



Binational Case Reports Along the US-Mexico Border Arizona, 2013



Goals of Binational Case Reporting

- To provide timely information to appropriate public health partners on both sides of the U.S.- Mexico border to enable to investigations of infectious disease reports
- To strengthen communication between local, federal, and binational partners for preparedness strategies as well as outbreak responses
- To better understand the geographical spread and impact of infectious diseases along the Arizona-Sonora border region

Methods for Reporting

In Arizona, notification of binational cases is managed in MEDSIS, (Medical Electronic Disease Surveillance Intelligence System) which is an electronic system to help control infectious diseases. Health care providers use MEDSIS to report cases while cases identified through laboratory results are either put in manually by county health departments, or reported to a separate electronic system, Electronic Laboratory Reporting (ELR), which is linked with MEDSIS. The Border Infectious Disease Surveillance (BIDS) Program relies on local health departments to flag the case as binational, as well as to perform further investigations of these cases. Additionally, BIDS runs a report of all possible binational cases in MEDSIS searching for cases with Mexican residency and/or cases that have Mexico keywords in appropriate text fields. Sonora public health professionals have access to MEDSIS which facilitates the exchange of information on binational cases.

Binational Case Definition:

Is defined as any individual with a confirmed, probable, or suspect case of a notifiable infectious disease, and:

1. Has recently travelled or lived in Mexico, or had recent contact with persons who lived or traveled in Mexico; or
2. Is thought to have acquired the infection in Mexico or has been in Mexico during the incubation period of the infection and was possibly contagious during this period; or
3. Is thought to have acquired the infection from a product from Mexico; or
4. May require the collaboration of public health agencies in both Mexico and the United States for the purposes of disease investigation and control.

Confirmed, probable, and suspect cases of Arizona reportable conditions:

- This report contains primarily confirmed and probable cases of reportable conditions in Arizona; however, all binational cases ruled as 'suspect' (n=5) are included in these analyses unless specified otherwise.
- Binational STD and Tuberculosis cases are not included in this report and may come in a separate report.

For more information on reporting pathways of these binational cases, please reference Appendix A (p.8).

Table 1: 2013 Arizona Binational Cases by Disease Category, Disease, and Subtype (N=193)

Disease Category	Disease	Cases (N)	Subtype	Cases (N)
Aseptic Meningitis (N=1)	Enterovirus	1		
Febrile Exanthem (N=2)	Varicella (chickenpox)	2		
Foodborne/Waterborne (N=132)	Campylobacteriosis	33	<i>C. jejuni</i> <i>Not Serotyped</i>	16 17
	E. Coli (Shiga-Toxin Producing)	17	<i>O103</i>	3
			<i>O111</i>	1
			<i>O26</i>	7
			<i>Not Serotyped</i>	6
	Hemolytic uremic syndrome	1		1
	Salmonellosis	33	<i>Anatum</i>	2
			<i>Bareilly</i>	1
			<i>Braenderup</i>	1
			<i>Enteritidis</i>	3
			<i>Infantis</i>	1
			<i>Javiana</i>	1
			<i>Montevideo</i>	2
			<i>Muenchen</i>	1
<i>Newport</i>			2	
<i>Oranienburg</i>			2	
<i>Panama</i>			1	
<i>Paratyphi B</i>			1	
<i>Poona</i>			1	
<i>Saint Paul</i>	2			
<i>Senftenberg</i>	1			
<i>Typhimurium</i>	3			
<i>Not Serotyped</i>	8			
Shigellosis	40	<i>Group B Flexneri</i>	10	
		<i>Group D Sonnei D</i>	16	
		<i>Not Serotyped</i>	14	
Typhoid Fever	3	<i>Salmonella Typhi</i> <i>Not Serotyped</i>	1 2	
Vibrio Infection	5	<i>Parahaemolyticus</i>	5	
Fungal (N=2)	Coccidioidomycosis	2		
Hepatitis (N=13)	Hepatitis A	10		
	Hepatitis B	1		
	Hepatitis C	2		
Parasitic (N=15)	Amebiasis	2		
	Cryptosporidiosis	4		
	Giardiasis	8		
	Malaria	1	<i>P. malariae</i>	1
Respiratory (N=27)	Influenza	10	A	6
			A/H3	2
			B	2
	Pertussis	16		
RSV (unsubtyped)	1			
Vector-borne and Zoonotic (N=1)	Brucellosis	1		

Figure 1: Residency of Binational Cases Reported to Border Health, 2013 (N=193)

By Country of Residence

USA		Mexico		Other country
Arizona	Outside of Arizona	Sonora	Outside of Sonora	India
169	1	8	11	4

By County/Municipality of Residence

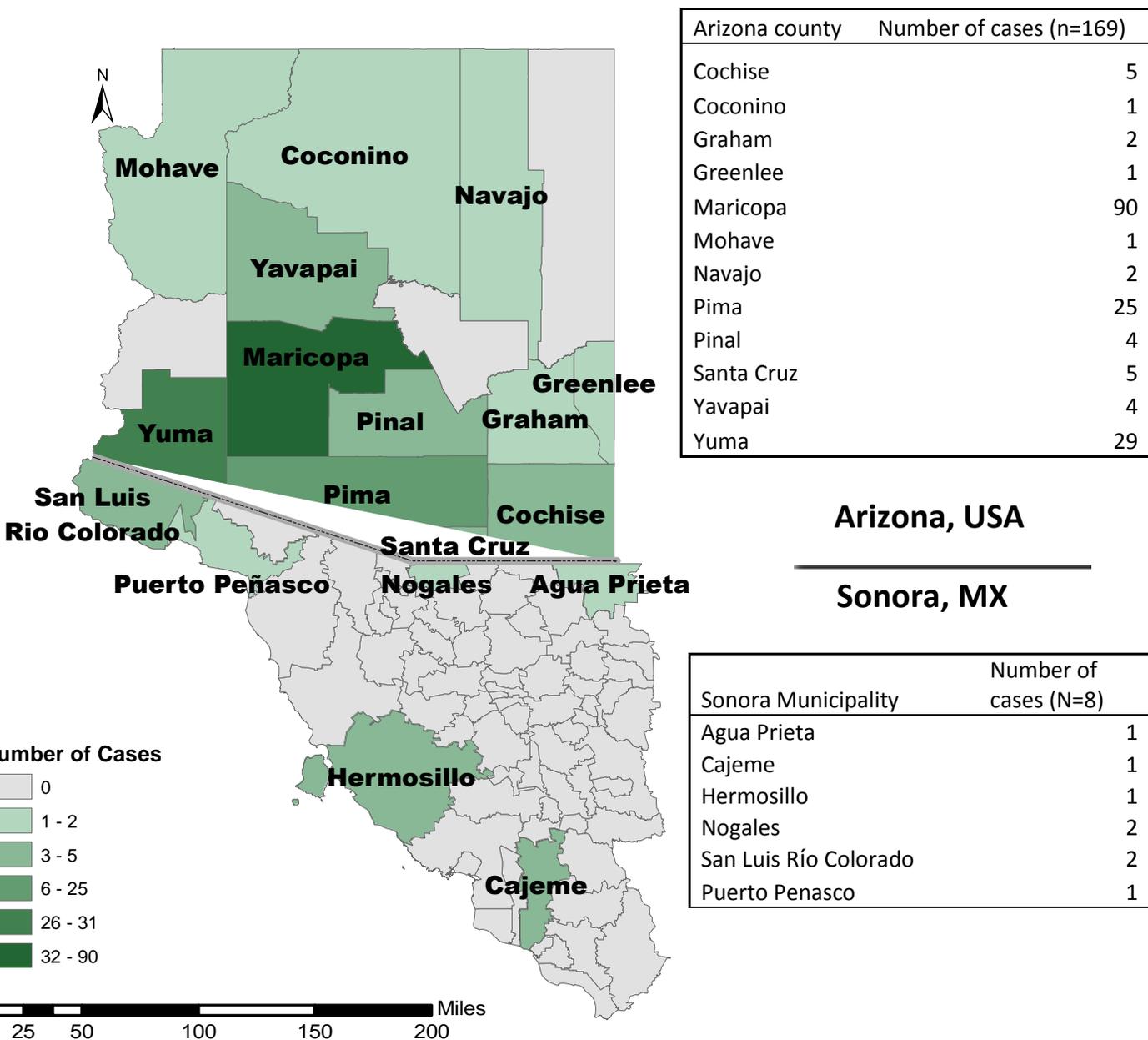


Figure 2: Characteristics of Binational Cases Reported to Border Health, 2013

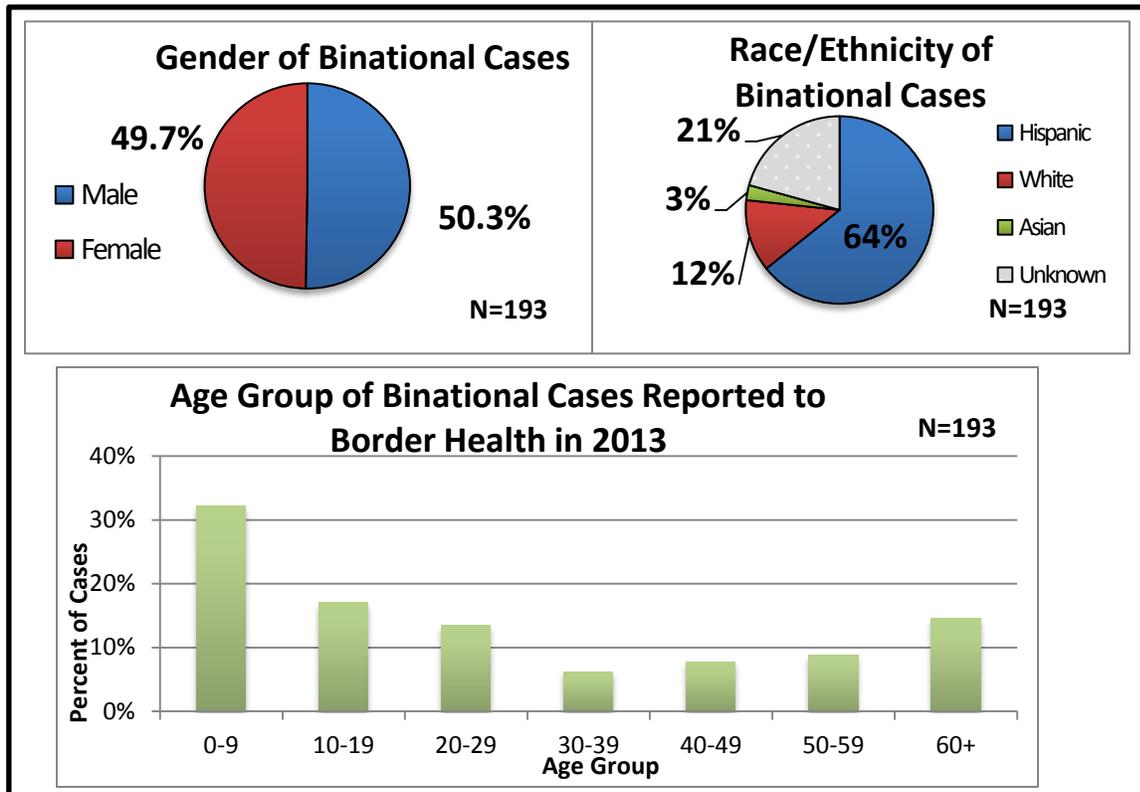
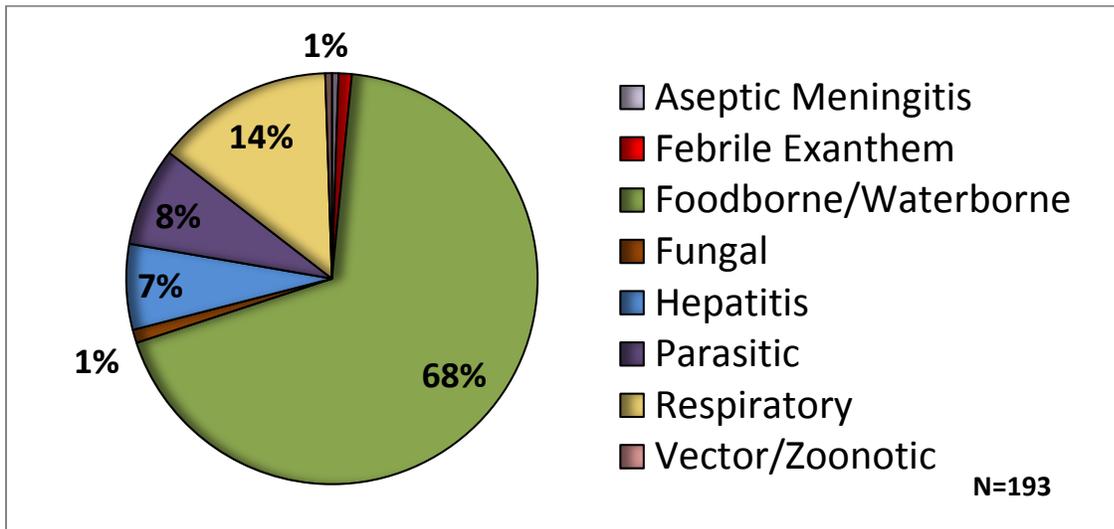


Table 2: Reason for Binational Case Status, 2013 (N=193)

Reason	Percentage (n)	N
Case Travelled to Mexico	75% (n=145)	N
Travelled to Sonora		70
Travelled to another Mexican state (excluding Sonora)		38
Unknown which part of Mexico case travelled to		36
Travelled to Mexico after illness onset		1
Resident of Mexico	11% (n=22)	N
Sonoran Resident		8
Resident of another Mexican state (excluding Sonora)		14
Ate food from Mexico[§]	6% (n=11)	N
Food from Sonora		6
Food from outside of Sonora		5
Other	8% (n=15)	N
Born in Mexico (unknown location in Mexico)		1
Deported Mexican Resident		2
Contact with a confirmed binational case		10
Treatment in Mexico		2

[§]without travelling to Mexico

Figure 3: Disease Category of Binational Cases Reported to Border Health, 2013



The majority of binational cases had a foodborne/waterborne illness (68%) and a few had respiratory infections (14%). For more detailed information on what types of diseases constitute each category, table 1 lists the number of binational cases diagnosed with each pathology and subtypes (if available), by disease category.

Figure 4: Binational Cases Reported to Border Health by Month of Onset and Disease Category, 2013

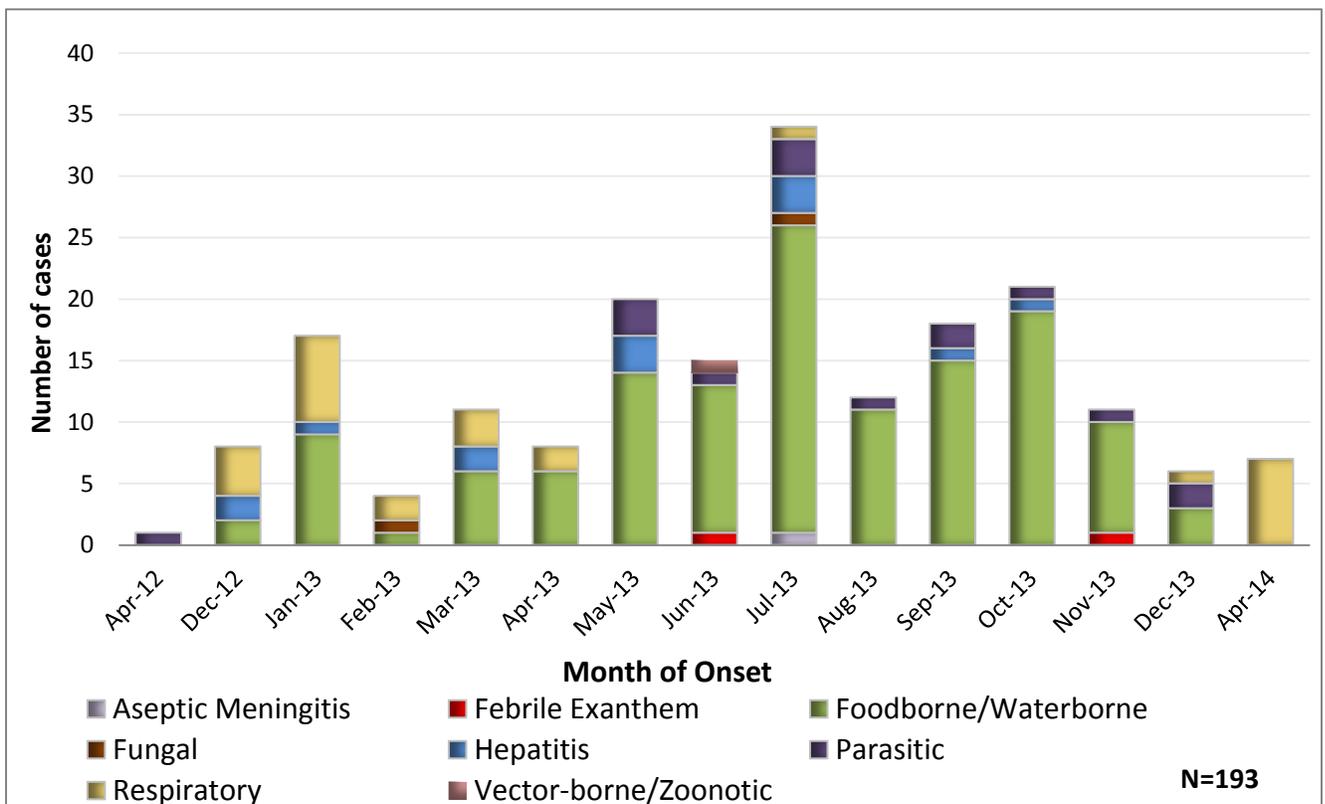
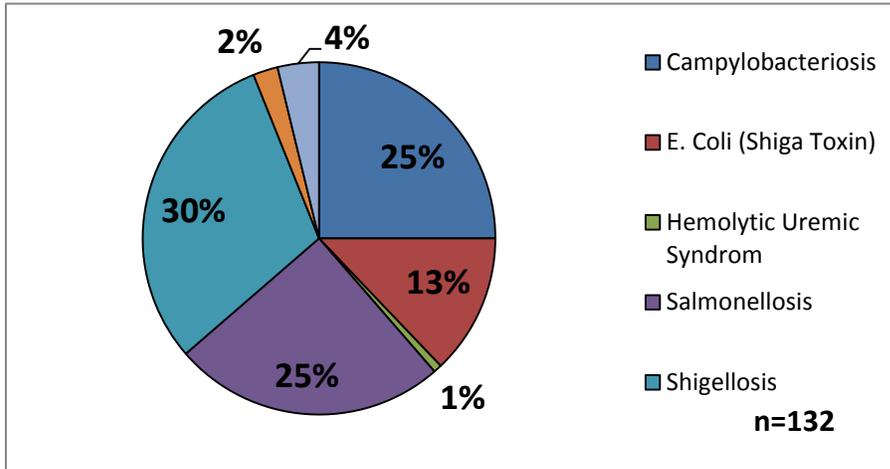
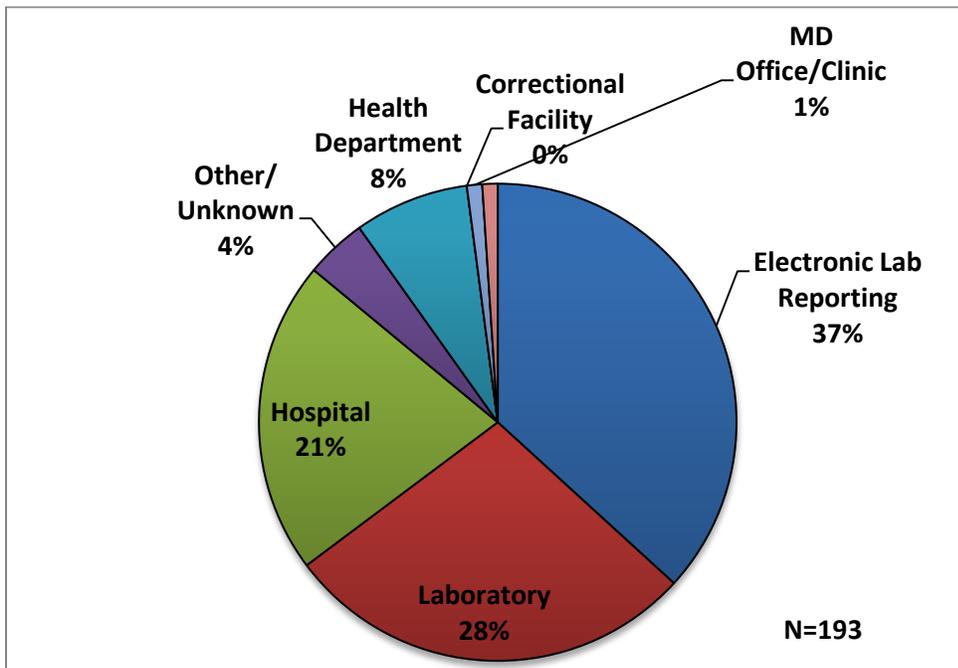


Figure 5: Foodborne or Waterborne Diseases Identified in Binational Cases, 2013



Among cases with a foodborne or waterborne illness, Shigellosis (30%), Campylobacteriosis (25%), and Salmonellosis (25%) were most commonly reported. The subtypes identified for each of these etiologies can be found in Table 1.

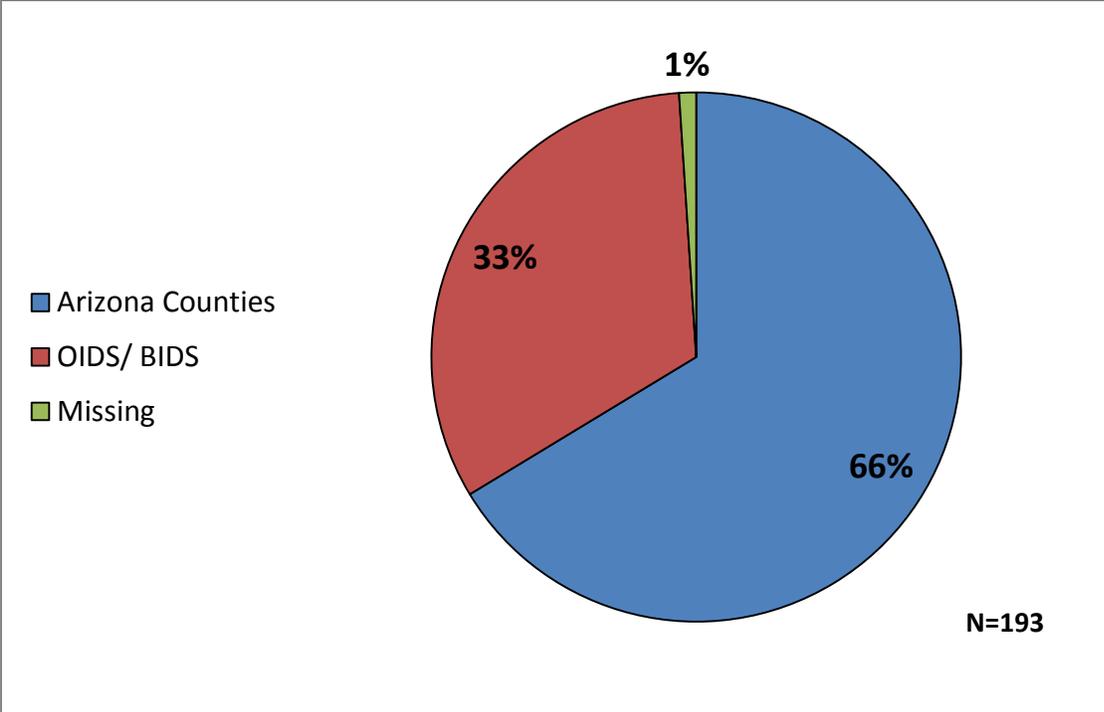
Figure 6: Initial Reporting Source of Binational Cases, 2013



Cases are initially reported in MEDSIS through different types of providers or organizations. Most binational cases from 2013 have been initially reported into MEDSIS by Electronic Lab Reporting (37%), Laboratory (28%), or Hospitals (21%). Other types of organizations that have reported these cases are: Correctional Facilities, the Sonoran Health Department, AZ County Health Departments, MD office/Clinics, or Schools.

Figure 7: Public Health Agency Identifying Cases as Binational, 2013

BIDS mainly relies on local health department epidemiology staff to flag binational cases using MEDSIS after conducting investigations for cases in their jurisdiction. However, BIDS additionally runs a report of all possible binational cases in MEDSIS searching for cases with Mexican residency and/or cases that have Mexico keywords in the appropriate MEDSIS text fields. Among all binational cases, 66% were flagged by local health departments; Office of Infectious Diseases Surveillance (OIDS) and BIDS staffs at the Arizona Department of Health Services were responsible for identifying 33% of binational cases. In addition, the Sonora Health Department regularly shares public health notifications of various outbreaks or important diseases identified in the Sonora border region.



Appendix A: Methods: Reporting Pathways

Reporting occurs in the following manner:

1. Cases are flagged as binational cases using MEDSIS by local health department epidemiology staff after conducting investigations for cases in their jurisdiction.
2. ADHS and BIDS staff are notified through email when binational cases are flagged and then conduct case reviews to confirm binational case status.
3. If there is conflicting evidence regarding binational case status, BIDS staff communicates with the appropriate county department to verify binational case status.
4. Additionally, BIDS runs a report of all possible binational cases in MEDSIS searching for cases with Mexican residency and/or cases that have Mexico keywords in appropriate text fields.

Forwarding to the appropriate authorities:

1. If exposure or travel occurred within the state of Sonora, BIDS epidemiologists share the case through MEDSIS with public health officials from Sonora. If the case is a resident of Sonora, the case is transferred to Sonora's jurisdiction in MEDSIS.
2. If exposure or travel occurred outside of Sonora, but within the country of Mexico, the BIDS liaison forwards to CDC DGMQ who communicates the information to Mexico at the federal level if necessary.