Maricopa County
Department of Public Health

Quarterly Epidemiologic Report

Apr - Jun 2003

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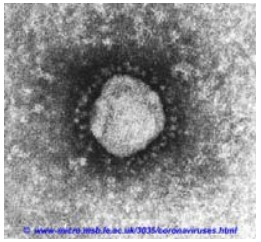
Severe Acute Respiratory Syndrome Update

Severe Acute Respiratory Syndrome (SARS)



A previously unrecognized coronavirus has been detected in patients with SARS. Scientists at the Centers for Disease Control and Prevention (CDC) and other laboratories worldwide believe the new coronavirus is the cause of SARS.

Symptoms of SARS

In general, SARS begins with a fever >100.4°F (>38.0°C). Other symptoms may include headache and body aches. Some patients have experienced mild respiratory symptoms followed by development of a dry cough and difficulty breathing after 2 to 7 days.

How SARS spreads

SARS is primarily spread by close person-to-person contact. Most of the SARS cases have been people who had direct contact with infectious material from a person with SARS, or someone who cared for or lived with someone with SARS.

Updated interim U.S. case definition for SARS

Clinical Criteria

- Asymptomatic or mild respiratory illness
- Moderate respiratory illness: temperature >100.4°F (>38°C) and one or more clinical findings of respiratory illness (e.g. cough, sob, hypoxia)
- Severe respiratory illness: the same criteria for moderate, in addition to, radiographic evidence of pneumonia, or respiratory distress syndrome (RDS), or autopsy findings consistent with pneumonia or RDS without an identifiable cause.

Epidemiologic Criteria

- Travel (incl. transit in an airport) within 10 days of onset of symptoms to an area with current or previously documented or suspected community transmission of SARS (see table on page 10), or
- Close contact within 10 days of onset of symptoms with a person known or suspected to have SARS.

Case Classification

Probable case: meets clinical criteria for severe respiratory illness of unknown etiology and epidemiologic criteria for exposure; lab criteria confirmed, negative, or undetermined. *(continued on page 7)*

MCDPH Division of Epidemiology/BDPR
Contact Numbers (all 602 area code)
PLEASE NOTE ALL NUMBERS HAVE CHANGED!
EFFECTIVE JUNE 16, 2003

Vjollca Berisha	Senior Epidemiologist	372-2611
John Carlson	Senior Epidemiologist	372-2641
Marcos Coria	MCH Data Analyst	372-2632
Alisa Diggs-Gooding	Epidemiologist	372-2612
Andrew Edmonds	Infectious Dis Data Analyst	372-2619
Joesette Frausto	Administrative Assistant	372-2605
Jeanette Gibbon	Epidemiologist	372-2642
Ron Klein	Disease Surveillance Sup	506-6722
Chris Mahon	Program Admin, CHN	506-6771
Karen Moffitt	Senior Epidemiologist	372-2636
Yanita Moore	Data Entry Clerk	372-2620
Liva Nohre	Senior Epidemiologist	372-2631
Lawrence Sands	Director, BDPR	506-6821
Sarah Santana	Director, Epidemiology	372-2601
Mare Schumacher	Deputy Director, Epi	372-2602
Heather Wanatowicz	Administrative Supervisor	372-2604
Gary West	Statistical Programmer	372-2603

To report communicable diseases, unusual health occurrences, and public health emergencies (all 602 area codes unless otherwise noted)

	Business hours M-F 8a-5p	After business hours
Bite reports	506-7387	506-2752
Communicable diseases	506-6868 or 506-6767	480-303-1100
Death certificates, funeral homes, human remains	506-6805	450-9982 or 420-2839
HIV (reports)	506-6426 or 506-6871	Not available
Public health emergencies	339-8749	480-303-1100
Rabies	506-7387	Not available
STDs (other than HIV)	506-6364 or 506-6147	Not available
TB	372-6661	480-303-1100

For change of name or address or to be removed or added to this mailing list, please email Heather Wanatowicz at: heatherwanatowicz@mail.maricopa.gov or call (602) 372-2604.

Cumulative Number of Reported Probable Cases of SARS - Nov 1, 2002 to June 20, 2003

(Table below shows countries with ≥5 probable cases)

[redacted]				
Australia	5	0	5	5/12/03
Canada	245	34	180	6/16/03
China	5326	347	4806	6/11/03
China, Hong Kong Special Admin Region	1755	296	1403	6/11/03
China, Taiwan	695	84	480	6/19/03
France	7	0	6	5/9/03
Germany	10	0	9	6/4/03
[redacted]				
Malaysia	5	2	3	5/20/03
[redacted]				
Philippines	14	2	12	5/15/03
[redacted]				
Thailand	9	2	6	6/7/03
[redacted]				
Vietnam	63	5	58	4/14/03
Total with ≥5 probable cases	**8432**	**803**	**7192**	
Total cases worldwide	**8461**	**804**	**7218**	

For an updated list of cumulative cases visit the WHO website at: http://www.who.int/csr/sars/country/en/

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On May 1, 2003, human enhanced passive surveillance for West Nile Virus (WNV) began in Maricopa County. The following criteria are used for Arbovirus testing:

- All cases of viral **encephalitis**
- Hospitalized cases of **aseptic/viral meningitis** and:
  - >Age 30
  - Altered mental state
  - Profound muscle weakness
  - Neuropathic symptoms:
    - Flaccid paralysis
    - Spastic paralysis
    - Guillain-Barre Syndrome
    - Seizure

The Division of Epidemiology/BDPR will provide triage for the Arizona State Lab on all specimens they receive. Samples will not be run until a consult is conducted with the health care provider and can assure each case fits testing criteria and all necessary clinical information is received.

New for 2003, Geographic Information System (GIS) mapping will be used to present geographical data on mosquito pools, dead birds tested/ sited, chicken flocks, equine and human cases. Active surveillance will begin upon discovery of WNV in AZ. These activities may include informational site visits to major hospitals, home visits for interviews/ sample collection, laboratory surveillance at selected facilities and more.

Report on WNV activities in 2002 will be available on the following website: http://www.maricopa.gov/public_health/epi/default.asp ☯#

We've moved!

The Division of Epidemiology/BDPR has a new home. As of June 16, 2003 we will be located at: 1010 E McDowell, Ste 300 Phoenix, AZ 85006 New contact information is listed on the last page of this document.

Foodborne Investigations

How Outbreaks are Recognized

Possible outbreaks of disease come to the attention of public health officials in various ways. Often, an astute clinician, infection control nurse, or clinical laboratory worker first notices an unusual disease or an unusual number of cases of a disease and alerts public health officials. Frequently, it is the patient (or someone close to the patient) who first suspects a problem, as is often the case in foodborne outbreaks after a shared meal or buffet [citizen's complaint line for Environmental Health (602) 506-6616]. Review of routinely collected surveillance data can also detect outbreaks of known diseases. However, it is relatively uncommon for outbreaks to be detected in this way and even more uncommon for them to be detected in this way while they are still in progress. Finally, sometimes public health officials learn about outbreaks of disease from the local newspaper or television news.

Reasons for Investigating Outbreaks

The most compelling reason to investigate a recognized outbreak of disease is that exposure to the source(s) of infection may be continuing; by identifying and eliminating the source of infection, we can prevent additional cases. For example, if cans of mushrooms containing botulinum toxin are still on store shelves or in homes or restaurants, their recall and destruction can prevent further cases of botulism. However, even if an outbreak is essentially over by the time the epidemiologic investigation begins—that is, if no one is being further exposed to the source of infection—investigating the outbreak may still be indicated for many reasons. Foremost is that the results of the investigation may lead to recommendations or strategies for preventing similar future outbreaks. For example, a disease outbreak investigation may produce recommendations for closure of a permitted restaurant, thus preventing other outbreaks. Other reasons for investigating outbreaks are the opportunity to 1) describe new diseases and learn more about known diseases; 2) evaluate existing prevention strategies, i.e., vaccines; 3) teach (and learn) epidemiology; and 4) address public concern about the outbreak. *(continued on page 5)*

Alliance for Innovations in Health Care
continued

eligible to receive extensive technical assistance from the Chiles Center and to participate in all FA activities including customized training at the Disney Institute (DI). In May, 2003, the AIHC sent four representatives to the Disney Institute. The participants at the DI have reported back to the coalition a process to determine how best to utilize the information and training they received.

The FA project is important for Phoenix because it will help address any ineffectiveness and inefficiencies in the health care system in the area as it applies to pregnant women and their children. Arizona and Maricopa County continue to have poor pregnancy and birth outcomes. A significant number of low-income women do not access early, adequate, or continuous care. ☯

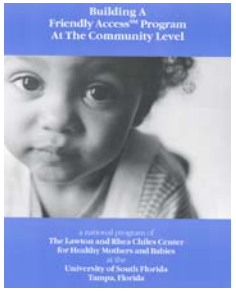
Adapted from a development proposal written by the AIHC staff.

Viral Encephalitis/Meningitis

Viral Encephalitis

At the time of this writing, one of the 83 mosquito pools tested in Maricopa County during 2003 for Western Equine Encephalitis (WEE) was found to be positive. Two have been confirmed positive for St. Louis Encephalitis (SLE). Sentinel chicken flocks seroconversions for WEE and SLE were also recorded. Two human cases of SLE encephalitis have been identified both are classified as probable. ☯

Alliance for Innovations in Health Care



The Alliance for Innovation in Health Care (AIHC) is a group of public and private organizations committed to planning, programs and direct services in maternal and child health care. The mission of the AIHC is to "maximize the health of women, children and families by changing the culture of health care delivery systems in ways that increase consumer access, satisfaction, utilization, and outcomes."

The AIHC seeks to achieve excellence in consumer and provider satisfaction within the maternal and child health (MCH) care system. The target population is low-income women and their children who live in the Maryvale and South Phoenix neighborhoods of Phoenix.

The long-term goals for the coalition are to:

1. Assess the community MCH care and community services delivery system elements relevant to consumer access, use, satisfaction and outcomes;
2. Develop a strategic plan to address issues identified in the community assessment;
3. Re-engineer processes and implement the project on behalf of the coalition; and
4. Instill quality service principles and practices throughout the MCH community.

The AIHC is a local MCDPH initiative which originated and is affiliated with a project called Friendly Access (FA) conducted by the Lawton and Rhea Chiles Center for Healthy Mothers and Babies at the University of South Florida in Tampa, FL. FA seeks to bring about changes in the community maternal and child health care system in ways that increase consumer access, use, satisfaction, and outcomes by focusing on cultural, organizational, and communication problems.

Funding for FA is through the CDC, HRSA, the Disney Institute and the National Perinatal Association (NPA). In the fall of 2001, the Chiles Center awarded funding to three communities which will serve as project demonstration sites for the FA project: Indianapolis, IN, Jacksonville, FL, and East Tennessee. A fourth site, Flint, MI, secured its own funding and is participating as a demonstration site. Several of the unfounded sites, including Phoenix, are considered FA "affiliates" and are

(continued on page 9)

Foodborne Investigations *continued*

There are ten steps to consider while conducting an outbreak investigation:

10 Steps of Outbreak Investigation

1. Prepare for field work
2. Establish the existence of an outbreak
3. Take steps to verify the diagnosis
4. Define and identify cases
5. Perform descriptive epidemiology
6. Develop hypotheses
7. Evaluate hypotheses
8. Reconsider/refine hypotheses
9. Implement prevention and control measures
10. Communicate findings

The timely and thorough investigation of foodborne outbreaks helps identify etiologic agents and leads to appropriate prevention and control measures. *Contributed by G. Booth* ☯

ALERT

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In June 2003, Monkeypox was reported among prairie dogs and several humans in the U.S. This is the first outbreak of monkeypox in the U.S. Monkeypox is a rare viral disease that is found mainly in the countries of central and west Africa. The disease is part of the orthopoxvirus group of viruses that cause infection in humans including variola, vaccinia and the cowpox virus.

The signs and symptoms of monkeypox in humans are similar to that of smallpox, but milder. The monkeypox virus causes the lymph nodes to swell which also distinguishes it from smallpox. The incubation period is about 12 days. Patients report fever, headache, muscle aches, backache, swollen lymph nodes, and exhaustion. One to 3 days after the fever starts, a rash develops. The bumps go through several stages before crusting and falling off. The illness lasts for 2 to 4 weeks.

Monkeypox is spread to humans from an infected animal if they are bitten or in direct contact with the animal's blood, body fluids, or its rash. It can also be spread person-to-person through large respiratory droplets during direct and prolonged face-to-face contact or by touching fluids of an infected person.

There is no specific treatment for monkeypox. Smallpox vaccine has been reported to reduce the risk of monkeypox among previously vaccinated persons in Africa. Contact MCDPH at (602)-506-6805 or ADHS at (602) 230-5820 for more information. As of July 31, 2003 there were 72 cases under investigation in six states. There are no confirmed cases in AZ at this time. ☯

Epidemiology and Clinical Practice

Epidemiology is critical not only to public health, but also to clinical practice. Ultimately the practice of medicine is dependent on population data. Simply put, the process by which physicians diagnose, treat, and evaluate a patient's prognosis is all rooted in the basic investigational methods of epidemiology. Each of the allied health related fields (medicine, nursing, pharmacology, and research) plays a vital role in developing a pyramid of information that aims to alleviate and reduce morbidity and mortality.

In the endeavor to make a correct diagnosis, either by exclusion or exact etiology, making use of population data can help determine the underlying pathology within the patient. For example, if a patient presents with high fever, headache, stiff neck, and photophobia the differential diagnoses most certainly will include suspect bacterial meningitis. From there, using ongoing disease surveillance data and retrospective population based data, evidence would suggest that the physician screen for *Neisseria meningitis*. Why that organism? Historically, epidemiological investigations have indicated that the majority of meningococcal diseases are caused by *Neisseria meningitis*, often increasing in incidence during the winter and early spring. Moreover, stratifying by age reveals that persons 23 to 64 years of age are at greatest risk. Thus, prior large scale population data enables modern day physicians to quickly and accurately combine signs and symptoms of pathology with known risk factors to lead to a confident diagnosis.

With a diagnosis in mind, the focus rapidly turns toward treatment. The selection of appropriate therapy is also generated by epidemiologic data. The most significant of which is the randomized control trial, used to evaluate both the effectiveness and

(continued on page 7)

Epidemiology and Clinical Practice
continued

the side effects of new forms of intervention. A recent example that typifies how novel interventions are formulated was in the clinical trials for the varicella vaccine. Researchers following up on the 1995 FDA approval for the live attenuated varicella virus vaccination conducted a large scale matched case-control study. According to the results of the study, the vaccine was 97% effective [95% CI 93 to 99] against moderately severe and severe disease. Translation of these studies has paved the way for a highly effective preventive intervention in clinical practice.

The same holds true for prognosis as well. A patient asking his physician, "How long do I have to live?" and the doctor replies, "Six weeks to a year." The physician certainly cannot be expected to make such a bold statement based solely on his or her patients with a similar disease, at the same stage of the disease, and undergoing the same treatment. Rather, the collective knowledge established in epidemiologic research enables physicians to efficiently prognosticate. In effect, the physician applies a population-based probability model to each patient seen in the examination room.

1. American Academy of Pediatrics. Meningococcal Infections. In: Pickering LK, ed. *2000 Red Book: Report of the Committee on Infectious Diseases.* 25th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2000:404.
2. Rosenstein NE, Perkins BA, Stephens DS, et al. Meningococcal Disease. N Engl J Med. 2001;344:1378-1388.
3. Epidemiology: 2nd Edition. Philadelphia, PA. W.B. Saunders Company, 2000.
4. Vazquez M, LaRussa PS, Gershon AA, et al. The Effectiveness of the Varicella Vaccine in Clinical Practice. N Engl J Med. 2001;340:955-960.

Contributed by Dr. Seuss ☯

SARS Update continued

Suspect case: meets clinical criteria for moderate respiratory illness of unknown etiology, and epidemiologic criteria for exposure; lab criteria confirmed, negative, or undetermined.

For more information about SARS, including lab and exclusion criteria, go to: www.cdc.gov/ncidod/sars or www.who.int/csr/sars/en. These websites are updated daily. ☯