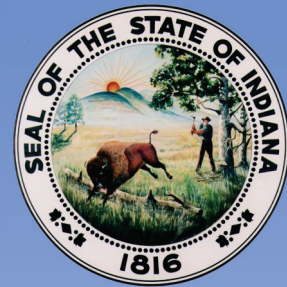


# The LAByrinth

Indiana State Department of Health  
Laboratories Newsletter



## Indiana State Department of Health Laboratories

Gregory N. Larkin, M.D.  
State Health Commissioner

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Chief of Staff

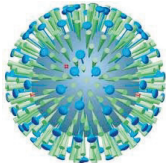
Judith Lovchik, Ph.D  
Assistant Commissioner  
Laboratory Services

*Our Mission:*

*The Indiana State Department of Health Laboratories partners with other public health agencies to provide timely and accurate information needed for surveillance and outbreak investigations to protect and improve Hoosier health.*

### 2010-2011 Flu Season Summary

by Liz Church, Katie Masterson & Mark Glazier

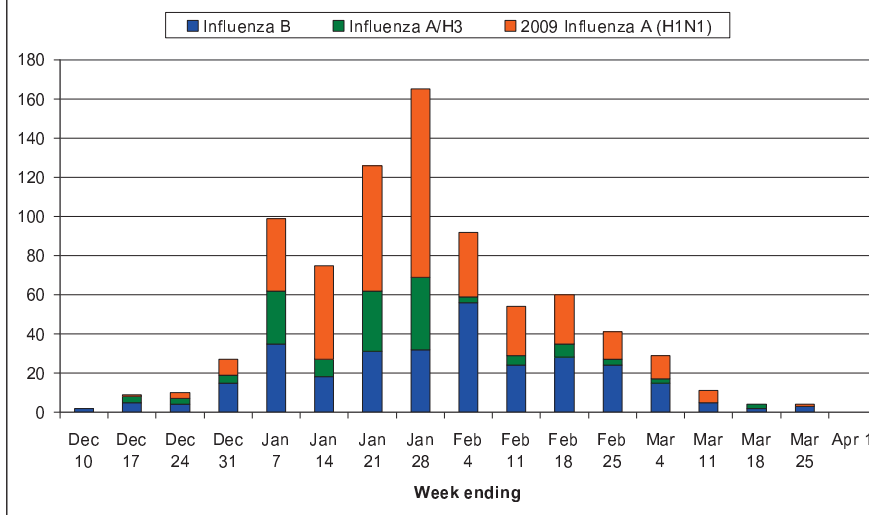


Throughout the course of the 2010-2011 influenza season, the ISDH Virology Laboratory received approximately 1000 specimens for influenza and respiratory virus testing. This year, in addition to receiving specimens from our year-round respiratory surveillance sites, we called upon the Indiana sentinel laboratories for their specimens, too. In order to

strengthen influenza surveillance in Indiana, the ISDH Laboratories asked sentinel laboratories to submit rapid test positive specimens for confirmation and subtyping by both PCR and virus culture. The data obtained from both the sentinel laboratories and the year-round respiratory surveillance sites helped us acquire additional information about influenza activity in Indiana.

Between December 15, 2010 and April 1, 2011, over 900 specimens were submitted to the ISDH Virology Lab for testing. Of those specimens, more than 85 % were positive for influenza by PCR. The most common types circulating during that period were influenza 2009 A/H1N1 (38.8%) and influenza B (31.7%). The types of influenza B that were circulating this year belonged to the Victoria or Yamagata lineage. Select influenza negative specimens were set-up in culture to determine additional circulating respiratory viruses. Isolated viruses included strains of parainfluenza 1, parainfluenza 2, parainfluenza 3, adenovirus and respiratory syncytial virus (RSV).

**Graph 1. ISDH Laboratory Influenza Molecular Results  
12/6/2010 - 4/1/2011**



(continued on page 2)

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**2010-2011 Flu Season Summary** (continued from page 1)

During the height of this year's flu season, the self-reported rapid influenza diagnostic test (RIDT) result and the PCR result for each specimen was compared by the ISDH Virology Lab in order to determine the accuracy of RIDTs at sites that participate in year-round respiratory surveillance. Between January and March 2011, analysis showed that 3.1% of specimens had a false-positive rapid test result while 23.1% had a false-negative rapid test result. In order to illustrate the importance of confirmatory testing, last year the ISDH investigated what was initially thought to be an influenza-associated death. Prior to the patient's death, a positive influenza rapid test was reported. However, when the hospital sent the patient's specimen for confirmation testing, the results showed that the specimen was actually negative for influenza. Retrospectively, the specimen was determined to be positive for *Legionella*. The RIDT result was incorrect! This false-positive RIDT example emphasizes the significance of confirming EIA positives by a more accurate test, such as PCR or viral culture.

While rapid tests are simple to use and produce results quickly, they have limited sensitivity to detect influenza virus infection. Since false-positive results are likely to occur when there is little to no influenza circulating, the use of rapid tests during non-flu season is strongly discouraged. According to CDC data, when influenza prevalence is low, the false-positive rate of RIDTs could be as high as 94%! Similarly, false-negative results are likely to occur when influenza disease prevalence is high, typically during the height of flu season. Because the results of these RIDTs vary considerably, it is important for the patient's clinical presentation to be taken into account when interpreting rapid flu test results. Even though this year's flu season has come to an end, ISDH Virology Lab will continue to accept respiratory specimens for testing by both PCR and virus culture throughout the summer and into next flu season.

For more information regarding influenza testing, please contact Mark Glazier (317-921-5842) or Katie Masterson (317-921-5843).

Additional information on influenza activity and data can be found at: <http://www.cdc.gov/flu/weekly/fluactivitysurv.htm>

**Serology Laboratory Introduces a New Method for Detection of HIV-1**

By Jessica Gentry

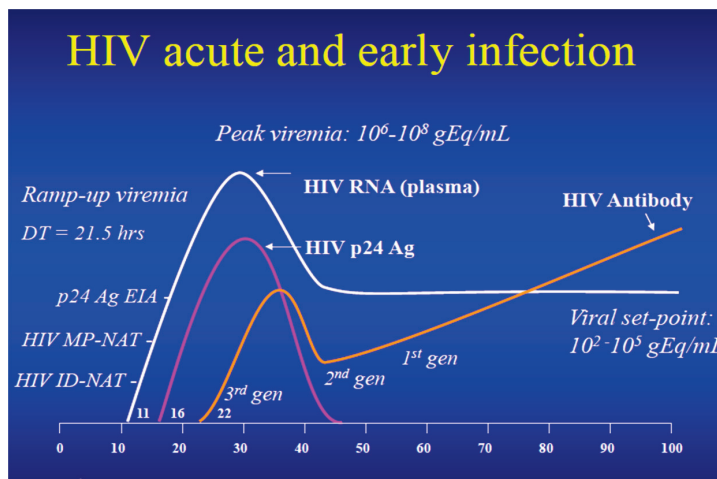


In order to better detect new, early acute cases of HIV infection, the Serology Laboratory has recently introduced an FDA approved assay, the GEN-PROBE APTIMA HIV-1 Nucleic Acid Amplification Test (HIV NAAT). This new assay has recently replaced the HIV-1 Antibody Western Blot assay previously in use by the Indiana State Department of Health Lab.

While the HIV-1 Western Blot assay was intended to detect antibodies to HIV-1, the NAAT assay detects RNA to the HIV-1 virus instead. Since it can take up to eight weeks for HIV antibody levels to reach detectable levels, and RNA can be detected in as little as nine days after HIV infection, this new assay is expected to allow the labs to decrease the traditional "window period" for HIV diagnosis.

Early detection of new HIV infection is especially crucial for two reasons. First, in early, acute infection, most people present clinically with "acute retroviral syndrome", which often consists of fevers and other flu like symptoms and can last for a couple of weeks. During this state of infection, many people could be misdiagnosed if a traditional antibody based test is used to rule out the HIV infection at this time, such as a Western Blot, due to the delay of the antibody production.

The second reason is that during the early acute phase of HIV infection, most people are especially infectious, since the levels of HIV virus circulating in their blood are elevated. The increase in the level of HIV virus can directly result in an increased rate of HIV transmission for those involved in risky behaviors, such as engaging in unprotected sexual contact or sharing used needles. Detection of HIV at this time presents an opportunity to greatly decrease the rates of transmission, directly leading to a decrease in new infections.



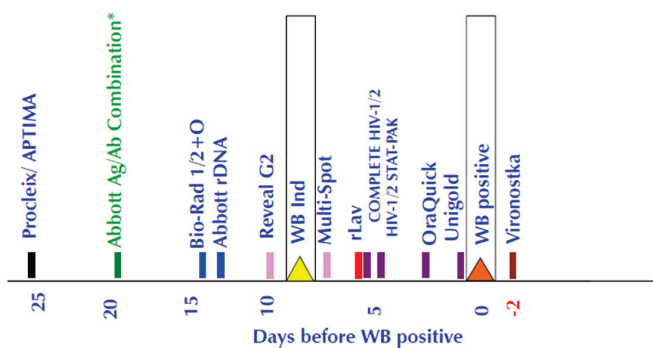
(Source: Bernard Branson MD, presentation from 2010 HIV conference)

The HIV NAAT assay will be used as a confirmatory test on all specimens that test reactive on the CIA screening test, and also on those samples that were reported by the submitter to be rapid test positive. In the near future, the Serology Lab plans to use this assay to additionally test all samples which were CIA negative, by creating pools of samples that were negative with the HIV CIA test, and then using the NAAT to test the entire pool. This technique will allow the Serology Lab to identify early HIV infection for large numbers of specimens, at a relatively low cost.

The Serology Laboratory has also implemented another FDA approved NAAT test, the GEN-PROBE APTIMA HCV Nucleic Acid Amplification Test (HCV NAAT), to replace the Hepatitis C RIBA Antibody test previously in use.

### Sequence of Test Positivity Relative to WB

50 % Positive Cumulative Frequency



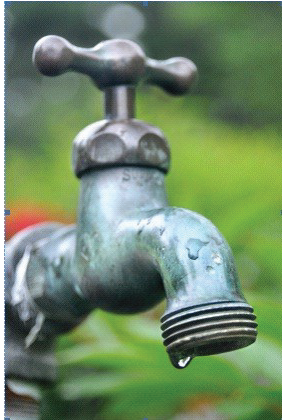
Modified from Owen et al J Clin Micro 2008

\* = not currently FDA approved

(Source: Michael P. Busch MD, presentation from 2010 HIV conference)

## ISDH Drinking Water Microbiology Laboratory Certification

By Mary Robinson



The Indiana State Department of Health (ISDH) and the Indiana Department of Environmental Management (IDEM) work to ensure public health protection through primacy of the Safe Drinking Water Act (SDWA) and the provision of potable water. Potable water is defined as finished water, after treatment that is safe and satisfactory for drinking and cooking. Public water and water distribution systems in Indiana are regulated by IDEM. The ISDH Laboratories have been given the responsibility to maintain the drinking water laboratory certification program. "Primacy" refers to primary enforcement responsibility awarded to the state by the United States Environmental Protection Agency (EPA). Certified laboratories analyze water samples for the presence of specific contaminants to help public water systems demonstrate that their water meets health based standards.

The ISDH Laboratory Certification program ensures laboratories are able to perform accurate testing using scientific methods which have been approved by the U.S. EPA. A laboratory must undergo initial certification and annual audits of their facilities, staff and procedures to maintain certification. Laboratories range in size from a few personnel at a Public Water System (PWS) facility to multi-departmental private businesses.

There are currently 64 public and private microbiology laboratories in Indiana. Laboratories are triennially inspected on-site and are required to pass annual performance testing.

Persons/companies wishing to inquire about certification can obtain information from the ISDH website at: <http://www.in.gov/isdh/24859.htm>. The certification process involves submission of required information such as Quality Control data, instrumentation records, Proficiency testing study results, etc. to ISDH, resulting in an initial on-site audit. Laboratories are granted certification status after the successful completion of the initial on-site visit.

### Requirements for State Primacy (from 40CFR142, Subp. B)

- Have regulations for contaminants regulated by the national primary drinking water regulations that are no less stringent than the regulations promulgated by EPA. States have up to two years to develop regulations after new regulations are released by EPA
- Have adopted and be implementing procedures for the enforcement of State regulations.
- Maintain an inventory of public water systems in the State.
- Have a program to conduct sanitary surveys of the systems in the State.
- Have a program to certify laboratories that will analyze water samples required by the regulations.
- Have a laboratory that will serve as the State's "principal" lab that is certified by EPA.
- Have a program to ensure that new, or modified, systems will be capable of complying with State primary drinking water regulations.
- Have adequate enforcement authority to compel water systems to comply with NDWRs, including: the authority to sue in court, right to enter and inspect water system facilities, authority to require systems to keep records and release them to the State, authority to require systems to notify the public of any system violation of the State requirements, and authority to assess civil or criminal penalties for violations of the State Primary Drinking Water Regulations and Public Notification requirements.
- Have adequate recordkeeping and reporting requirements.
- Have adequate variance and exemption requirements as stringent as EPA's, if the State chooses to allow variances and exemptions.
- Have an adequate plan to provide for safe drinking water in emergencies like a natural disaster.
- Have adopted authority to assess administrative penalties for violations of their approved primacy program.

### ***Announcement of New ISDH Chief Medical Officer***

I am pleased to announce Dr. Joan Duwve has agreed to serve as the Chief Medical Officer for the Indiana State Department of Health (ISDH). Dr. Duwve will continue her current duties as Medical Director for the Public Health and Preparedness Commission. In this role Dr. Duwve will represent the ISDH on the Association of State and Territorial Health Officials (ASTHO) Committees and Workgroups, and she will also represent the ISDH on the Central US Earthquake Consortium (CUSEC). Dr. Duwve received her MPH from The University of Michigan in 1986, after serving for two years in Peace Corps in Morocco. She then worked for an international public health agency based in New York City, managing grants in North Africa and the Middle East. She received her medical degree from Johns Hopkins School of Medicine in 1994. That year, she moved to Indiana with her young family to complete her residency in Family Medicine at St. Vincent's. Dr. Duwve practiced medicine for 11 years prior to returning to public health work. She joined ISDH in February 2008.

*-Greg Larkin, MD, State Health Commissioner*

### ***Ray Beebe honored with 2011 Governor's Public Service Achievement Award***

On Tuesday, May 10, 2011 Governor Mitch Daniels presented a Governor's Public Service Achievement Award to our very own Ray Beebe. It was a wonderful affair, attended by Dr. Larkin, Loren Robertson, Sean Keefer, Rosanne Merz, and myself. We are so very proud of Ray and all that he has accomplished for us and for Indiana over the years.



*-Judith C Lovchik, PhD, D(ABMM)*



The other recipients of the 2011 Governor's Public Service Achievement Awards can be found at:

<http://in.gov/spd/files/june11.pdf>

## Healthy U! Column

### Recipe for your Health!

#### **Caribbean Pulled Chicken Stew**

##### *Ingredients*

1 tbsp olive oil  
 2 medium onions diced  
 6 chicken thighs (must have skin & bones in tact, will remove skin & bones later)  
 3.5 cups low sodium chicken broth  
 4 cups diced & peeled yams (sweet potatoes)  
 2 cups fresh diced tomatoes  
 3/4 cup tomato juice  
 1.5 cups frozen corn  
 1 tbsp chili powder  
 3 tsp black pepper  
 1 cup Rooster brand coconut milk (or any brand that is unsweetened & light coconut milk, less than 300 calories per 1 cup serving)  
 5 tsp fresh minced ginger (3 tsp dried)  
 Optional spices: 1 tsp fresh ground allspice, 1 tsp Thyme, 1 tbsp curry powder, 1/2 tsp red pepper)

##### *Directions*

In a 4-5 quart Dutch oven heat oil. Add onions; cook and stir over medium heat about 5 minutes or until tender. Add chicken pieces and broth. Bring to boiling; reduce heat. Simmer, covered, for 30 minutes. Remove chicken from Dutch oven and set aside to cool.

Add yams, tomatoes, tomato juice, frozen corn, chili powder, to Dutch Oven with chicken broth. Return to boiling; reduce heat. Simmer, covered for 10-15 minutes or until vegetables are tender but not to soft.

Meanwhile, when cool enough to handle, remove chicken from bones. Discard the skin and bones and any fat. Using your hands pull chicken into bite sized strands/chunks. Skim any fat from the broth. Do not add chicken yet.

Reserve 2 cups of broth & vegetables and once cool use a food processor or blender to puree the mixture. Return the vegetable/broth puree to the Dutch oven. Add chicken, coconut milk and ginger. Cook on low-medium heat for 10 minutes.

Serves 8.

*Recipe submitted by a SparkPeople user  
 JANNERS1980.*

Stay Healthy!

The ISDH Labs Health & Wellness Council

#### **Caribbean Pulled Chicken Stew**



##### Nutritional Information

*Fat: 7.6g  
 Carbohydrates: 32.8g  
 Calories: 249.7  
 Protein: 14.2g*

#### Healthy Links!

Below are just a few healthy lifestyle websites that provide wellness tips, healthy recipes, exercise tips, and lots more information to keep you healthy. Check them out!

[www.sparkpeople.com](http://www.sparkpeople.com)

[www.babyfit.com](http://www.babyfit.com)

[www.sparkrecipes.com](http://www.sparkrecipes.com)

[www.dailyspark.com](http://www.dailyspark.com)

[www.wedMD.com](http://www.wedMD.com)

[www.dailybum.com](http://www.dailybum.com)

[www.walkertracker.com](http://www.walkertracker.com)

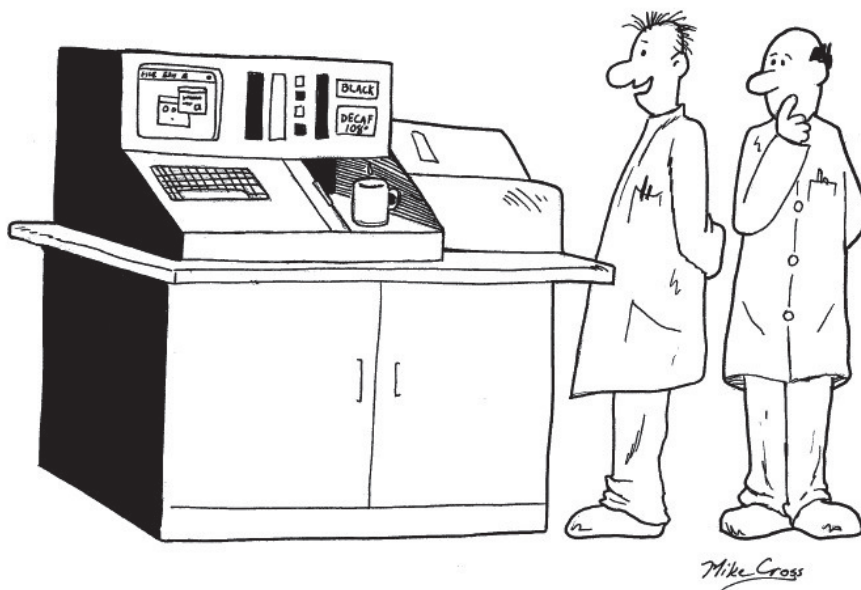
[www.peertrainer.com](http://www.peertrainer.com)

[www.anthem.com/health-insurance/health-and-wellness/hw-overview](http://www.anthem.com/health-insurance/health-and-wellness/hw-overview)

[www.myfitnesspal.com](http://www.myfitnesspal.com)



### Microtoon by Mike Cross



“This new instrument is amazing. It can analyze several different reactions at once, print out results, and it can even make a mean cup of coffee!”

### The LAByrinth

**The LAByrinth** is published bi-monthly by the editorial staff of Indiana State Department of Health Laboratories.

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**Check us out!**

[www.in.gov/isdh/24567.htm](http://www.in.gov/isdh/24567.htm)