Wisconsin Division of Public Health
Bureau of Communicable Diseases and Emergency Response
Department of Health Services

WISCONSIN EPI EXPRESS
February 2013

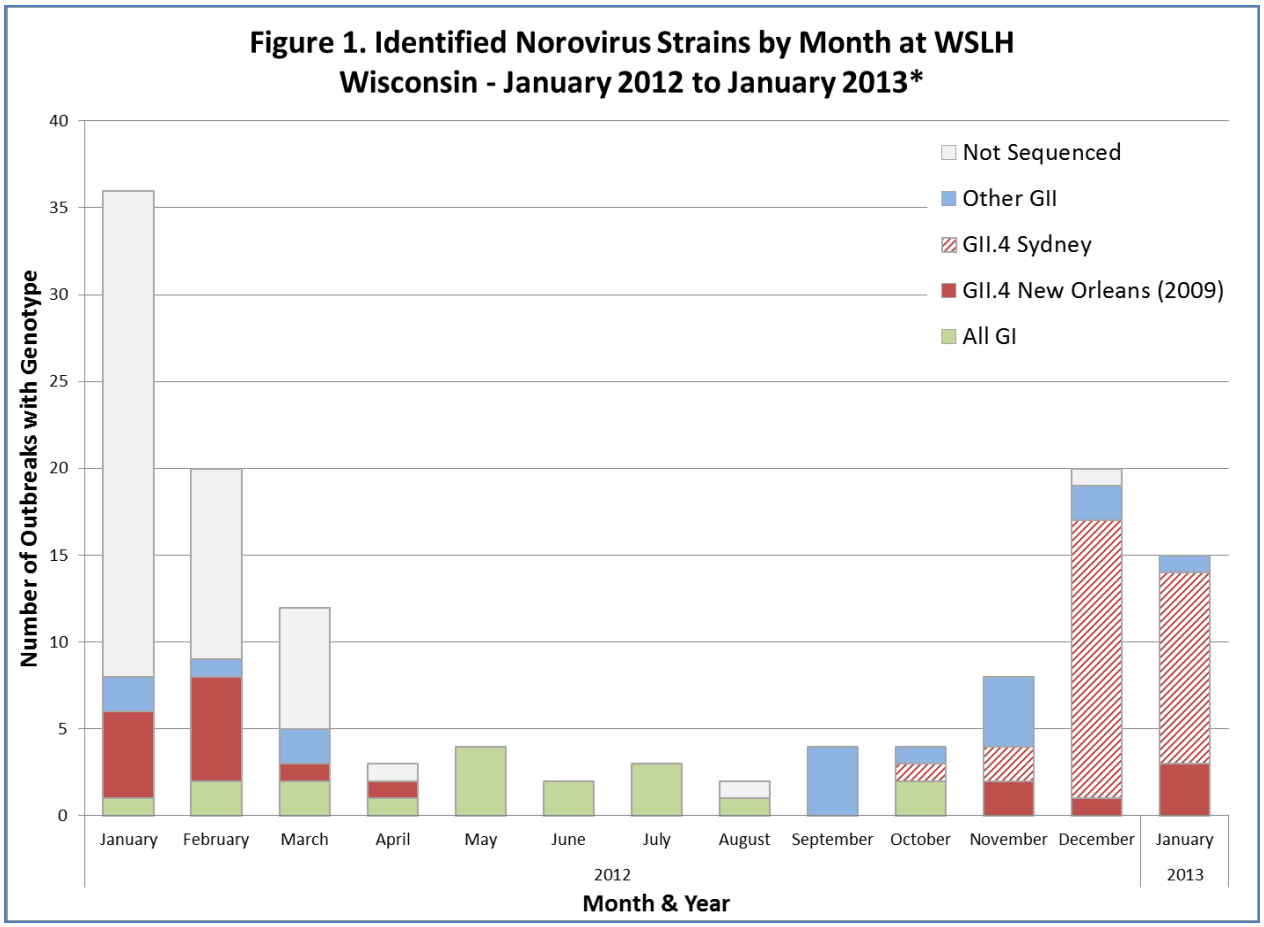
This issue of the WEE is dedicated to Rick Heffernan who lost his battle with cancer February 24, 2013.

In this issue:

1. Norovirus update

During March 2012 a new strain of norovirus, GII.4 Sydney, was identified in Australia. This strain has now been detected in many countries around the world, and is currently the dominant norovirus strain circulating in the United States. GII.4 Sydney has replaced the previously dominant GII.4 New Orleans strain. CDC highlighted the emergence of this new strain in a recent issue of the Morbidity and Mortality Weekly Report (MMWR): http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6203a4.htm.

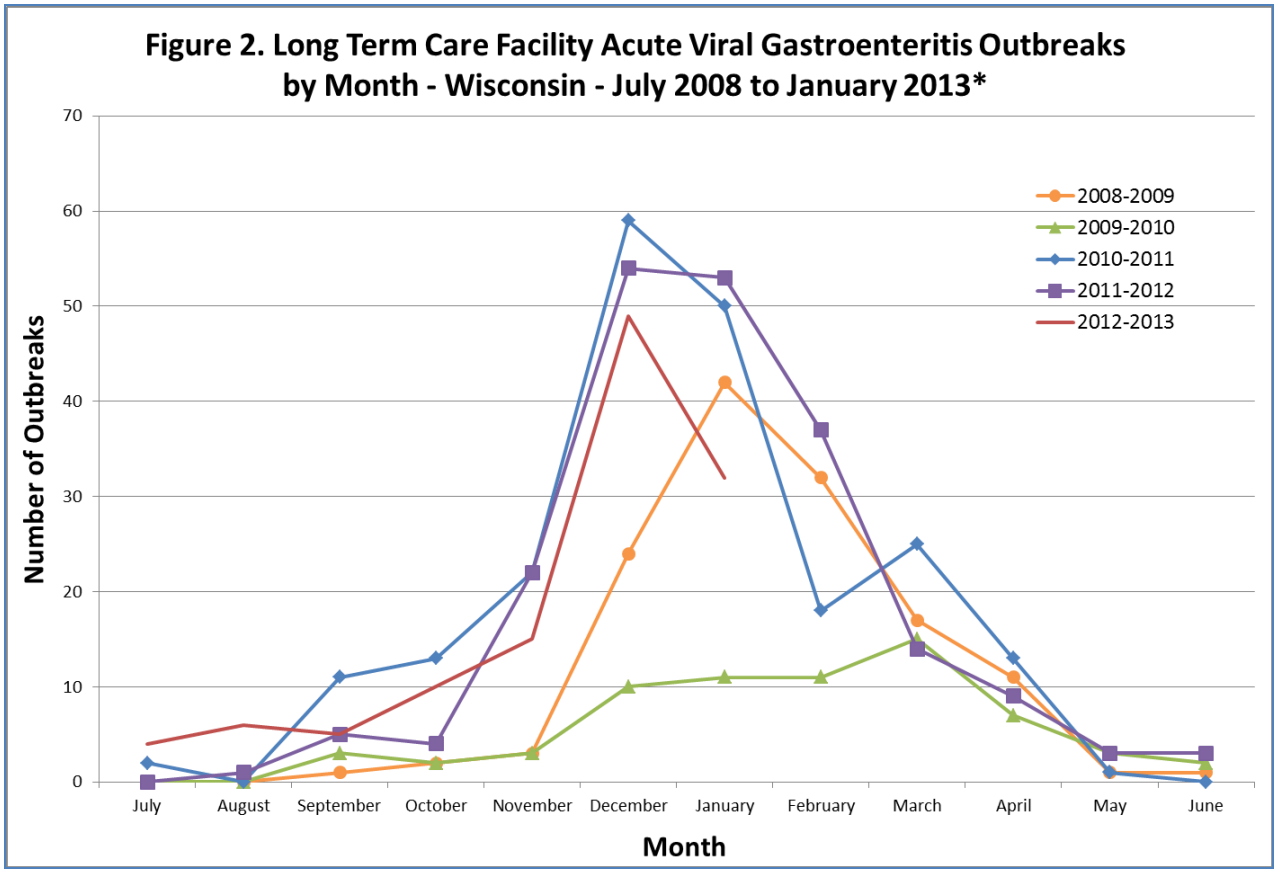
The initial detection of GII.4 Sydney in Wisconsin occurred in October 2012. Since then GII.4 Sydney has become the predominant norovirus strain detected during outbreak investigations. The new strain has been detected in specimens submitted from all five public health regions in Wisconsin. From October 1, 2012 through January 31, 2013, the Wisconsin State Laboratory of Hygiene (WSLH) performed sequencing of norovirus positive specimens from 46 outbreaks of which 30 (65%) were identified as the norovirus GII.4 Sydney strain. Figure 1 depicts norovirus strains identified at the WSLH from January 1, 2012 through January 31, 2013. The new GII.4 Sydney strain is identified by the red diagonal stripe bands.



*Data is preliminary and may change as additional information becomes available.

Detection of the GII.4 Sydney strain in Wisconsin has been enhanced by participation in CDC's Norovirus Sentinel Testing and Tracking (NoroSTAT) project. Wisconsin is one of 5 states selected to participate in this new national norovirus sentinel surveillance project. Data on norovirus outbreaks are provided to CDC on a weekly basis to help with near-real time assessment of norovirus activity. The DPH provides epidemiologic data through the National Outbreak Reporting System (NORS), and the WSLH provides genotyping data through CaliciNet, the national laboratory network of norovirus sequences. NoroSTAT has increased the number of outbreaks for which norovirus strain data is available by providing funding for the WSLH to sequence positive specimens from each norovirus outbreak from which they receive specimens.

Figure 2 depicts the seasonality of long term care facility acute viral gastroenteritis outbreaks, including norovirus, in Wisconsin.



*Data for 2012-2013 is preliminary and may change as additional information becomes available.

2. Positive test results for IgM antibody to hepatitis A virus among patients who do not have hepatitis A

The diagnosis of acute hepatitis A virus (HAV) infection is typically based on the detection of specific IgM antibody to HAV in a single serum sample. Anti-HAV IgM generally remains detectable for 5-6 months post infection. However, as the incidence of hepatitis A declines to record lows (see figure below), the Division of Public Health (DPH) has noted an increase in the number of false positive anti-HAV IgM results. Following are three illustrative examples from actual reports to the DPH.

Case 1: A 16 year old female was diagnosed with acute hepatitis A after presenting with complaints of fever, abdominal discomfort, nausea, and fatigue. Transaminases were significantly elevated (ALT = 1068, AST = 851), and hepatitis A serology was positive for anti-HAV IgM. The patient had been employed at a fast food restaurant and the case was promptly reported to the local health department. Public health follow-up indicated that the patient had no history of travel and denied contact with persons who had a similar illness. Additionally, she had received two doses of the hepatitis A vaccine four years earlier. Because of her lack of risk factors and history of vaccination, repeat testing at the Wisconsin State Laboratory of Hygiene (WSLH) was requested. That specimen was total anti-HAV

positive, but IgM negative, ruling out acute hepatitis A. The patient was subsequently diagnosed with Epstein-Barr virus infection and autoimmune hepatitis.

Case 2: An asymptomatic 84 year old male living at home who had no risk factors for hepatitis A acquisition was found to have elevated transaminase levels (ALT = 623, AST = 270). The liver enzyme tests were ordered because the patient had recently been started on statins. Hepatitis A serology was ordered because of the transaminase elevation. The patient was found to be anti-HAV IgM positive and was diagnosed with acute hepatitis A. At the request of DPH, re-testing was performed at the WSLH where the serum was found to be anti-HAV IgM negative.

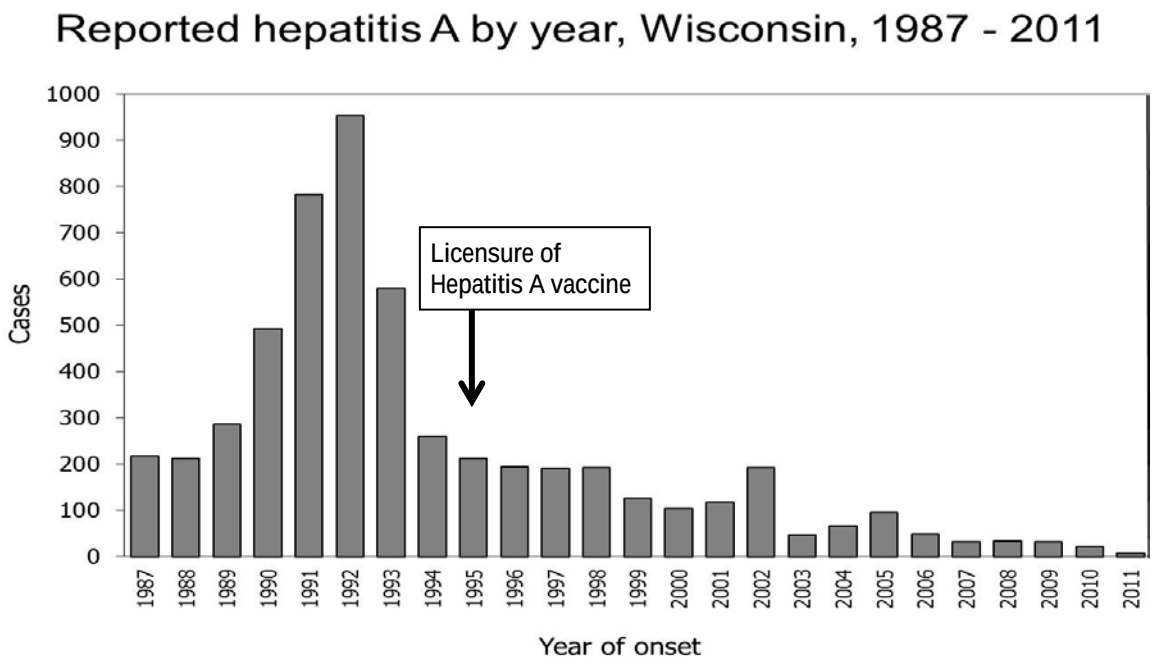
Case 3: A 57 year old female was diagnosed with acute hepatitis A after presenting with jaundice, right flank discomfort, nausea, fatigue, and elevated transaminases (ALT = 973, AST = 909). Her anti-HAV IgM assay was positive. Because the patient had no identified risk factors for hepatitis A acquisition, her provider had the hepatitis A serology repeated at another laboratory, which again returned an IgM positive result. After receiving the report of this case, DPH staff discovered that the two laboratories which performed the serologic tests both used the same test kit from a common manufacturer. Serum was forwarded to the WSLH and found to be total anti-HAV negative. The patient was subsequently diagnosed with a pancreatic malignancy and cholelithiasis.

Multiple additional reports of anti-HAV IgM positive results have been received for asymptomatic patients who had been "screened" for hepatitis A for various reasons. A common factor among these above examples and other similar reports received by the DPH is the lack of epidemiologic risk factors for hepatitis A acquisition during a time when there was little or no circulation of HAV in Wisconsin.

A positive anti-HAV IgM result in a patient without typical symptoms of hepatitis A or without epidemiologic risk factors for HAV infection can indicate: asymptomatic acute HAV infection (rare in adults and older children), previous HAV infection with prolonged presence of IgM antibody (persistence for at least five years has been reported), or a false positive test result. The problem of falsely positive anti-HAV IgM results has been documented previously.[1,2,3] For example, results of a 2003 study of viral hepatitis in six sentinel U.S. counties demonstrated that among 140 persons who had a positive anti-HAV IgM test result, 87 (62%) did not have an illness that met the case definition for hepatitis A or any other type of viral hepatitis.[1] Although no single brand of test kit appears to produce a disproportionate share of false positive IgM results, we have observed that only two licensed kits are widely used among Wisconsin laboratories – the Siemens ADVIA Centaur® system and the Ortho VITROS® kit. Thus, an attempt to retest a specimen at another laboratory (see case 3) may result in the use of the same test kit at both laboratories. The WSLH uses a test system from a different source (Abbott's ARCHITECT® system), and may be considered by clinicians who want to retest patients who have an initial positive HAV IgM assay.

Test results indicating acute HAV infection among persons without clinical or epidemiologic features consistent with hepatitis A are problematic because of the possibility of misdiagnosing another condition (e.g., the pancreatic malignancy in case 3), additional costs and concerns for patients, and the additional unnecessary public health resources required for the investigation of such reports, prophylaxis of patient contacts, and exclusion orders for patients who are employed as food handlers, child care providers, child care attendees and some school-age children.

To increase the predictive value of a positive anti-HAV IgM test result, clinicians should limit testing for acute hepatitis A to patients with clinical or epidemiologic indications for testing. A positive IgM assay should be interpreted with consideration of the patient's risk factors for acquiring HAV infection (especially international travel), the likelihood of other causes for elevations in transaminase levels,[4] and the prevalence of hepatitis A in Wisconsin. The use of the anti-HAV IgM assay as a screening tool or as part of testing panels used in the workup of nonacute liver function abnormalities should be avoided.



References:

1. Centers for Disease Control and Prevention. Positive test results for acute hepatitis A virus infection among persons with no recent history of acute hepatitis – United States, 2002-2004. MMWR 2005;54:453-456.
2. Castrodale L, Fiore A, Schmidt T. Detection of immunoglobulin M antibody to hepatitis A virus in Alaska residents without other evidence of hepatitis. Clin Infect Dis 2005;41:e86-88.
3. Bucens MR, Pietroboni GR, Harnett GB. False positive results occurring in a radioimmunoassay for hepatitis A antibody of the IgM class. J Virol Meth 1983;7:287-295.
4. Pratt DS, Kaplan MM. Evaluation of abnormal liver-enzyme results in asymptomatic patients. N Eng J Med 2000;342:1266-1271.

3. Wisconsin Influenza update

Influenza activity in Wisconsin, and in most of the United States, has peaked and begun to decline. Despite being on the decline, influenza activity will remain high for several more weeks. People should also be aware that the decline of influenza corresponds to an increase in Respiratory Syncytial Virus (RSV) and human metapneumovirus, both of which can cause serious respiratory illness, including pneumonia and hospitalizations, among individuals at high risk of health complications. High risk individuals include young children, the older population and those with a reduced immunity to fight illness due to medications or disease.

Usual, uncomplicated signs and symptoms of RSV and human metapneumovirus include cough, fever, nasal congestion, and sore throat. Though individual cases of RSV and metapneumovirus aren't reportable, an outbreak of acute respiratory illness (ARI) in a group setting (e.g., long term care facility, school, camp) should be reported to their local health department. Information about reporting influenza and other causes of ARI is at http://flu.wisconsin.gov/category.asp?linkcatid=3538&linkid=903&locid=106.

4. Updated case definitions and WEDSS disease-specific forms for Hepatitis B and Hepatitis C

The case definition criteria for acute hepatitis B and acute hepatitis C were updated on January 1, 2013 based on the revised CDC and Council of State and Territorial Epidemiologists (CSTE) case definitions: http://wwwn.cdc.gov/nndss/script/casedefDefault.aspx.

The changes in case definitions for acute hepatitis B and C are italicized below.

Acute hepatitis B infection:

Discrete onset of symptoms* (e.g., *fever*, *headache*, *malaise*, anorexia, nausea, vomiting, *diarrhea*, abdominal pain, dark urine), AND jaundice (or elevated serum aminotransferase levels [ALT] >*100* IU/L)

AND

IgM anti-HBc positive OR HBsAg positive (AND IgM anti-HAV negative [if done])

**A documented negative HBsAg result within 6 months prior to a positive HBsAg, HBeAg, or HBV DNA test result does not require an acute clinical presentation to meet the surveillance case definition.*

Acute hepatitis C infection:

Clinical criteria*: Discrete onset of any sign or symptom (e.g., *fever*, *headache*, *malaise*, anorexia, nausea, vomiting, *diarrhea*, abdominal pain, dark urine), AND jaundice (OR elevated serum alanine aminotransferase [ALT] >400 IU/L)

AND

anti-HCV positive with a high signal to cut-off ratio, OR HCV RNA (PCR) positive (qualitative, quantitative, or genotype), OR HCV RIBA positive AND IgM anti-HAV negative (*if done*), AND IgM anti HBc negative (*if done*)

**A documented negative anti-HCV followed within 6 months by a positive anti-HCV, HCV RNA, or HCV RIBA result and does not require any clinical criteria to meet the surveillance case definition.*

The updated case definitions are available in hepatitis B and C disease incidents in the WEDSS and are in the process of being updated in the EpiNet Guidelines for hepatitis B and hepatitis C virus infections. The EpiNet Guidelines are available at: http://www.dhs.wisconsin.gov/communicable/index.htm#H.

The updates in hepatitis B and C disease-specific forms in the WEDSS Include:

- Revised risk documentation forms for hepatitis B and hepatitis C disease incidents and combined risk documentation forms for acute and chronic hepatitis
- Documentation of perinatal follow-up (required by local health departments) and contact investigation has been moved from WEDSS Case Manager to Reporter
- New sections in hepatitis B forms to document receipt of hepatitis B vaccine and immune globulin (for perinatal follow-up and contact investigations)
- Additional clinical data fields and improved format of laboratory results section in hepatitis B and C disease-specific forms

A recorded overview of these recent changes in hepatitis B and C case definitions and disease-specific forms is available in “Recorded Trainings” on the WEDSS SharePoint site at: https://share.health.wisconsin.gov/ph/wedss/default.aspx.

The DHS Mediasite Live presentation, “Hepatitis B Case and Contact Documentation in the Wisconsin Electronic Disease Surveillance System (WEDSS),” was webcasted on Wednesday, January 30, 2013. The presentation was recorded and archived at http://dhsmedia.wi.gov/main/Catalog/catalogs/default.aspx.

5. Upcoming Meetings, Trainings & Important Dates

- February 2013 **International Prenatal Infection Prevention Month** http://www.groupbstrepinternational.org/
- March 24, 2013 **World TB Day** http://www.stoptb.org/events/world_tb_day/
- April 1-7, 2013 **National Public Health Week** http://www.nphw.org
- April 7, 2013 **World Health Day**
- April 20-27, 2013 **National Infant Immunization Week**
- April 24, 2013 **World Meningitis Week**

- **TB Summit 2013**
  - Thursday, March 21, 8:00 AM - 4:30 PM at The Alliant Energy Center in Madison

  Public Health – Madison & Dane County is hosting the 2nd Annual Tuberculosis Summit. The TB Summit is a full day of presentations, case studies, and discussions. Topics include Clinical Diagnosis, Control of TB in Health Care and Other Facilities, 3HP Update: Treatment and Side Effects, Hmong Culture and TB disease, and a History of TB across the Ages. The WI State TB Program will discuss statewide resources and epidemiology. Guest speakers include both local and national clinicians.
  This event is open to the public. Registration by Friday, March 8th is required. For additional information, see http://www.publichealthmdc.com/disease/TB/ or contact Julia Greenleaf at jgreenleaf@publichealthmdc.com.

- **Surgical Site Infection Summit: Reducing Infections Following Hip and Knee Arthroplasty**
  - Wednesday, May 16, 9:30 am–12:30 pm at the Department of Corrections Administration Building in Madison

  The Wisconsin Division of Public Health, MetaStar, Inc., and the Wisconsin Hospital Association are teaming up to offer a learning session for healthcare quality improvement teams interested in reducing infections associated with hip and knee replacement procedures. Featured speaker: Kathy Duncan, Institute for Healthcare Improvement
  For anyone interested in learning how to conduct surveillance for SSI, enter it into NHSN and run applicable reports, there will be the **Optional Surveillance Workshop: Using the National Healthcare Safety Network (NHSN) to Conduct SSI Surveillance** offered 1:30–3:30 pm. There will be no charge for this event.

- **BCDER Spring Seminars 2013**
  This year's seminars will be offered as webinars and no prior registration will be necessary.
  More information on each seminar will be posted on the Partner Communications and Alerting Portal https://share.health.wisconsin.gov/ph/pca/default.aspx

  - **Update on Lyme Disease Reporting and Surveillance** - Tuesday, March 19 -, WI, 2013.
    For more information about this live media webcast, please contact Diep Hoang Johnson at 608-267-0249 or Diep.hoangjohnson@wisconsin.gov.
  - **Hepatitis C Testing Recommendations** –

    Sheila Guilfoyle will present an update on Hepatitis C virus testing recommendations during a webcast. The date and time are TBD, and will be announced on the PCA Portal.
  - **Enteric Disease Surveillance and Foodborne Outbreak Investigations**
    During April and May the enteric group will make the following pre-recorded presentations available so LHD staff can view them as they have time. We will plan to have a single Q and A live session where we can answer questions related to enteric disease surveillance and foodborne outbreak investigations.
    Part 1 – Routine Enteric Disease Surveillance
    Part 2 – Norovirus Surveillance
    Part 3 – Foodborne Outbreak Investigations

- **Note:** All BCDER staff members at 1 W. Wilson St are in the process of moving offices to different floors. Since phone and fax numbers will remain the same and be transferred to our reassigned offices, we plan to maintain communications and provide essential services during the transition.

The Wisconsin Epi Express is posted online at http://www.dhs.wisconsin.gov/communicable/WiEpiExpress/Index.htm and distributed by email to local, tribal, regional and state public health officials and infection preventionists in Wisconsin. Suggestions for article topics are welcomed. Distribution list removal or addition requests and topic suggestions should be sent to: Barb Anderson: Barb.Anderson@wi.gov.