of

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Nancy Reilman Receives Recognition for Safekeeping of Drinking Water

On August 11, 2009, on behalf of the staff of the Division of Environmental Chemistry, a unit in the Laboratories Administration, DHMH had the distinct pleasure to present an appreciation plaque to Ms. Nancy Reilman, Chief of the Safe Drinking Water Act Implementation Division, Maryland Department of the Environment Water Supply Program. This plaque was awarded to Ms. Reilman for her many years of support and contributions to the State's public health drinking water laboratories.

Ms. Reilman has worked tirelessly in obtaining funds to help the Division upgrade instrumentation and equipment used for the analysis of drinking water samples. It's a pleasure working with Ms. Reilman, as she is both a visionary and a person with a practical outlook and novel ideas for ensuring the effective implementation of the State's Safe Drinking Water Program.

This article written by Dr. Prince Kassim.



Ms. Nancy Reilman, Chief, Safe Drinking Water Act Implementation Division, MDE Water Supply Program. Photo: Taiyin Wei

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Discovery of a New Variant of the HIV-1 Virus

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

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The staff of the Gonorrhea Laboratory of the Public Health Microbiology Division, from left to right: Yaaqobah Evans, Damini Jain, Kim Shoutz, Carla Rollins, and Mara Johnson.

(Continued from page 1)
Success Story from the Public Health Microbiology Gonorrhea Laboratory

several months, and after spending many hours investigating what might have gone wrong, the Division made the following recommendations:

- Handle media properly, during storage and transport, both before and after being inoculated;
- Modify the laboratory's reporting and interpretation guidelines;
- Switch to a culture medium (GC-Lect™) that the literature^{1,2} has shown to improve suppression of normal patient flora;
- Work closely with local health departments (LHDs) to ensure proper collection, inoculation, and transport of GC specimens.

Implementing these recommendations has resulted in a ten-fold decrease in reporting the result "unsatisfactory." Between May 5 and July 5 of this year, 0.7% (34) were reported out with the result of "unsatisfactory." During the same three month period last year (May 5 through July 5, 2008), 7% (467) were

reported out as "unsatisfactory." This certainly is a significant improvement that reflects well on patient test management.

The Public Health Microbiology Division's staff in the GC Laboratory (see photo) and their partners in the LHDs, especially in Howard and Frederick counties where pilot studies were conducted, can be proud about this success and their commitment to providing quality laboratory services. This problem could not have been solved without the hard work and support of all involved.

To ensure that this problem does not recur, the "unsatisfactory" rate will remain under continuous monitoring

This article written by Dr. Jafar Razeq.

References

¹ Evans, G.L et al. 1989. New selective medium for the isolation of *Neisseria gonorrhoeae*. J. Clin. Microbiol. 27: 2471-2474

² Reichart, C.A. et al. 1989. Comparison of GC-Lect and Modified Thayer-Martin media for the isolation of *Neisseria gonorrhoeae*. J. Clin. Microbiol. 27: 808-811.

Discovery of a New Variant of the HIV-1 Virus

Strain more closely related to a Simian Immunodeficiency virus (SIV) found in gorillas

French scientists at the University of Rouen have announced the discovery of a new variant of the HIV-1 virus, more closely related to a simian immunodeficiency virus (SIV) found in gorillas. Genetic testing showed this strain was more closely related to a Simian Immunodeficiency virus (SIV) found in gorillas than the Human Immunodeficiency virus (HIV). The scientists proposed this new strain should be designated as HIV-1 group P.¹

One characteristic that determines further study is inconsistent or negative viral loads in a patient that is confirmed HIV positive with no antiviral therapy. Discrepancies in molecular and viral load testing of a 62-year-old woman (patient RBF168) from Cameroon resulted in further analysis of her HIV strain because she met these criteria. Her background and virus strain were studied further.

Patient RBF168 was born in Cameroon in the southeast portion of the country and lived in towns around the capital, Yaoundé. She did not live in rural areas of the country and reported no contact with apes or bushmeat (meat of terrestrial wild animals.)¹ Though HIV is transmitted primarily through sexual contact, exposure to bushmeat from the butchering process and exposure to the hunted animals themselves is thought to be a mechanism for the transfer of simian viruses to humans.^{2,3}

Her husband died in 1984 (HIV status unknown) and she reported having other sexual partners (HIV status unknown) after his death. Her positive HIV status was discovered after her move to France in 2004.⁴

Classification

A brief review of HIV classification is presented to help in understanding the need for further test results. HIV is classified as a retrovirus (Family Retroviridae, genus Lentivirus) which has RNA as the major genetic component instead of DNA. The enzyme, reverse transcriptase, contained in the retrovirus, enables it to convert this RNA to DNA which is then

incorporated into the host cells' genetic material. This enables the virus to replicate along with the host cells' DNA.

HIV is divided into two types, HIV-1 and HIV-2. Both cause disease though it is believed that the transmission of HIV-2 is more difficult and the period from infection to illness is longer.^{5,6} HIV-1 is the predominant virus and is found throughout the world. HIV-2 is centered in West Africa and is rarely found in other areas.⁵

HIV-1 is further subdivided into three groups, M (major), N (non-M, non-O), and O (outlier). With the discovery of the novel HIV-1 variant, a forth
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group may be added, group P. Group M is the predominant group and is subdivided into 12 subtypes or clades (A1, A2, B, C, D, F1, F2, G, H, J, and K). The twelfth subtype consists of circulating recombinant forms (CRFs) which are composed of viruses with mixed genetic material derived from recombination with other subtypes. HIV-2 is divided into 7 groups, A through G.^{5,7}

Since HIV was first recognized as the etiological agent of AIDS in the early-1980's, HIV-1 Group M subtype B viruses have predominated North America. However, through enhanced surveillance testing, the Laboratories Administration Retrovirology

Laboratory has demonstrated considerable HIV diversity in Maryland. Conducting HIV-2 specific testing is standard procedure on all HIV serological screening test reactive specimens that were not confirmed as HIV-1 antibody positive by Western Blot testing. Since the early 1990's, the retrovirology laboratory has identified 30 cases of HIV-2 in Montgomery and Prince George's Counties.

In 1996, working in conjunction with a CDC study, a rare HIV-1 Group "O" virus infection was identified by genotyping viruses from West African expatriates attending HIV treatment clinics in the Maryland suburbs of Washington DC. In more recent years, genotyping portions of polymerase (pol) genes initially sequenced at the retrovirology laboratory for anti-viral drug resistance testing has demonstrated

that approximately 30% of specimens from patients attending HIV treatment clinics in Maryland contained non-subtype B HIV-1 Group M viruses (see figure 1).

RBF 168 Test Results

After reviewing patient RBF 168's background (see above), her medical history and test results were reviewed. HIV screening tests were reactive and western blot showed weak reactivity to HIV-1 group M proteins. Her CD4+ count was stable. Viral load was high using nonspecific group M and O PCR commercial assays. Virus isolation and growth procedures proved that the virus would replicate in human cells. She shows no sign of AIDS, and has not received any treatment.⁴

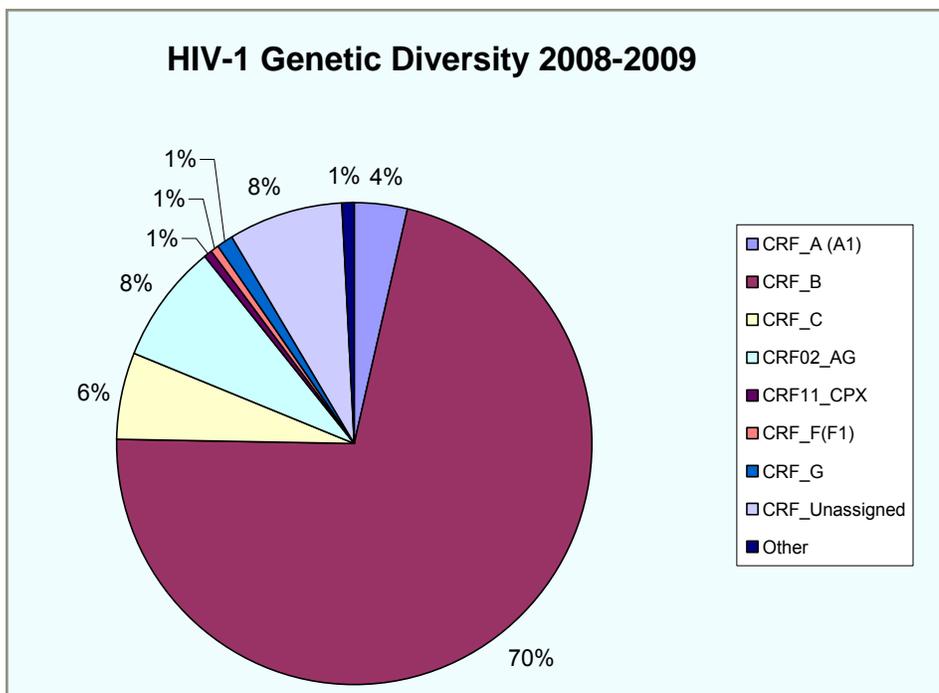
Viral load quantification was not successful when using group M specific assays. Amplification did not occur when using complementary group M specific PCRs or when using Group O (endemic in west central Africa-Cameroon) primers. Amplification was successful after utilizing a nonspecific extra-long real time PCR test.⁴ This analysis enabled the genetic makeup of the virus to be fully sequenced. This data pointed to the possibility that it was a novel strain of HIV.

HIV Origins

Based on nucleotide sequencing of the viral genome, the origin and divergence of a virus can be determined. Viral genomes are compared to determine how close they are to one another, suggesting the possible origin and evolution of the viral strain under study.

Research has shown that the origins of HIV relate to SIVs found in primates. Cross species transmission, along with viral mutation, resulted in the formation of HIV genomes. The origin of HIV-1, groups M and N, is believed to be from

Figure 1: Pie chart showing genetic diversity of 354 HIV-1 specimens analyzed for genotype at the Laboratories Administration in Baltimore from July 2008 through June 2009. Group M, Subtype B (CRF_B) predominates with 70%, followed by group M, non-subtype B (all others listed) with 30%. Source: Jonathan Johnston and Mark Massey, HIV-1 Sequencing Laboratory, Laboratories Administration.



Footnote 1: CRF - circulating recombinant forms.

cross-species transmission from chimpanzees (*Pan troglodytes troglodytes*) to humans.⁴ Group O is thought to have occurred from the infection of humans from wild gorillas (*Gorilla gorilla gorilla*) who were infected by contact with chimpanzees.⁷ HIV-2 is thought to have originated from sooty mangabey (*Cercocebus atys*) viruses, with each HIV-2 group representing a separate human transmission event.⁷

An SIV stain (SIVgor) was isolated from gorillas that had many characteristics necessary to enable it to infect humans.⁸ This suggests the possibility that HIV or similar viruses may be passed on to human populations through contact with gorillas.

RBF 168 Evolutionary Studies

English scientists (University of Manchester) carried out the evolutionary analysis of the RBF 168 HIV strain.¹ They found that this strain was most closely related to SIVgor and that this relationship is maintained in all genome regions. Phylogenetic data demonstrates that the RBF 168 strain clusters extensively with SIVgor strains. This provides evidence of gorilla to human transmission of SIVgor.⁴

Though evidence of gorilla to human transmission is apparent, caution must be exercised in determining the origins of the virus. It is possible that the RBF 168 strain developed from chimpanzees (SIVcpz) infecting gorillas, then

humans. This is similar to the postulated origins of HIV-1 group O. Direct transmissions, from chimpanzees to humans and from chimpanzees to

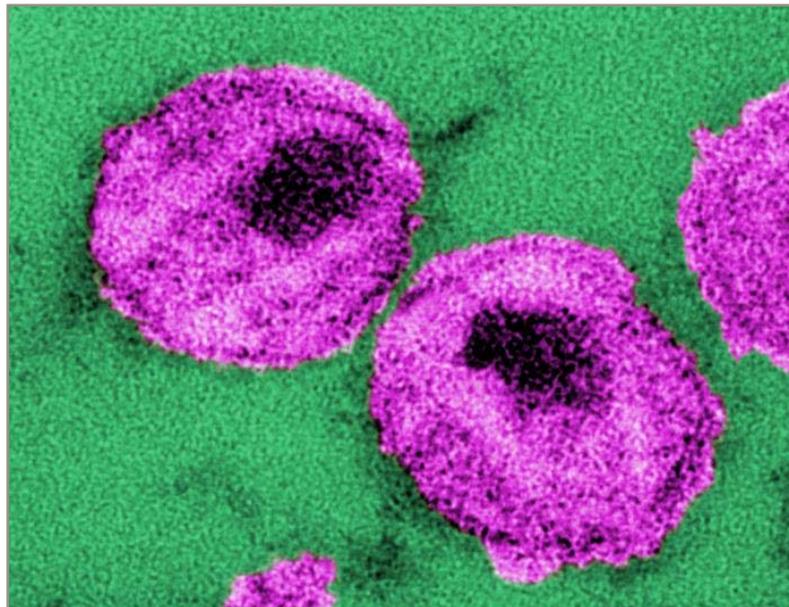


Figure 2: This thin-section transmission electron micrograph (TEM) depicts the ultrastructural details of a number of HIV particles, or virions. A member of the genus Lentivirus, HIV is separated into two serotypes, HIV-1 and HIV-2, and is the cause for the disease known as acquired immunodeficiency syndrome, or AIDS. Source: Centers for Disease Control and Prevention, <http://phil.cdc.gov/phil/home.asp>.

gorillas, could have occurred also. The isolation of strains similar to RBF 168 in chimpanzees would provide evidence of this possibility.⁴

Conclusions

The French scientists' conclusions, based on molecular testing and evolutionary analysis, showed that strain RBF 168 represents a new HIV-1 variant. It was proposed that it be placed in its own group, group P. Another conclusion was that gorillas, along with chimpanzees, can be considered as sources of HIV-1.⁴

The increased sensitivity of HIV screening tests and the improvement of molecular testing methods should determine if HIV is present. However, these tests, in most cases, will not signal the presence of a new or divergent HIV strain. It is important to consider the

clinical picture with the molecular testing results. If discrepancies are observed, further nucleotide sequencing should be performed to detect the existence of any new or divergent strains. For example, two discrepancies include:

1. HIV-1- infected patients who continue to progress toward AIDS (i.e., continuing erosion of CD4 (+) T-lymphocyte count) without the demonstration of high viral loads; or
2. If drug treatment failure is suspected due to consistently high viral loads but the infecting HIV-1 virus cannot be sequenced from the patient for drug resistance genotyping.

If these and other discrepancies between molecular based testing and the clinical presentation are observed, contact the DHMH

Retrovirology Laboratory at (410)767-6157 for consultation. It has been well-documented that substantial HIV diversity exists within some of our local testing populations, and continued vigilance may identify new variant HIV strains that would lead to improved patient care and a better understanding of the dynamics of HIV transmission within Maryland.

The detection of this new strain puts further emphasis on the study of HIV genetic diversity. Since retroviruses have the ability to mutate and/or undergo recombination, it is imperative that strains be monitored to detect changes in their genotype. These changes could have a great effect on viral pathogenicity and treatment modalities in the future.

This article was written by Mark Massey.

(Continued on page 6)

References

- ¹ HIV, Human, Gorilla - Cameroon: New Lineage
http://promedmail.org/pls/otn/f?p=2400:1202:749568216072602::NO::F2400_P12_02_CHECK_DISPLAY,F2400_P1202_PUB_MAIL_ID:X,78608
- ² Bush-meat Trade and Risk of Disease Transmission
http://promedmail.org/pls/otn/f?p=2400:1202:749568216072602::NO::F2400_P12_02_CHECK_DISPLAY,F2400_P1202_PUB_MAIL_ID:X,26324
- ³ <http://www.cdc.gov/hiv/resources.htm>
- ⁴ Plantier, J.C., et al. 2009 "A new human immunodeficiency virus derived from gorillas." *Nat. Med.* Aug;15(8):871-2.
- ⁵ <http://www.avert.org/hiv-types.htm>
- ⁶ Kanki, P.J., et al. 1999 "Human immunodeficiency virus type 1 subtypes differ in disease progression." *J. Inf. Disease* 179, No. 1:68-73.
- ⁷ <http://www.hiv.lanl.gov/content/sequence/html>
- ⁸ Takehisa, J. et al. 2009 "Origin and biology of simian immunodeficiency virus in wild-living western gorillas." *J. Virol.* 83; 1635-48.

Laboratory Statistics

Reported from the
 Laboratories Administration
 during the month of

June 2009

ENTERIC BACTERIOLOGY

GENUS SEROVAR
 SEX AGE # JURISDICTION

CAMPYLOBACTER JEJUNI

F	0	1	ALLEGANY
M	58	1	ANNE ARUNDEL
U	10	1	BALTIMORE
U	1	1	BALTIMORE

F	0	2	BALTIMORE
F	61	1	BALTIMORE
F	22	2	BALTIMORE
F	21	1	BALTIMORE
F	14	1	BALTIMORE
M	0	1	BALTIMORE
M	60	1	BALTIMORE
M	50	1	BALTIMORE
M	31	1	BALTIMORE
M	19	2	BALTIMORE
M	16	1	BALTIMORE
F	61	1	BALTIMORE CITY
F	28	1	BALTIMORE CITY
F	20	1	BALTIMORE CITY
M	1	1	BALTIMORE CITY
M	1	1	BALTIMORE CITY
F	70	1	MONTGOMERY
F	8	2	MONTGOMERY
F	17	2	OUT OF STATE
F	25	1	PRINCE GEORGE'S
M	59	1	TALBOT
M	12	1	TALBOT
F	0	1	UNKNOWN
M	39	1	UNKNOWN
CAMPYLOBACTER JEJUNI SS DOYLEI			
M	17	1	BALTIMORE
M	0	1	BALTIMORE CITY
F	12	1	PRINCE GEORGE'S
ESCHERICHIA COLI, SEROTYPE O157:H7			
F	30	1	BALTIMORE
F	32	1	FREDERICK
F	50	1	OUT OF STATE
SALMONELLA			
F	0	1	BALTIMORE
M	9	1	BALTIMORE
F	5	1	FREDERICK
M	30	1	FREDERICK
M	0	1	MONTGOMERY
F	67	1	OUT OF STATE
M	0	1	OUT OF STATE
M	0	1	OUT OF STATE
M	0	2	PRINCE GEORGE'S
F	0	2	WICOMICO
SALMONELLA 6,7:-:1,5			
M	22	1	MONTGOMERY
SALMONELLA AGONA			
M	3	1	BALTIMORE CITY
SALMONELLA BARDO			
M	80	1	WASHINGTON
SALMONELLA BRAENDERUP			
M	4	1	ANNE ARUNDEL
U	6	1	CHARLES
SALMONELLA ENTERITIDIS			
F	75	1	BALTIMORE
F	53	1	BALTIMORE
M	10	1	BALTIMORE
U	0	2	BALTIMORE CITY
F	0	1	BALTIMORE CITY
F	30	1	BALTIMORE CITY
F	11	1	BALTIMORE CITY
F	2	1	BALTIMORE CITY
F	0	1	BALTIMORE CITY
M	93	1	BALTIMORE CITY
M	87	1	BALTIMORE CITY
M	63	1	BALTIMORE CITY

M	45	1	BALTIMORE CITY
M	12	1	BALTIMORE CITY
M	1	1	BALTIMORE CITY
M	66	1	CECIL
M	44	1	CECIL
F	45	1	FREDERICK
F	59	1	OUT OF STATE
F	52	1	OUT OF STATE
F	5	1	OUT OF STATE
F	1	1	OUT OF STATE
M	32	1	OUT OF STATE
M	6	1	OUT OF STATE
M	0	1	OUT OF STATE
SALMONELLA HEIDELBERG			
M	8	1	BALTIMORE
M	0	1	BALTIMORE CITY
F	11	2	OUT OF STATE
SALMONELLA INFANTIS			
M	55	1	HARFORD
SALMONELLA JAVIANA			
M	60	1	BALTIMORE
SALMONELLA NEWPORT			
M	15	1	OUT OF STATE
M	0	1	WASHINGTON
SALMONELLA NORWICH			
F	48	1	ANNE ARUNDEL
SALMONELLA ORANIENBURG			
M	3	1	OUT OF STATE
SALMONELLA PARATYPHI A			
U	0	1	ANNE ARUNDEL
F	32	1	BALTIMORE
F	11	1	BALTIMORE
M	47	3	MONTGOMERY
M	33	1	MONTGOMERY
SALMONELLA RUBISLAW			
F	1	1	BALTIMORE CITY
SALMONELLA SAINTPAUL			
F	4	1	CARROLL
M	2	1	FREDERICK
F	28	1	OUT OF STATE
M	2	1	OUT OF STATE
M	1	1	OUT OF STATE
SALMONELLA SCHWARZENGRUND			
F	67	1	ALLEGANY
M	0	1	BALTIMORE CITY
SALMONELLA SER 4,12:I:-			
M	2	1	MONTGOMERY
SALMONELLA SER 4,5,12:I:-			
F	37	1	BALTIMORE CITY
M	23	1	BALTIMORE CITY
SALMONELLA SER ENTERITIDIS			
F	75	1	BALTIMORE
F	4	1	BALTIMORE
U	57	1	BALTIMORE
F	27	1	BALTIMORE CITY
M	0	1	BALTIMORE CITY
M	47	1	BALTIMORE CITY
M	12	1	BALTIMORE CITY
M	64	1	OUT OF STATE
SALMONELLA SER TYPHIMURIUM			
M	73	1	ALLEGANY
F	27	1	BALTIMORE
F	13	1	BALTIMORE
F	4	1	BALTIMORE
M	43	1	BALTIMORE

U	0	1	BALTIMORE CITY
M	54	1	BALTIMORE CITY
M	50	1	BALTIMORE CITY
M	0	1	BALTIMORE CITY
F	5	1	CALVERT
M	20	1	FREDERICK
M	2	1	FREDERICK
M	19	1	KENT
F	28	1	MONTGOMERY
U	25	1	OUT OF STATE
F	0	1	OUT OF STATE
F	8	1	OUT OF STATE
F	7	2	OUT OF STATE
M	22	1	OUT OF STATE
M	6	1	OUT OF STATE
M	4	1	OUT OF STATE
F	8	1	TALBOT
SALMONELLA THOMPSON			
M	15	1	BALTIMORE
F	77	1	UNKNOWN
SALMONELLA TYPHIMURIUM VAR COPENHAGEN			
F	35	1	MONTGOMERY
F	13	1	TALBOT
SHIGELLA FLEXNERI II:3,4			
M	49	1	OUT OF STATE
M	3	1	OUT OF STATE
U	25	1	PRINCE GEORGE'S
SHIGELLA SONNEI			
U	0	1	BALTIMORE
F	0	1	BALTIMORE
F	31	1	BALTIMORE
F	18	1	BALTIMORE
F	3	1	BALTIMORE
M	0	1	BALTIMORE
M	5	1	BALTIMORE
U	0	3	BALTIMORE CITY
F	0	1	BALTIMORE CITY
F	40	1	BALTIMORE CITY
F	29	1	BALTIMORE CITY
F	19	1	BALTIMORE CITY
F	5	1	BALTIMORE CITY
F	5	1	BALTIMORE CITY
F	3	1	BALTIMORE CITY
F	2	1	BALTIMORE CITY
F	1	1	BALTIMORE CITY
M	0	1	BALTIMORE CITY
M	57	1	BALTIMORE CITY
M	2	1	BALTIMORE CITY
M	2	1	BALTIMORE CITY
M	1	1	BALTIMORE CITY
U	8	1	BALTIMORE CITY
F	28	1	CECIL
F	44	1	HARFORD
F	26	1	OUT OF STATE
F	6	1	OUT OF STATE
VIBRIO MIMICUS			
M	24	1	BALTIMORE CITY
VIBRIO PARAHAEMOLYTICUS			
M	43	1	BALTIMORE
TOTAL	179		

ISOLATES - REFERENCE

GENUS SPECIES			
SOURCE	#	JURISDICTION	
ARCANOBACTERIUM HAEMOLYTICUM			
BLOOD	1	ANNE ARUNDEL	
ENTEROBACTER CLOACAE			
URINE	1	ALLEGANY	
HAEMOPHILUS INFLUENZAE			
URINE	2	BALTIMORE CITY	
KLEBSIELLA PNEUMONIAE			
UNKNOWN	2	CARROLL	
URINE	1	CARROLL	
BLOOD	1	PRINCE GEORGE'S	
MORAXELLA (MORAXELLA) OSLOENSIS			
OTHER	1	PRINCE GEORGE'S	
MORGANELLA MORGANII			
UNKNOWN	1	CARROLL	
PROTEUS MIRABILIS			
HODGE	1	CARROLL	
URINE	2	CARROLL	
PROTEUS PENNERI			
UNKNOWN	1	CARROLL	
PROVIDENCIA STUARTII			
UNKNOWN	1	CARROLL	

TOTAL 15

ISOLATES - MISCELLANEOUS

GENUS SPECIES			
SOURCE	#	JURISDICTION	
ACINETOBACTER LWOFFI			
WOUND	2	FREDERICK	
BACILLUS SPECIES			
WOUND	1	CARROLL	
CITROBACTER KOSERI			
HEEL	1	FREDERICK	
CORYNEBACTERIUM SPECIES			
CYST	1	CARROLL	
WOUND	1	CARROLL	
DIPHTheroids			
SCALP	1	MONTGOMERY	
ENTEROBACTER AEROGENES			
PENIS	1	MONTGOMERY	
ENTEROBACTER CLOACAE			
SINUS	1	BALTIMORE CITY	
ESCHERICHIA COLI			
BLOOD	1	BALTIMORE CITY	
CSF	1	BALTIMORE CITY	
FOOT	1	FREDERICK	
WOUND	1	FREDERICK	
VAGINAL	1	MONTGOMERY	
GARDNERELLA VAGINALIS			
VAGINAL	1	PRINCE GEORGE'S	
KLEBSIELLA PNEUMONIAE			
VAGINAL	1	PRINCE GEORGE'S	
WOUND	1	WASHINGTON	
LACTOBACILLUS RHAMNOSUS			
BLOOD	1	BALTIMORE CITY	
MOLD			
WOUND	1	FREDERICK	

PANTOEIA AGGLOMERANS			
WOUND	1	FREDERICK	
PASTEURELLA MULTOCIDA			
ULCER	1	FREDERICK	
PEPTOSTREPTOCOCCUS			
ASACCHAROLYTICUS			
UNKNOWN	1	CARROLL	
PROTEUS MIRABILIS			
WOUND	2	CARROLL	
G-TUBE	1	WASHINGTON	
WOUND	1	WASHINGTON	
PSEUDOMONAS AERUGINOSA			
BLOOD	1	BALTIMORE CITY	
TOE	1	FREDERICK	
STAPHYLOCOCCUS AUREUS			
WOUND	1	BALTIMORE	
BONE	1	BALTIMORE CITY	
WOUND	2	CARROLL	
WOUND	1	CARROLL	
WOUND	6	FREDERICK	
CERVIX	1	PRINCE GEORGE'S	
VAGINAL	1	PRINCE GEORGE'S	
WOUND	1	PRINCE GEORGE'S	
STAPHYLOCOCCUS, COAGULASE NEGATIVE			
CSF	1	BALTIMORE CITY	
WOUND	1	CARROLL	
TOE	1	FREDERICK	
TOE	1	FREDERICK	
WOUND	3	FREDERICK	
SKIN	2	MONTGOMERY	
STREPTOCOCCUS BETA HEMOLYTIC GROUP A			
THROAT	1	MONTGOMERY	
THROAT	1	MONTGOMERY	
STREPTOCOCCUS BETA HEMOLYTIC NON-GROUP A			
THROAT	1	ALLEGANY	
STREPTOCOCCUS BETA HEMOLYTIC GROUP B			
VAGINAL	5	ANNE ARUNDEL	
FOOT	1	FREDERICK	
VAGINAL	1	HOWARD	
VAGINAL	1	MONTGOMERY	
CERVIX	2	PRINCE GEORGE'S	
VAGINAL	3	PRINCE GEORGE'S	
VAGINAL	1	PRINCE GEORGE'S	
VAGINAL	11	PRINCE GEORGE'S	
TOTAL	78		

SEXUALLY TRANSMITTED DISEASES

GENUS SPECIES			
SEX	#	JURISDICTION	
SYPHILIS SEROLOGY			
F	1	ANNE ARUNDEL	
M	3	ANNE ARUNDEL	
F	4	BALTIMORE	
M	4	BALTIMORE	
F	12	BALTIMORE CITY	
M	32	BALTIMORE CITY	
M	1	CALVERT	
M	1	CAROLINE	
F	1	CARROLL	

M	1	CECIL
F	1	CHARLES
M	2	CHARLES
F	2	FREDERICK
F	1	HARFORD
U	1	HARFORD
F	1	MONTGOMERY
M	6	MONTGOMERY
F	1	OUT OF STATE
F	6	PRINCE GEORGE'S
M	20	PRINCE GEORGE'S
M	1	SOMERSET
F	1	WICOMICO
M	2	WICOMICO
U	1	WICOMICO

TOTAL 106

CHLAMYDIA TRACHOMATIS

F	3	ALLEGANY
M	3	ALLEGANY
F	23	ANNE ARUNDEL
M	4	ANNE ARUNDEL
F	20	BALTIMORE
M	16	BALTIMORE
F	16	BALTIMORE CITY
M	40	BALTIMORE CITY
U	5	BALTIMORE CITY
F	7	CALVERT
M	4	CALVERT
F	2	CAROLINE
F	3	CARROLL
M	2	CARROLL
F	9	CECIL
F	16	CHARLES
M	2	CHARLES
F	11	FREDERICK
M	3	FREDERICK
F	2	GARRETT
M	2	GARRETT
F	6	HARFORD
F	3	HOWARD
M	2	HOWARD
F	2	KENT
F	16	MONTGOMERY
M	3	MONTGOMERY
F	52	PRINCE GEORGE'S
M	50	PRINCE GEORGE'S
U	1	PRINCE GEORGE'S
F	4	SAINT MARY'S
F	2	SOMERSET
M	4	SOMERSET
F	3	TALBOT
M	2	TALBOT
F	9	WASHINGTON
M	2	WASHINGTON
F	20	WICOMICO
M	5	WICOMICO
F	5	WORCESTER

TOTAL 384

NEISSERIA GONORRHOEAE

F	1	ANNE ARUNDEL
F	2	BALTIMORE
M	3	BALTIMORE
M	1	BALTIMORE CITY
F	3	CALVERT
M	1	CAROLINE
F	1	CHARLES

M	3	CHARLES
F	1	HARFORD
F	1	HOWARD
M	1	HOWARD
F	3	MONTGOMERY
M	5	MONTGOMERY
F	9	PRINCE GEORGE'S
M	18	PRINCE GEORGE'S
F	1	SAINT MARY'S
M	1	SAINT MARY'S
F	1	SOMERSET
F	5	WICOMICO
M	3	WICOMICO

TOTAL 64

PENICILLIN RESISTANT GONORRHEA

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

SEX	AGE	#	JURISDICTION
M	42	1	PRINCE GEORGE'S
M	18	1	PRINCE GEORGE'S
M	32	1	MONTGOMERY

TOTAL 3

MYCOBACTERIOLOGY

ISOLATE
SEX AGE # JURISDICTION

MYCOBACTERIA

NON-PHOTOCHROMOGENIC

M	58	1	ANNE ARUNDEL
M	75	1	BALTIMORE

MYCOBACTERIUM ABSCESSUS

F	48	1	BALTIMORE
M	69	2	BALTIMORE CITY

MYCOBACTERIUM AVIUM

F	88	1	BALTIMORE CITY
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MYCOBACTERIUM AVIUM COMPLEX

F	61	1	ALLEGANY
F	62	1	ALLEGANY
F	59	2	ANNE ARUNDEL
F	50	1	BALTIMORE
F	54	1	BALTIMORE
F	84	1	BALTIMORE
M	47	1	BALTIMORE
M	78	1	BALTIMORE
M	26	1	BALTIMORE CITY
M	40	1	BALTIMORE CITY
M	58	1	BALTIMORE CITY
M	67	1	BALTIMORE CITY
F	46	1	CARROLL
F	75	1	CARROLL
F	69	1	OUT OF STATE
F	84	1	PRINCE GEORGE'S
M	83	1	PRINCE GEORGE'S
F	44	1	SAINT MARY'S
F	74	1	WICOMICO
M	46	1	WICOMICO
M	76	1	WICOMICO

MYCOBACTERIUM BOVIS

U	5	1	OUT OF STATE
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MYCOBACTERIUM CHELONAE			
U	28	1	MONTGOMERY
MYCOBACTERIUM FORTUITUM			
F	78	1	BALTIMORE
M	26	1	BALTIMORE CITY
M	51	1	MONTGOMERY
M	77	1	MONTGOMERY
F	46	1	OUT OF STATE
F	80	1	OUT OF STATE
M	87	2	OUT OF STATE
F	51	1	PRINCE GEORGE'S
MYCOBACTERIUM FORTUITUM COMPLEX			
M	39	1	BALTIMORE CITY
M	45	1	MONTGOMERY

MYCOBACTERIUM GORDONAE

F	45	1	BALTIMORE
M	56	1	BALTIMORE
M	66	1	BALTIMORE
F	64	1	BALTIMORE CITY
M	22	1	BALTIMORE CITY
M	58	1	FREDERICK
F	50	1	HARFORD
M	55	1	OUT OF STATE

MYCOBACTERIUM KANSASII

M	53	2	BALTIMORE
M	48	1	OUT OF STATE

MYCOBACTERIUM MARINUM

F	79	1	FREDERICK
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MYCOBACTERIUM MUCOGENICUM

F	53	1	BALTIMORE CITY
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MYCOBACTERIUM SCROFULACEUM

F	82	1	BALTIMORE
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MYCOBACTERIUM TUBERCULOSIS

F	60	1	ANNE ARUNDEL
F	62	1	BALTIMORE
F	30	1	BALTIMORE CITY
F	34	1	BALTIMORE CITY
M	33	1	BALTIMORE CITY
M	54	1	BALTIMORE CITY
M	72	1	BALTIMORE CITY
M	92	1	BALTIMORE CITY
F	30	1	MONTGOMERY
F	87	1	MONTGOMERY
M	22	1	MONTGOMERY
M	26	1	MONTGOMERY
M	47	1	MONTGOMERY
M	76	1	MONTGOMERY
M	84	1	MONTGOMERY
M	28	1	OUT OF STATE
M	31	1	OUT OF STATE
M	52	1	OUT OF STATE
M	70	1	OUT OF STATE
F	24	2	PRINCE GEORGE'S
F	32	1	PRINCE GEORGE'S
F	53	1	PRINCE GEORGE'S
M	25	1	PRINCE GEORGE'S

MYCOBACTERIUM

TUBERCULOSIS COMPLEX

M	80	1	BALTIMORE
M	39	5	BALTIMORE CITY
M	54	1	BALTIMORE CITY
M	92	1	BALTIMORE CITY
F	34	5	HOWARD
F	30	1	MONTGOMERY
F	87	3	MONTGOMERY
M	26	1	MONTGOMERY
M	28	1	MONTGOMERY
M	33	2	MONTGOMERY
M	35	2	MONTGOMERY
M	44	1	MONTGOMERY

M	51	1	MONTGOMERY
M	84	1	MONTGOMERY
F	24	1	OUT OF STATE
F	47	1	OUT OF STATE
F	60	1	OUT OF STATE
M	31	1	OUT OF STATE
M	52	1	OUT OF STATE
F	24	1	PRINCE GEORGE'S
F	32	5	PRINCE GEORGE'S
F	60	3	PRINCE GEORGE'S
M	25	4	PRINCE GEORGE'S
M	58	3	PRINCE GEORGE'S
U	23	1	UNKNOWN
M	90	4	WASHINGTON
SCOTOCHROMOGENIC MYCOBACTERIA			
F	82	1	BALTIMORE CITY

TOTAL 132

MYCOBACTERIUM SUSCEPTIBILITY RESULTS

17 ISOLATES IDENTIFIED

7 DRUG RESISTANT STRAINS FOUND

#	JURISDICTION	DRUG(S)
1 ^A	ANNE ARUNDEL	PYRAZINAMIDE
1	MONTGOMERY	PYRAZINAMIDE, ISONIAZID
1	PRINCE GEORGE'S	STREPTOMYCIN
2 ^B	PRINCE GEORGE'S	STREPTOMYCIN
1	WASHINGTON	ISONIAZID, STREPTOMYCIN
1	WASHINGTON DC	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

ALTERNARIA SPECIES

U	61	1	CARROLL
F	25	1	TALBOT

ASPERGILLUS FLAVUS

F	39	1	MONTGOMERY
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ASPERGILLUS FUMIGATUS

M	57	3	ALLEGANY
M	52	1	BALTIMORE CITY
M	66	1	BALTIMORE CITY
F	70	1	CALVERT
F	49	1	CHARLES
F	45	1	MONTGOMERY
F	78	2	MONTGOMERY

F	85	1	PRINCE GEORGE'S
M	57	1	PRINCE GEORGE'S
M	69	1	PRINCE GEORGE'S

ASPERGILLUS NIGER

M	45	2	ALLEGANY
F	72	1	ANNE ARUNDEL
F	21	2	MONTGOMERY
M	78	1	TALBOT

ASPERGILLUS TERREUS

F	83	1	BALTIMORE
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CANDIDA ALBICANS

M	40	2	BALTIMORE CITY
M	54	1	BALTIMORE CITY
M	66	1	BALTIMORE CITY
M	68	2	BALTIMORE CITY
F	36	1	CALVERT
M	41	1	CALVERT
F	22	1	MONTGOMERY
F	23	1	MONTGOMERY
F	47	1	MONTGOMERY
F	57	1	MONTGOMERY
F	69	2	MONTGOMERY
F	72	1	MONTGOMERY
F	76	1	MONTGOMERY
F	78	1	MONTGOMERY
F	85	2	MONTGOMERY
M	36	1	MONTGOMERY
M	37	1	MONTGOMERY
M	40	1	MONTGOMERY
M	72	1	MONTGOMERY
M	73	2	MONTGOMERY
M	80	1	MONTGOMERY
U	39	1	MONTGOMERY
	0	4	PRINCE GEORGE'S
F	0	1	PRINCE GEORGE'S
F	21	1	PRINCE GEORGE'S
F	23	1	PRINCE GEORGE'S
F	44	1	PRINCE GEORGE'S
F	47	1	PRINCE GEORGE'S
F	48	1	PRINCE GEORGE'S
F	59	1	PRINCE GEORGE'S
F	61	1	PRINCE GEORGE'S
F	66	1	PRINCE GEORGE'S
F	78	1	PRINCE GEORGE'S
F	93	1	PRINCE GEORGE'S
F	97	1	PRINCE GEORGE'S
M	57	1	PRINCE GEORGE'S
M	59	1	PRINCE GEORGE'S
M	68	1	PRINCE GEORGE'S
F	29	1	SOMERSET

CANDIDA GLABRATA

M	68	1	BALTIMORE CITY
F	54	1	MONTGOMERY
	0	1	PRINCE GEORGE'S
F	23	1	PRINCE GEORGE'S
F	47	1	PRINCE GEORGE'S

CANDIDA KRUSEI

M	47	1	BALTIMORE CITY
F	47	1	MONTGOMERY

CANDIDA PARAPSILOSIS

M	69	1	FREDERICK
M	73	1	MONTGOMERY
F	49	1	PRINCE GEORGE'S
M	68	1	PRINCE GEORGE'S

CANDIDA TROPICALIS

F	66	1	PRINCE GEORGE'S
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CRYPTOCOCCUS NEOFORMANS

F	75	1	MONTGOMERY
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EPICOCCUM SPECIES

M	82	1	TALBOT
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FONSECAEA PEDROSOI

F	56	1	CARROLL
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FUSARIUM SPECIES

M	74	1	BALTIMORE CITY
F	21	1	TALBOT

GEOTRICHUM PENICILLATUM

F	62	1	ANNE ARUNDEL
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GORDONIA-RHODOCOCCUS COMPLEX

F	48	1	ANNE ARUNDEL
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MYCELIA STERILIA

M	79	1	ANNE ARUNDEL
M	45	1	BALTIMORE CITY
M	41	1	CALVERT
U	65	1	CHARLES
F	65	1	TALBOT
M	3	1	TALBOT

NOCARDIA FARCIACA

F	81	1	TALBOT
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PENICILLIUM SPECIES

F	77	1	ANNE ARUNDEL
M	56	2	ANNE ARUNDEL
M	45	1	BALTIMORE CITY
M	72	1	MONTGOMERY
F	78	1	PRINCE GEORGE'S
M	69	1	TALBOT

STREPTOMYCES SPECIES

U	13	1	CARROLL
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TRICHODERMA

F	62	1	ANNE ARUNDEL
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TRICHOPHYTON MENTAGROPHYTES

F	62	1	TALBOT
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TRICHOPHYTON RUBRUM

M	17	1	TALBOT
M	33	1	WICOMICO

TRICHOPHYTON TONSURANS

M	7	1	BALTIMORE
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TSUKAMURELLA SPECIES

F	41	1	TALBOT
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TOTAL 110

PARASITOLOGY

GENUS/SPECIES

JURISDICTION

BLASTOCYSTIS HOMINIS

3	BALTIMORE CITY
1	MONTGOMERY

BLASTOCYSTIS HOMINIS

3	FREDERICK
1	ANNE ARUNDEL
1	PRINCE GEORGE'S
1	MONTGOMERY
1	PRINCE GEORGE'S

DIENTAMOEBIA FRAGILIS

1	PRINCE GEORGE'S
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ENDOLIMAX NANA

1	FREDERICK
2	PRINCE GEORGE'S
3	MONTGOMERY
5	PRINCE GEORGE'S
2	MONTGOMERY
1	PRINCE GEORGE'S

ENTAMOEBIA COLI

2	MONTGOMERY
1	PRINCE GEORGE'S
1	ANNE ARUNDEL
2	PRINCE GEORGE'S

ENTAMOEBIA HARTMANNI		
3	MONTGOMERY	
1	SAINT MARY'S	
ENTEROBIUS VERMICULARIS		
1	CARROLL	
1	BALTIMORE	
1	SAINT MARY'S	
3	FREDERICK	
GIARDIA LAMBLIA		
2	HOWARD	
3	HOWARD	
HOOKWORM		
1	HOWARD	
HYMENOLEPIS NANA		
3	BALTIMORE CITY	
PLASMODIUM FALCIPARUM		
1	BALTIMORE CITY	
TOTAL	48	

FOOD PROTECTION

	TOTALS
FOOD SAMPLES	55
NOTABLE PATHOGENS:	
SALMONELLA SP.	4
CAMPYLOBACTER SP.	7
LISTERIA SP.	0
CRABMEAT SAMPLES	0
EXCEEDING STANDARDS ¹	0
SHELLFISH SAMPLES	3
EXCEEDING STANDARDS ²	0
SHELLFISH GROWING WATERS SAMPLES	288
INFANT STOOL CLOSTRIDIUM BOTULINUM TOXIN TYPE B	1
TOTAL SAMPLES	336
TOTAL STANDARDS EXCEEDED	11

STANDARDS

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

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

WATER MICROBIOLOGY

	# TESTED	# NON-COMPLIANT
COMMUNITY	8	0
NON-COMMUNITY	254	58
TOTAL	262	58

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.

VIRUS ISOLATION

ISOLATE	SEX	AGE	#	JURISDICTION
ADENOVIRUS				
	F	55	1	ALLEGANY
	M	65	1	ANNE ARUNDEL
	M	1	1	BALTIMORE CITY
	M	0	1	BALTIMORE CITY
SUBTOTAL			4	
HERPES SIMPLEX VIRUS TYPE 1				
	F	27	1	BALTIMORE CITY
	M	68	1	BALTIMORE CITY
	F	19	1	BALTIMORE CITY
SUBTOTAL			3	
INFLUENZA A VIRUS				
	F	4	1	MONTGOMERY
SUBTOTAL			1	
PARAINFLUENZA VIRUS 1				
	M	0	1	BALTIMORE CITY
SUBTOTAL			1	
PARAINFLUENZA VIRUS 2				
	M	50	1	BALTIMORE CITY
SUBTOTAL			1	
PARAINFLUENZA VIRUS 3				
	F	57	1	ANNE ARUNDEL
	F	5	1	HARFORD
	M	43	1	MONTGOMERY
	M	0	1	BALTIMORE CITY
	U	0	1	BALTIMORE CITY
	F	86	1	BALTIMORE CITY
SUBTOTAL			6	
TOTAL			16	

VIRAL POLYMERASE CHAIN REACTION (PCR)

ISOLATE	SEX	AGE	#	JURISDICTION
HERPES SIMPLEX VIRUS TYPE 1				
	U	20	1	BALTIMORE
	F	21	1	BALTIMORE
	F	25	1	BALTIMORE
	F	0	2	BALTIMORE CITY
	F	19	3	BALTIMORE CITY
	F	24	1	BALTIMORE CITY
	F	27	1	BALTIMORE CITY
	M	20	1	BALTIMORE CITY
	F	18	1	CALVERT
	M	22	1	CECIL
	M	25	2	CHARLES
	F	28	1	WICOMICO
	M	25	1	WICOMICO
HERPES SIMPLEX VIRUS TYPE 2				
	F	20	1	ALLEGANY
	F	22	1	ANNE ARUNDEL
	F	22	1	BALTIMORE
	F	27	1	BALTIMORE
	F	35	1	BALTIMORE
	M	34	1	BALTIMORE
	U	0	1	BALTIMORE CITY
	U	21	1	BALTIMORE CITY
	U	23	1	BALTIMORE CITY
	U	24	1	BALTIMORE CITY
	F	0	1	BALTIMORE CITY
	F	19	1	BALTIMORE CITY
	F	20	1	BALTIMORE CITY
	F	21	1	BALTIMORE CITY
	F	22	2	BALTIMORE CITY
	F	23	1	BALTIMORE CITY
	F	26	1	BALTIMORE CITY
	F	28	1	BALTIMORE CITY
	F	33	1	BALTIMORE CITY
	F	37	1	BALTIMORE CITY
	F	38	1	BALTIMORE CITY
	F	41	1	BALTIMORE CITY
	F	46	1	BALTIMORE CITY
	M	22	1	BALTIMORE CITY
	M	23	1	BALTIMORE CITY
	M	24	2	BALTIMORE CITY
	M	25	2	BALTIMORE CITY
	M	26	1	BALTIMORE CITY
	M	27	3	BALTIMORE CITY
	M	31	1	BALTIMORE CITY
	M	35	1	BALTIMORE CITY
	M	41	1	BALTIMORE CITY
	M	45	1	BALTIMORE CITY
	M	51	1	BALTIMORE CITY
	M	77	1	BALTIMORE CITY
	M	83	1	BALTIMORE CITY
	F	19	1	CHARLES
	F	24	1	DORCHESTER
	F	38	1	FREDERICK
	F	26	1	HARFORD
	M	23	2	KENT
	F	64	1	MONTGOMERY
	M	19	1	MONTGOMERY
	F	27	1	PRINCE GEORGE'S
	F	29	1	PRINCE GEORGE'S
	F	34	1	PRINCE GEORGE'S
	M	26	1	PRINCE GEORGE'S
	F	35	1	WASHINGTON
	F	20	1	WICOMICO

F	21	2	WICOMICO
F	30	1	WICOMICO
INFLUENZA A(H1)			
M	3	1	OUT OF STATE
M	44	1	QUEEN ANNE'S
INFLUENZA A(H1/N1) NOVEL A			
F	4	1	ALLEGANY
F	40	1	ALLEGANY
F	47	1	ALLEGANY
M	14	1	ALLEGANY
M	18	1	ALLEGANY
M	5	1	ALLEGANY
F	25	1	ANNE ARUNDEL
F	3	1	ANNE ARUNDEL
M	0	1	ANNE ARUNDEL
U	40	1	BALTIMORE
F	21	1	BALTIMORE
F	27	1	BALTIMORE
F	32	1	BALTIMORE
F	33	1	BALTIMORE
F	36	1	BALTIMORE
F	40	1	BALTIMORE
F	41	1	BALTIMORE
F	45	1	BALTIMORE
F	46	1	BALTIMORE
F	50	1	BALTIMORE
F	60	1	BALTIMORE
F	68	1	BALTIMORE
F	69	1	BALTIMORE
M	0	5	BALTIMORE
M	15	1	BALTIMORE
M	19	1	BALTIMORE
M	23	1	BALTIMORE
M	39	1	BALTIMORE
M	68	1	BALTIMORE
U	0	2	BALTIMORE CITY
U	14	2	BALTIMORE CITY
U	15	1	BALTIMORE CITY
U	17	1	BALTIMORE CITY
U	30	1	BALTIMORE CITY
U	40	1	BALTIMORE CITY
U	45	1	BALTIMORE CITY
U	46	1	BALTIMORE CITY
U	61	1	BALTIMORE CITY
U	7	1	BALTIMORE CITY
F	0	7	BALTIMORE CITY
F	10	4	BALTIMORE CITY
F	11	1	BALTIMORE CITY
F	12	2	BALTIMORE CITY
F	13	3	BALTIMORE CITY
F	14	2	BALTIMORE CITY
F	16	1	BALTIMORE CITY
F	17	4	BALTIMORE CITY
F	19	3	BALTIMORE CITY
F	2	2	BALTIMORE CITY
F	20	1	BALTIMORE CITY
F	22	2	BALTIMORE CITY
F	23	1	BALTIMORE CITY
F	25	6	BALTIMORE CITY
F	26	1	BALTIMORE CITY
F	27	3	BALTIMORE CITY
F	28	1	BALTIMORE CITY
F	3	5	BALTIMORE CITY
F	30	2	BALTIMORE CITY
F	31	3	BALTIMORE CITY
F	34	1	BALTIMORE CITY
F	35	1	BALTIMORE CITY
F	4	2	BALTIMORE CITY
F	41	1	BALTIMORE CITY
F	45	2	BALTIMORE CITY

F	46	1	BALTIMORE CITY
F	47	1	BALTIMORE CITY
F	5	1	BALTIMORE CITY
F	51	2	BALTIMORE CITY
F	53	1	BALTIMORE CITY
F	58	1	BALTIMORE CITY
F	7	3	BALTIMORE CITY
F	9	1	BALTIMORE CITY
M	0	4	BALTIMORE CITY
M	1	3	BALTIMORE CITY
M	10	5	BALTIMORE CITY
M	11	2	BALTIMORE CITY
M	12	2	BALTIMORE CITY
M	14	3	BALTIMORE CITY
M	15	3	BALTIMORE CITY
M	16	3	BALTIMORE CITY
M	17	2	BALTIMORE CITY
M	18	4	BALTIMORE CITY
M	19	3	BALTIMORE CITY
M	2	4	BALTIMORE CITY
M	20	1	BALTIMORE CITY
M	21	3	BALTIMORE CITY
M	22	1	BALTIMORE CITY
M	26	1	BALTIMORE CITY
M	28	3	BALTIMORE CITY
M	3	3	BALTIMORE CITY
M	33	1	BALTIMORE CITY
M	4	1	BALTIMORE CITY
M	43	2	BALTIMORE CITY
M	44	1	BALTIMORE CITY
M	46	2	BALTIMORE CITY
M	47	1	BALTIMORE CITY
M	49	1	BALTIMORE CITY
M	5	2	BALTIMORE CITY
M	56	1	BALTIMORE CITY
M	6	1	BALTIMORE CITY
M	60	1	BALTIMORE CITY
M	62	1	BALTIMORE CITY
M	8	5	BALTIMORE CITY
M	9	4	BALTIMORE CITY
U	48	1	CARROLL
F	23	1	CARROLL
M	48	1	CARROLL
U	42	1	CECIL
F	37	1	CECIL
M	3	1	CECIL
M	56	1	CECIL
F	10	1	CHARLES
F	13	1	CHARLES
F	16	1	CHARLES
F	23	1	CHARLES
F	27	1	CHARLES
F	34	1	CHARLES
F	37	1	CHARLES
F	38	1	CHARLES
F	4	1	CHARLES
F	40	1	CHARLES
F	45	1	CHARLES
M	1	1	CHARLES
M	13	1	CHARLES
M	14	1	CHARLES
M	23	1	CHARLES
M	49	1	CHARLES
M	6	1	CHARLES
M	8	1	CHARLES
F	51	1	FREDERICK
M	63	1	FREDERICK
F	17	1	HARFORD
F	32	1	HARFORD
M	18	1	HARFORD
M	43	1	HARFORD

M	7	1	HARFORD
F	49	1	HOWARD
F	60	1	HOWARD
M	50	1	HOWARD
U	5	1	MONTGOMERY
F	0	2	MONTGOMERY
F	1	1	MONTGOMERY
F	12	2	MONTGOMERY
F	13	1	MONTGOMERY
F	15	2	MONTGOMERY
F	17	1	MONTGOMERY
F	22	1	MONTGOMERY
F	23	1	MONTGOMERY
F	3	1	MONTGOMERY
F	33	1	MONTGOMERY
F	38	1	MONTGOMERY
F	4	1	MONTGOMERY
F	41	1	MONTGOMERY
F	5	2	MONTGOMERY
M	0	2	MONTGOMERY
M	1	1	MONTGOMERY
M	10	2	MONTGOMERY
M	11	1	MONTGOMERY
M	13	2	MONTGOMERY
M	16	1	MONTGOMERY
M	17	1	MONTGOMERY
M	2	2	MONTGOMERY
M	26	1	MONTGOMERY
M	28	1	MONTGOMERY
M	3	1	MONTGOMERY
M	30	1	MONTGOMERY
M	37	1	MONTGOMERY
M	4	3	MONTGOMERY
M	5	2	MONTGOMERY
M	54	2	MONTGOMERY
M	7	1	MONTGOMERY
M	8	1	MONTGOMERY
U	0	5	OUT OF STATE
U	1	1	OUT OF STATE
U	10	5	OUT OF STATE
U	11	3	OUT OF STATE
U	12	2	OUT OF STATE
U	13	5	OUT OF STATE
U	14	5	OUT OF STATE
U	15	4	OUT OF STATE
U	16	3	OUT OF STATE
U	17	3	OUT OF STATE
U	18	1	OUT OF STATE
U	19	1	OUT OF STATE
U	2	2	OUT OF STATE
U	20	1	OUT OF STATE
U	21	3	OUT OF STATE
U	24	1	OUT OF STATE
U	25	1	OUT OF STATE
U	27	2	OUT OF STATE
U	28	1	OUT OF STATE
U	3	1	OUT OF STATE
U	35	1	OUT OF STATE
U	36	1	OUT OF STATE
U	38	1	OUT OF STATE
U	39	1	OUT OF STATE
U	4	1	OUT OF STATE
U	5	3	OUT OF STATE
U	55	1	OUT OF STATE
U	6	3	OUT OF STATE
U	7	4	OUT OF STATE
U	8	2	OUT OF STATE
U	9	3	OUT OF STATE
F	0	1	OUT OF STATE
F	1	1	OUT OF STATE
F	12	1	OUT OF STATE

F	13	3	OUT OF STATE
F	14	1	OUT OF STATE
F	15	2	OUT OF STATE
F	17	1	OUT OF STATE
F	18	1	OUT OF STATE
F	19	1	OUT OF STATE
F	2	1	OUT OF STATE
F	20	2	OUT OF STATE
F	22	3	OUT OF STATE
F	23	1	OUT OF STATE
F	25	1	OUT OF STATE
F	27	1	OUT OF STATE
F	28	2	OUT OF STATE
F	3	1	OUT OF STATE
F	33	1	OUT OF STATE
F	37	1	OUT OF STATE
F	59	1	OUT OF STATE
F	7	1	OUT OF STATE
F	8	3	OUT OF STATE
F	9	1	OUT OF STATE
M	10	1	OUT OF STATE
M	11	3	OUT OF STATE
M	12	2	OUT OF STATE
M	14	3	OUT OF STATE
M	16	1	OUT OF STATE
M	17	1	OUT OF STATE
M	18	2	OUT OF STATE
M	19	1	OUT OF STATE
M	2	2	OUT OF STATE
M	20	3	OUT OF STATE
M	22	1	OUT OF STATE
M	23	1	OUT OF STATE
M	24	1	OUT OF STATE
M	25	3	OUT OF STATE
M	26	1	OUT OF STATE
M	27	1	OUT OF STATE
M	28	1	OUT OF STATE
M	29	1	OUT OF STATE
M	3	2	OUT OF STATE
M	32	1	OUT OF STATE
M	48	1	OUT OF STATE
M	6	1	OUT OF STATE
M	7	1	OUT OF STATE
M	8	2	OUT OF STATE
U	12	2	PRINCE GEORGE'S
U	18	1	PRINCE GEORGE'S
U	47	1	PRINCE GEORGE'S
F	0	2	PRINCE GEORGE'S
F	1	1	PRINCE GEORGE'S
F	10	3	PRINCE GEORGE'S
F	11	2	PRINCE GEORGE'S
F	12	5	PRINCE GEORGE'S
F	13	3	PRINCE GEORGE'S
F	14	1	PRINCE GEORGE'S
F	15	2	PRINCE GEORGE'S
F	17	2	PRINCE GEORGE'S
F	18	2	PRINCE GEORGE'S
F	2	3	PRINCE GEORGE'S
F	20	2	PRINCE GEORGE'S
F	22	4	PRINCE GEORGE'S
F	23	2	PRINCE GEORGE'S
F	27	2	PRINCE GEORGE'S
F	3	2	PRINCE GEORGE'S
F	30	1	PRINCE GEORGE'S
F	31	2	PRINCE GEORGE'S
F	33	1	PRINCE GEORGE'S
F	34	1	PRINCE GEORGE'S
F	36	1	PRINCE GEORGE'S
F	37	2	PRINCE GEORGE'S
F	4	1	PRINCE GEORGE'S
F	40	2	PRINCE GEORGE'S

F	41	1	PRINCE GEORGE'S
F	45	1	PRINCE GEORGE'S
F	49	2	PRINCE GEORGE'S
F	5	3	PRINCE GEORGE'S
F	53	1	PRINCE GEORGE'S
F	57	1	PRINCE GEORGE'S
F	6	4	PRINCE GEORGE'S
F	60	1	PRINCE GEORGE'S
F	8	1	PRINCE GEORGE'S
F	9	2	PRINCE GEORGE'S
M	0	3	PRINCE GEORGE'S
M	1	1	PRINCE GEORGE'S
M	10	6	PRINCE GEORGE'S
M	11	1	PRINCE GEORGE'S
M	12	3	PRINCE GEORGE'S
M	13	2	PRINCE GEORGE'S
M	15	4	PRINCE GEORGE'S
M	16	3	PRINCE GEORGE'S
M	17	1	PRINCE GEORGE'S
M	19	1	PRINCE GEORGE'S
M	2	2	PRINCE GEORGE'S
M	21	2	PRINCE GEORGE'S
M	23	2	PRINCE GEORGE'S
M	24	1	PRINCE GEORGE'S
M	26	1	PRINCE GEORGE'S
M	28	1	PRINCE GEORGE'S
M	29	1	PRINCE GEORGE'S
M	33	1	PRINCE GEORGE'S
M	34	1	PRINCE GEORGE'S
M	39	1	PRINCE GEORGE'S
M	4	1	PRINCE GEORGE'S
M	43	2	PRINCE GEORGE'S
M	46	1	PRINCE GEORGE'S
M	5	2	PRINCE GEORGE'S
M	52	1	PRINCE GEORGE'S
M	54	1	PRINCE GEORGE'S
M	6	3	PRINCE GEORGE'S
M	7	2	PRINCE GEORGE'S
M	8	3	PRINCE GEORGE'S
M	9	2	PRINCE GEORGE'S
F	6	1	TALBOT
M	3	1	TALBOT
M	44	1	TALBOT
M	7	1	TALBOT
F	22	1	WICOMICO
M	4	1	WICOMICO
U	24	1	WORCESTER
F	0	1	WORCESTER
F	10	1	WORCESTER
F	14	1	WORCESTER
F	18	1	WORCESTER
F	19	2	WORCESTER
F	2	1	WORCESTER
F	21	3	WORCESTER
F	22	1	WORCESTER
F	23	1	WORCESTER
F	25	1	WORCESTER
F	28	1	WORCESTER
F	5	1	WORCESTER
F	58	1	WORCESTER
F	6	1	WORCESTER
F	9	1	WORCESTER
M	10	1	WORCESTER
M	11	1	WORCESTER
M	15	1	WORCESTER
M	3	1	WORCESTER
M	9	1	WORCESTER
INFLUENZA A(H3)			
M	33	1	BALTIMORE CITY
TOTAL 645			

VIRAL HEPATITIS

ORGANISM		
# SPECIMENS		
# POSITIVES		
JURISDICTION		
HEPATITIS A		
1	0	ALLEGANY
1	0	CALVERT
1	0	CARROLL
1	0	GARRETT
2	0	PRINCE GEORGE'S
SUBTOTAL 6 0		
HEPATITIS B		
58	1	ALLEGANY
208	1	ANNE ARUNDEL
38	1	BALTIMORE
513	6	BALTIMORE CITY
5	0	CALVERT
1	0	CAROLINE
20	0	CARROLL
155	1	CECIL
5	0	CHARLES
69	2	FREDERICK
24	0	GARRETT
43	0	HARFORD
33	0	HOWARD
329	4	MONTGOMERY
349	7	PRINCE GEORGE'S
3	0	QUEEN ANNE'S
2	0	SAINT MARY'S
1	0	SOMERSET
10	0	TALBOT
38	0	WASHINGTON
103	1	WICOMICO
1	0	WORCESTER
SUBTOTAL 2,008 24		
HEPATITIS C		
65	6	ALLEGANY
235	80	ANNE ARUNDEL
43	2	BALTIMORE
230	58	BALTIMORE CITY
5	0	CALVERT
1	0	CAROLINE
25	2	CARROLL
106	13	CECIL
10	0	CHARLES
65	3	FREDERICK
30	0	GARRETT
25	0	HARFORD
3	0	HOWARD
40	2	MONTGOMERY
180	8	PRINCE GEORGE'S
16	0	QUEEN ANNE'S
5	0	SAINT MARY'S
10	0	TALBOT
15	2	WASHINGTON
17	2	WICOMICO
1	0	WORCESTER
SUBTOTAL 1,127 178		
TOTALS 3,141 202		

RABIES

SOURCE	#	JURISDICTION
BAT	3	ANNE ARUNDEL
	1	BALTIMORE
CAT	1	DORCHESTER
	1	HOWARD
	1	MONTGOMERY
	1	SAINT MARY'S
FOX	1	BALTIMORE
	1	DORCHESTER
	1	MONTGOMERY
	1	WICOMICO
	3	WORCESTER
RACCOON	1	BALTIMORE CITY
	1	BALTIMORE
	2	CARROLL
	1	FREDERICK
	2	HOWARD
	1	MONTGOMERY
	1	PRINCE GEORGE'S
	1	TALBOT
	8	WORCESTER
SKUNK	1	WICOMICO
TOTAL POSITIVES	34	
TOTAL SPECIMENS	527	

CHLAMYDIOPHILIA PSITTACI

(CHLAMYDIA) REPORTED QUARTERLY
APRIL 2009 THROUGH JUNE 2009

SEX	AGE	JURISDICTION
M	42	PRINCE GEORGE'S
M	18	PRINCE GEORGE'S
M	32	MONTGOMERY

CD4 FLOW CYTOMETRY WORKLOAD

COMPARING CURRENT QUARTER TO
SAME QUARTER LAST YEAR

DATES	Level 1	Level 2	Level 3	TOTAL
	<14%	14%-28%	≥29%	
4/01/09 - 6/30/09	150	435	280	865
4/01/08 - 6/30/08	229	490	301	1020

BLOOD LEAD

MARYLAND

I	<10	153
IIA	10-14	9
IIB	15-19	1
III	20-44	3
IV	45-69	1
V	>69	0
TOTAL		167

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

STATISTICS FOR JUNE 2009

PRESUMPTIVE POSITIVES

DISORDERS	#
PHENYLKETONURIA	4
MAPLE SYRUP URINE DISEASE	1
HOMOCYSTEINURIA	9
TYROSINEMIA	2
ARGININEMIA	0
CITRULLINEMIA	1
GALACTOSEMIA	1
BIOTINIDASE DEFICIENCY	3
HYPOTHYROIDISM	63
HEMOGLOBIN -DISEASE	18
HEMOGLOBIN -BENIGN	422
CONGENITAL ADRENAL HYPERPLASIA (CAH)	46
CYSTIC FIBROSIS	3
FATTY ACID OXIDATIONS	0
ORGANIC ACIDEMIAS	6
ACYLCARNITINE - BORDERLINE	3
ACYLCARNITINE - OTHERS	11

MONTHLY TOTALS

# OF SPECIMENS SCREENED	13,224
NUMBER OF TESTS	1,003,901
% UNSATISFACTORY SPECIMENS	2.7

YEAR-TO-DATE CONFIRMED CASES

CONDITIONS	# CONFIRMED
MCAD	3
3MCC	1
SCAD	0
VLCAD	0
GA-I	0
IVA	1
PA	0
MAPLE SYRUP URINE DISEASE	0
PKU- CLINICALLY SIGNIFICANT VARIANT	0
CLINICALLY SIGNIFICANT VARIANT HYPERPHENYLALANINEMIA (NOT CLASSICAL PKU)	0
VARIANT HYPERPHENYLALANINEMIA (NOT CLINICALLY SIGNIFICANT)	0
CITRULINEMIA I (CIT-I)	1
GALACTOSEMIA- CLASSICAL GALT DEFICIENCY	1
GALACTOSEMIA - VARIANT	0
BIOTINIDASE DEFICIENCY	0
GALACTOSE EPIMERASE DEFICIENCY	0
PARTIAL BIOTINIDASE DEFICIENCY	0
CAH- CLASSICAL SALT WASTING	0
CAH-NON-CLASSICAL	0
HYPOTHYROIDISM - PRIMARY	11
OTHER HYPOTHYROIDISM	8
SECONDARY HYPOTHYROIDISM	1
SICKLE CELL DISEASE -SS	37
SICKLE CELL DISEASE -SC	24
SICKLE CELL DISEASE -SE	0
SICKLE CELL DISEASE -S BETA	0
THALASSEMIA	0
CYSTIC FIBROSIS	2

ENVIRONMENTAL CHEMISTRY

SAMPLES	# NON-COMPLIANT	# TESTED
ASBESTOS		
AIR	0	0
BULK	3	5
AIR QUALITY		
PM _{2.5}	0	591
PM ₁₀	0	0
RADIATION		
AIR/CHARCOAL FILTERS	0	56
MILK	0	2
WIPES	0	40
RAW WATER	0	5
VEGETATION	0	0
OTHER	0	1
DRINKING WATER		
METALS		
COMMUNITY	4	11
NON-COMMUNITY	5	9
PRIVATE WELLS	52	167
PESTICIDES & PCBs		
COMMUNITY	0	117
NON-COMMUNITY	0	44
PRIVATE WELLS	0	1
VOLATILE ORGANIC COMPOUNDS		
COMMUNITY	3	265
NON-COMMUNITY	0	70
PRIVATE WELLS	1	162
RADIATION		
COMMUNITY	1	59
NON-COMMUNITY	0	0
PRIVATE WELLS	0	5
INORGANICS		
COMMUNITY	0	17
NON-COMMUNITY	9	112
PRIVATE WELLS	16	189
FOOD CHEMISTRY		
SUSPECTED TAMPERING	0	0
MICROSCOPIC FILTH	0	0
LABELING	0	0
SURVEILLANCE	0	0
CHEMICAL CONTAMINATION	0	5
TOTAL	94	1,933

VIRAL LOAD SPECIMENS					
HIV-1 RNA COPIES/ML	<10 ³	10 ³ –10 ⁴	10 ⁴ –10 ⁵	>10 ⁵	TOTALS
ALLEGANY	15	1	0	0	16
MONTGOMERY	97	11	16	2	126
PRINCE GEORGE'S	63	21	13	10	107
WASHINGTON	5	0	0	0	5
WICOMICO	1	0	1	0	2
SUBTOTALS	181	33	30	12	256
DEPT. OF CORRECTIONS	36	7	9	1	53
TOTALS	217	40	39	13	309

HIV ANTIBODY SCREENING					
SUBMITTER	TOTAL SPECIMENS	# EIA POSITIVE	% EIA POSITIVE	# WB POSITIVE	% WB POSITIVE
CORRECTIONAL INSTITUTIONS	131	3	2.29%	3	100.00%
FAMILY PLANNING (NON-GOVT)	90	0	0.00%	0	0.00%
HEALTH CENTERS (NON-GOVT)	667	44	6.60%	42	95.45%
HEALTH DEPT, NON-STD, FAMILY PLANNING	556	3	0.54%	0	0.00%
HEALTH DEPT, NON-STD, OB/GYN	15	0	0.00%	0	0.00%
HEALTH DEPT, NON-STD, OTHER	797	34	4.27%	33	97.06%
HEALTH DEPT, STD CLINICS	986	23	2.33%	21	91.30%
HOSPITAL, OTHER	159	22	13.84%	21	95.45%
HOSPITAL, PUBLIC	24	2	8.33%	2	100.00%
LABORATORIES (NON-HOSPITAL)	394	19	4.82%	10	52.63%
PEDIATRIC - CHILD HEALTH	2	0	0.00%	0	0.00%
PRIVATE PHYSICIANS	3	0	0.00%	0	0.00%
PRIVATE STUDENT HEALTH CTRS	18	0	0.00%	0	0.00%
PUBLIC STUDENT HEALTH CTRS	73	3	4.11%	1	33.33%
TOTALS	3,915	153	3.91%	133	86.93%



MAILING LABEL

Critical Link
 c/o Georgia Corso, Room L-15
 J. Mehsen Joseph Public Health Laboratory
 Department of Health & Mental Hygiene
 201 West Preston Street
 Baltimore, Maryland 21201

