

## Save the Date!

Registration is now open for the 2012 Arizona Infectious Disease Training & Exercise that takes place July 31st—August 2nd at Arizona State University's Memorial Union.

This 3-day infectious disease training and exercise introduces participants to a variety of topics in infectious disease including: vaccine preventable diseases; nosocomial infections; tuberculosis and sexually transmitted diseases; vector-borne and zoonotic diseases; food-borne diseases; and information on outbreaks and investigations. Participants will obtain the most current infectious disease information and have the opportunity to network with a variety of partners including state and local health agencies, infection preventionists, public and community health nurses, health educators, epidemiologists, sanitarians, correctional facility representatives, animal control agencies, preparedness coordinators, laboratorians, border health counterparts, and university faculty and students. Sessions shall be led by experts in the field of infectious disease with emphasis on current trends. Participants are encouraged to forge connections with partners and exchange information and knowledge of current infectious disease topics.

Visit the website to register now or explore the latest information. Please periodically check the event site to get the most up-to-date information regarding agenda, speakers, continuing education, etc.

[azdhs.gov/phs/oids/training/2012training.htm](http://azdhs.gov/phs/oids/training/2012training.htm)



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## Pertussis and Health Care Workers

*Seema Yasmin, MD, EISO*

Compared with prior years in Arizona, the number of reported pertussis cases during 2011 has increased. During January 1 – November 30, 2011, a total of 672 probable and confirmed pertussis cases were reported, an increase of 23%, compared with the same period during 2010.<sup>1</sup> An awareness of increasing rates of pertussis in the community might help curb future outbreaks.

A pertussis outbreak during 2011 at an Arizona health care facility resulted in 16 confirmed illnesses; 5 were among infants aged  $\leq 19$  weeks, 11 were among health care workers. A total of thirty-nine health care workers required exclusion from work as a result of their acute cough illness; 40 infants and 365 health care workers received postexposure prophylaxis; and 330 health care workers required pertussis booster vaccinations. The outbreak resulted in substantial financial cost to the facility, over \$93,000. Pertussis diagnosis was delayed because apnea (without cough) was

missed as a sign of pertussis among infants. Consequently, isolation and prevention measures were not implemented.

The index patient for the 2011 health care facility outbreak was an infant aged 11 weeks (born at 28 weeks' gestation) who experienced apnea on July 28 and cough on August 14 during hospitalization. After the apneic episodes, she was tested for gastro-esophageal reflux disease; pertussis was not considered among the differential diagnoses. The patient was tested for pertussis after transfer to Hospital B; *Bordetella pertussis* was isolated from the samples provided. During treatment at Hospital A, the patient had not been isolated during her cough illness and had been located in close proximity to 2 infants (aged 15 and 19 weeks), who also acquired pertussis; these 2 cases were confirmed by positive polymerase chain reaction (PCR) results.

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## References

1 Health and Wellness for all Arizonans, Arizona Department of Health Services [azdhs.gov/phs/oids/data/current.htm](http://azdhs.gov/phs/oids/data/current.htm).

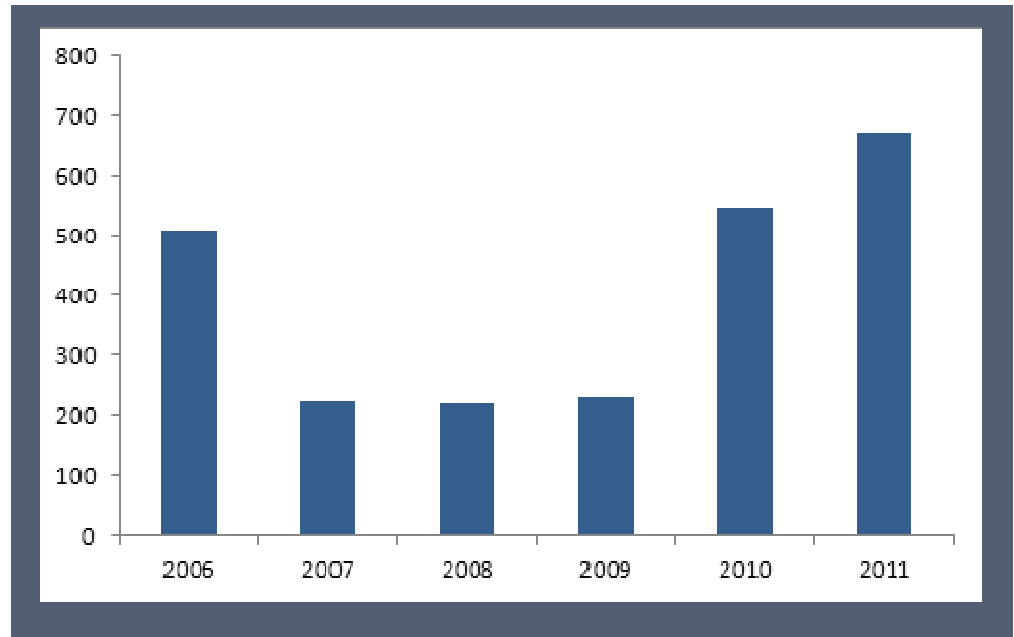
2 Bisgard KM, Pascual FB, Ehresmann KR, et al. Infant pertussis: who was the source? *Pediatr Infect Dis J*. 2004;23:985–9.

3 Immunization of Health-Care Personnel. Recommendations of the Advisory Committee on Immunization Practices. *Morbidity and Mortality Weekly Report*. November 25, 2011 / 60(RR07);1-45.

4 Pertussis Diagnosis, Centers for Disease Control and Prevention. [cdc.gov/pertussis/clinical/diagnostic-testing/diagnosis-confirmation.html](http://cdc.gov/pertussis/clinical/diagnostic-testing/diagnosis-confirmation.html).

## Pertussis and Health Care Workers

Confirmed & Probable Pertussis Cases-Arizona, 2006-2011



Source: Arizona Department of Health Services, Office of Infectious Disease Services

A heightened suspicion for pertussis can prompt early diagnosis and isolation measures. Physicians should be aware that infants can initially present with apneic episodes, especially when intubated and unable to cough. Adults are responsible for 76% of pertussis transmission to infants.<sup>2</sup> Therefore, health care workers who come into contact with infants too young to be vaccinated should also receive pertussis vaccination. The Advisory Committee on Immunization Practices recommends that all health care workers, especially those working with infants aged  $\leq 12$  months, should receive the tetanus, diphtheria, and acellular pertussis (Tdap) vaccine.<sup>3</sup> Health care workers should receive Tdap as soon as feasible if they have not previously received it and regardless of the time since their most recent Td vaccination. Health care workers with an acute cough illness should refrain from work or wear personal protective equipment and abstain from direct patient care.

The only diagnostic tests included in the pertussis case definition are culture and PCR. Culture should be used  $\leq 2$  weeks after cough onset; PCR can be used  $\leq 4$  weeks from cough onset until 3–4 weeks after onset.<sup>4</sup> Current blood tests for pertussis are not validated. Use of culture and PCR, vaccination and control and prevention measures, might help curb future outbreaks. Please report suspected cases of pertussis to your local health department.



# Changes in Emergency Care in Arizona

Terry Mullins & Bentley Bobrow, MD

The 1996 National Highway Transportation Safety Administration (NHTSA) published [Emergency Medical Services – Agenda for the Future](#) (Agenda), which describes 14 EMS attributes toward integrating EMS into public health. The Agenda's companion document: [EMS Agenda for the Future – Implementation Guide](#), contained the following Vision:

*Emergency medical services (EMS) of the future will be community-based health management that is fully integrated with the overall health care system. It will have the ability to identify and modify illness and injury risks, provide acute illness and injury care and follow-up, and contribute to treatment of chronic conditions and community health monitoring. This new entity will be developed from redistribution of existing health care resources and will be integrated with other health care providers and public health and public safety agencies. It will improve community health and result in more appropriate use of acute health care resources. EMS will remain the public's emergency medical safety net.*

The Agenda contains several public health related recommendations, including:

- Expand the role of EMS in public health.
- Develop involvement and/or support of EMS research by those responsible for EMS structure, processes, and outcomes.
- Incorporate research, quality improvement, and management learning objectives in higher level EMS education.
- Include principles of prevention and its role in improving community health as part of EMS education core contents.
- Subject EMS clinical care to ongoing evaluation to determine impact on patient outcomes.
- Develop information systems that are able to describe an entire EMS event.
- Evaluate EMS effects for multiple medical conditions.

It's now 2012, and while the roots of EMS are deep in history,

the last 10 years have realized several of the Agenda's attributes and recommendations for integrating EMS with the disease model of organized public health systems. With the advent of systematized guidelines and databases for Trauma, Out-of-Hospital Cardiac Arrest (OHCA), Myocardial Infarction with ST-segment Elevation (STEMI), and Stroke, the vision and recommendations of the Agenda are becoming mainstream components of emergency care in Arizona. A disease-based model improves the efficiency of our EMS and trauma system, saves lives, and reduces the burden of disease in Arizona.

## Prehospital Data Collection, Analysis and Reporting

The following three databases enable the Arizona Department of Health Services to collect, analyze and report important EMS and trauma system information. This in turn, provides Arizona's emergency medical healthcare providers with critical data for system benchmarking and quality improvement.

1. The Arizona State Trauma Registry ([ASTR](#)), with more than 150,000 records, collects data from eight Level I, three Level III, 14 Level IV trauma centers, and two non-trauma center hospitals;
2. The Save Hearts in Arizona Registry & Education ([SHARE](#)) Program, received just under 1200 OHCA records in 2011, and 1718 STEMI records during 2010 from EMS providers across the state; and
3. The Arizona Prehospital Information and EMS Registry System ([AZ-PIERS](#)), launched in late 2011, collects electronic Patient Care Reports (ePCRs) from participating EMS agencies for all medical and injury incidents – with special emphasis on OHCA, STEMI, trauma, and Acute Stroke patients.

These databases are designed with the primary function of reporting blinded, aggregate system and treatment benchmark data, providing the impetus for emergency medical healthcare

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## HOW CAN YOU HELP?

Encourage your local EMS providers and hospital to participate in these important initiatives by contacting:

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**Ben Bobrow**, Medical Director (602) 364-3154 [bbobrowb@azdhs.gov](mailto:bbobrowb@azdhs.gov)

## Reminder to Report Communicable Diseases

Why is communicable disease reporting important?

Communicable disease reporting is the cornerstone of public health surveillance and disease control. Prompt reporting gives the local health agency time to interrupt disease transmission, locate and prophylax or treat exposed contacts, identify and contain outbreaks, ensure effective treatment and follow-up of cases, and alert the health community. The information obtained through disease reporting is used to monitor disease trends over time, identify high risk groups, allocate resources, develop policy, design prevention programs, and support grant applications.

Visit this website to learn more:

[azdhs.gov/phs/oids/reporting/index.htm](http://azdhs.gov/phs/oids/reporting/index.htm)

# Changes in Emergency Care in Arizona

**Evidence-Based Changes in Treatment:** Recent clinical studies have identified changes to historic treatment protocols that are more effective than traditional methods. Revised protocols are being introduced to emergency care providers across the state, and their use and effect on patient outcomes can be collected, analyzed and reported from the databases described above. Some examples include:

- Bystander Cardiopulmonary Resuscitation (CPR):** Patients suffering OHCA and receiving bystander CPR have a three- to four-fold increase in survival-to-hospital discharge. Arizona currently has the only statewide bystander CPR registry. The Cardiac Arrest Registry to Enhance Survival (CARES) is a similar database developed in cooperation with the CDC and Emory University, but CARES is implemented through individual communities agencies in various states, but none are a single “statewide” system like SHARE. Thousands of students and citizens across Arizona have been trained in Continuous Chest Compression-CPR as part of a bold public health initiative.

- Therapeutic Hypothermia Post Cardiac Resuscitation:** Therapeutic Hypothermia (TH) is currently guideline therapy for post-arrest care after Out of Hospital Cardiac Arrest (OHCA). Arizona has begun regionalizing post-arrest care in an attempt to assure that the maximum number of OHCA victims receive standardized care in medical centers equipped to provide it. Since 2007, thirty-six hospitals have agreed to implement a hypothermia protocol for patients that are comatose following cardiac resuscitation and participate in a quality improvement program. In 2010, 67% of TH-eligible cardiac arrest patients at Cardiac Arrest Centers received the TH protocol.

- Traumatic Brain Injury (TBI):** Approximately 25,000 TBIs are suffered annually by Arizonans. For severe TBI, the care rendered during the first few minutes may profoundly impact the effectiveness of subsequent “definitive” care. The proper management of airway, ventilation, and hemodynamics are at the core of the TBI guidelines. By implementing evidence-based changes in the way prehospital providers manage these core areas can significantly reduce the impacts of severe traumatic head injury patients.

- Myocardial Infarction with ST-Segment Elevation:** Working with EMS providers to acquire and interpret 12-lead ECGs and provide prehospital notification to hospitals which have 24/7 cardiac catheterization capability. Reducing time to reperfusion will significantly improve the outcomes for Arizonan’s suffering acute myocardial infarction.



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