

Arizona Border 2011-2012 Influenza Season Summary

2011-2012 Influenza Season MMWR Weeks 40-20 (10/2/2011 – 5/19/2012)

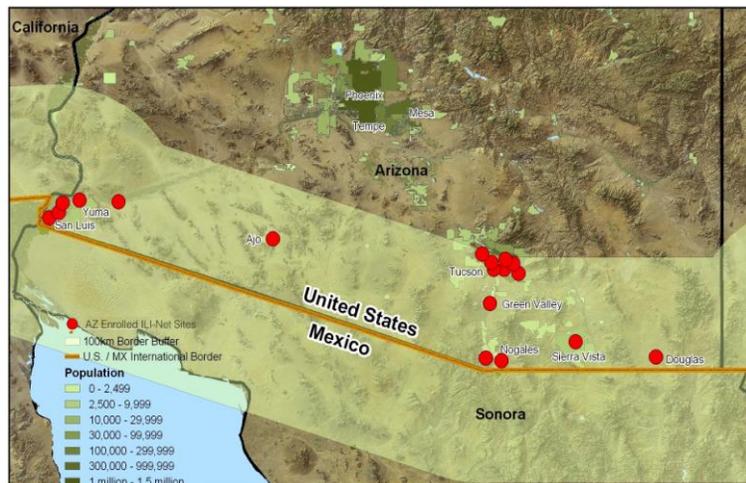
Cochise, Pima, Santa Cruz, and Yuma counties

Border Influenza Activity Highlights:

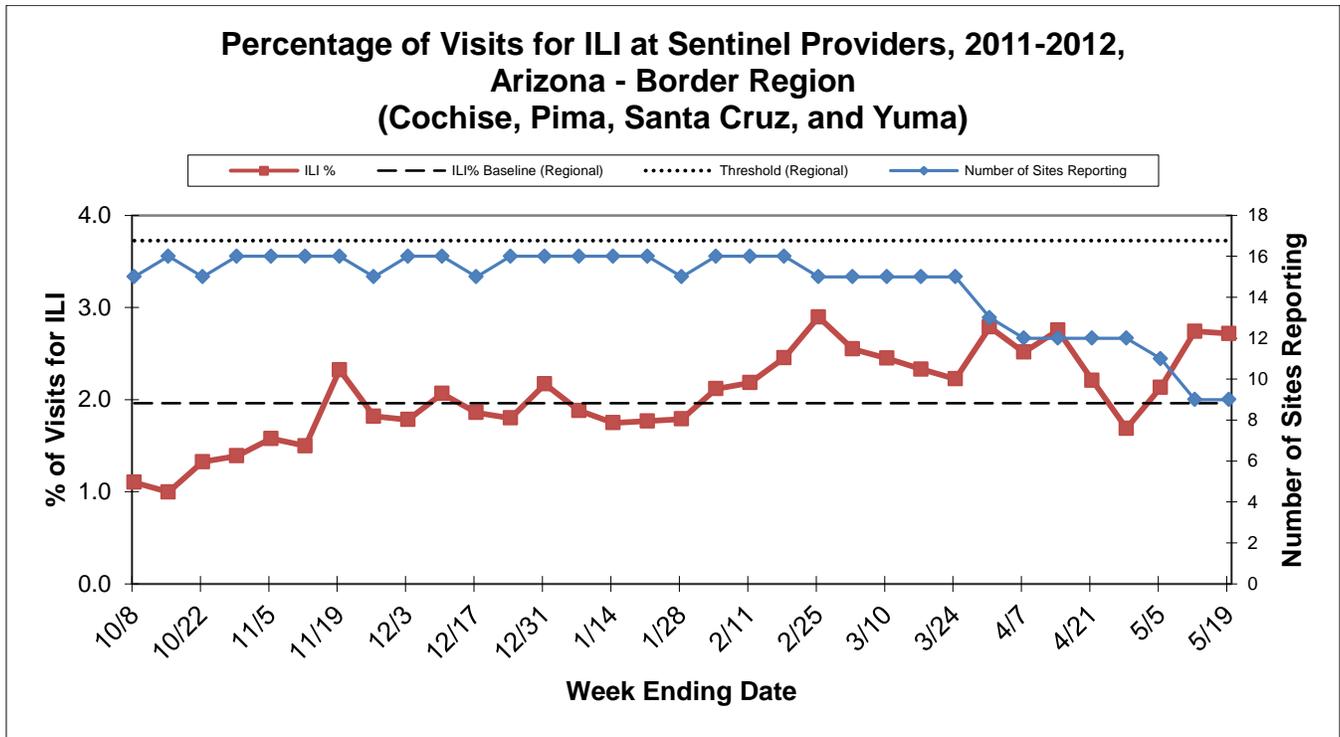
- Influenza-like illness (ILI) activity at sentinel providers in the border region in the 2011-2012 influenza season reported ILI rates above baseline for 18 weeks. Specifically, weeks 46, 49, 52, 5-16, and 18-20 had ILI rates above baseline. The ILI baseline in the border region is defined as ILI activity exceeding 1.96%.
- ILI activity at sentinel providers in the border region never went above the epidemic threshold for any week during the 2011-2012 influenza season. The epidemic threshold in the border region is defined as 3.72%.
- A total of 1,142 cases of influenza were reported from the border region counties in the 2011-2012 influenza season.
- A total of 38 cases were captured in the Severe Acute Respiratory Infection (SARI) surveillance. Among these cases, 13% (n=5) were influenza positive.
- The cases included in this report represent a small proportion of the true number of cases of influenza. Many people do not visit the doctor when ill and doctors should not be expected to run tests on all patients exhibiting influenza-like symptoms.

Influenza-Like Illness (ILI) Sentinel Provider Surveillance:

In Arizona's border region 19 providers are enrolled in the national Outpatient Influenza-like Illness Surveillance Network (ILINet). The border region is defined as the geographical area approximately 100 kilometers (60miles) north and south of the US/Mexico border. On a weekly basis these sentinel sites report the total number of patients seen with Influenza-like Illness (ILI) and the total number of patients seen. ILI is defined as a fever of at least 100°F plus either a cough or a sore throat in absence of a known cause other than influenza.



The proportion of patient visits to sentinel providers for ILI in the Arizona border region in the 2011-2012 season was above the baseline for 18 weeks but was never above the epidemic threshold for any week. The border region ILI baseline is 1.96%*. The epidemic threshold for the Arizona border region is 3.72%*. In weeks when a relatively low number of reporting providers are present, the ILI proportion may not be representative for the border region of Arizona.



*Note: The baseline is defined as the mean of the border region ILI% in weeks in the 2007-2011 flu seasons when <10% of specimens were positive at the Arizona State Public Health Laboratory. The epidemic threshold for the border region is defined as the mean plus two standard deviations.

Laboratory-Confirmed Cases Reported, by County, 2010-2012 Influenza Seasons:

These totals include ALL positive influenza tests that were reported to ADHS by the border counties. These include many types of tests, such as rapid antigen tests, direct fluorescent antigen tests, culture, or molecular testing. Many of these cannot distinguish different types of influenza, but do provide information about changes in the amount of influenza in the population.

County	2010-2011 Season	2011-2012* Season
Cochise	298	235
Pima	1649	879
Santa Cruz	67	20
Yuma	78	8
Border Total	2,092	1,142
Arizona Total	9,831	3,472

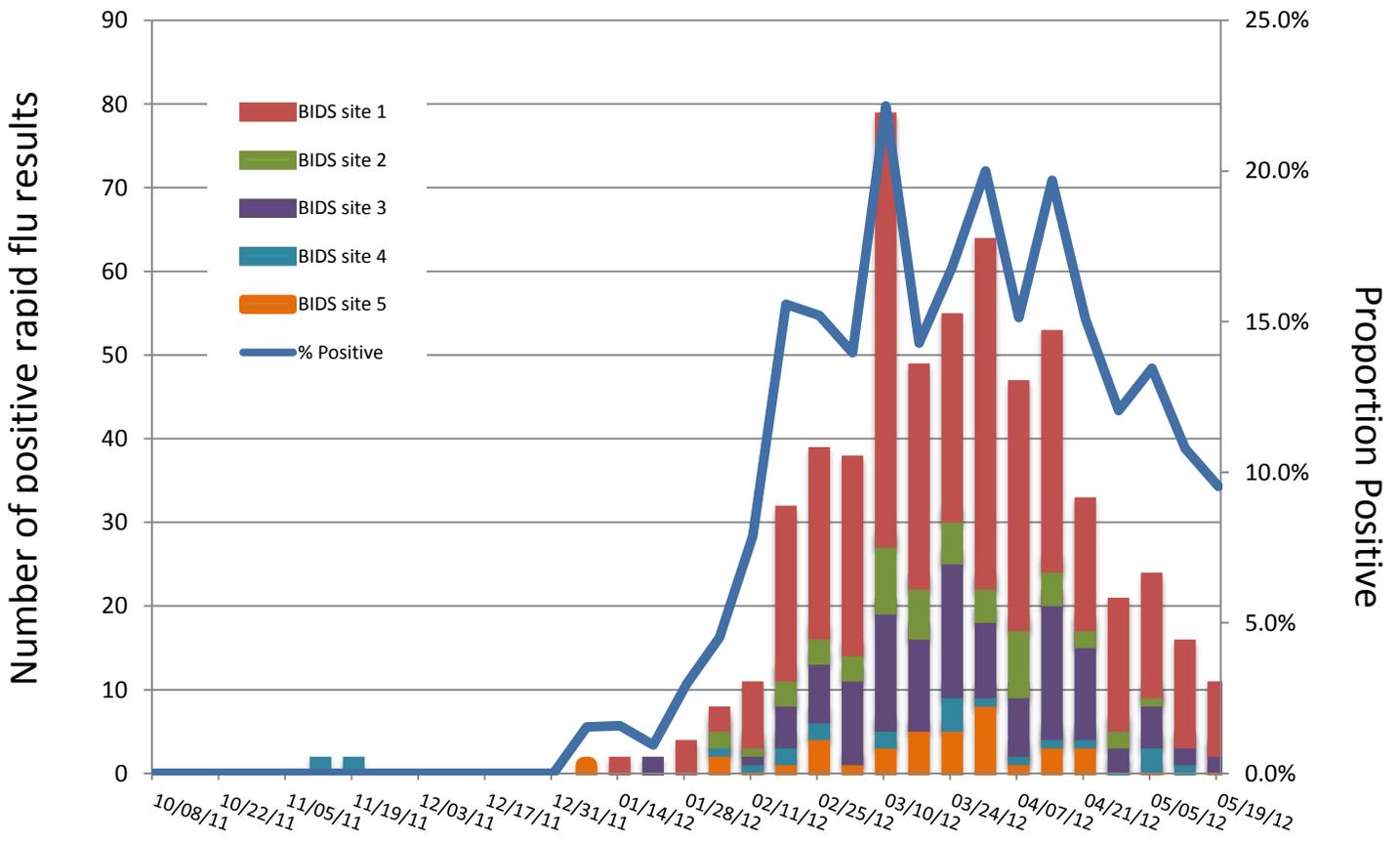
*Data only available for weeks 40-20 of the 2011-2012 influenza season.

Border Infectious Disease Surveillance Sentinel-site and Virologic Report

The Arizona Border Infectious Disease Surveillance (BIDS) program of the Office of Border Health has initiated enhanced sentinel-site surveillance at selected acute care hospitals within the Arizona border region. The sites are not ILI-Net providers but provide additional information on influenza results on a weekly basis. The majority of rapid tests at these facilities are performed on ambulatory patients. These data can provide epidemiological information on trends of influenza in the community but do not differentiate influenza types. During the 2011-2012 influenza season, there were 572 confirmed cases while the percentage of confirmed cases was 14.2%.



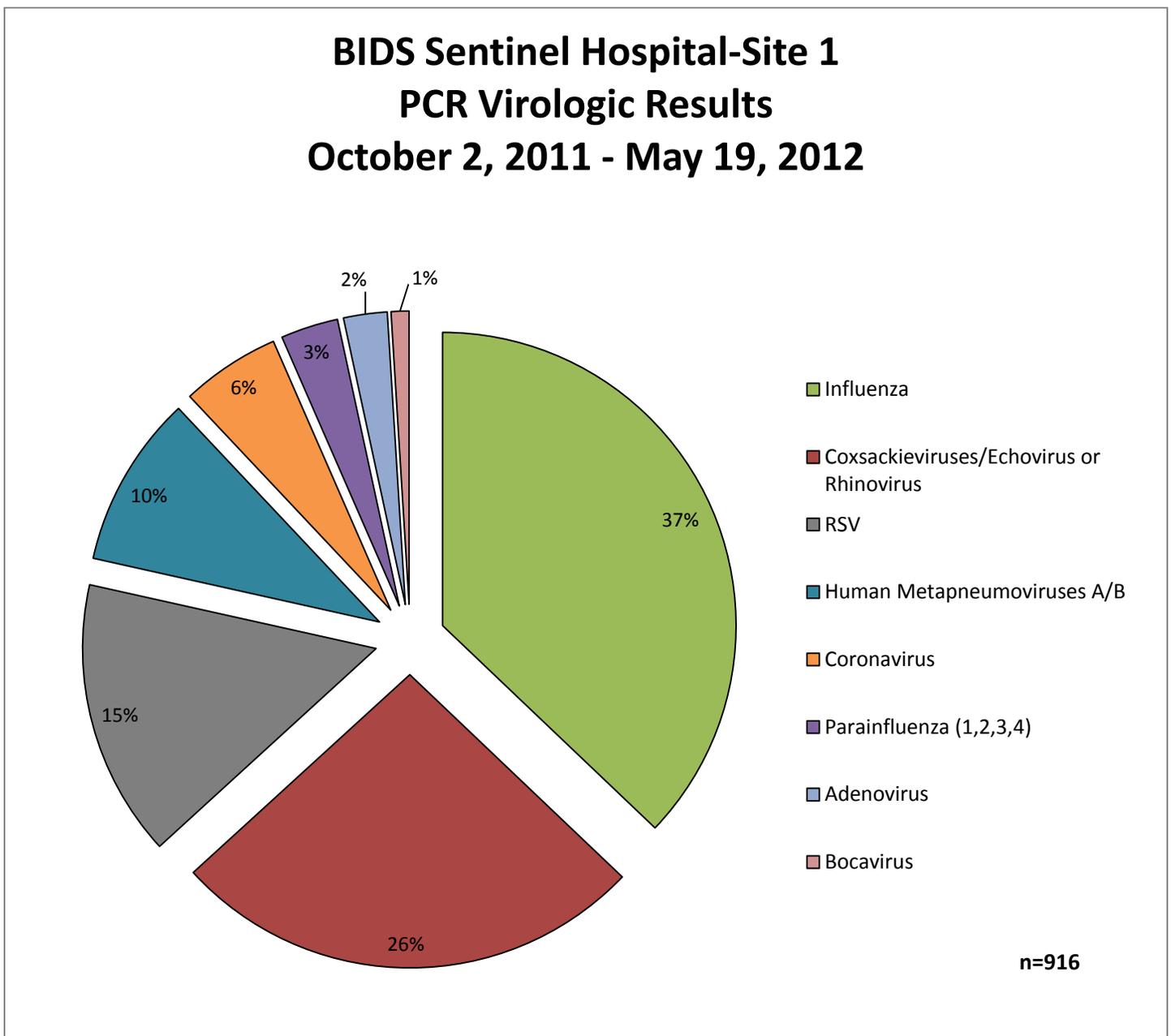
Positive rapid flu results in Pima County BIDS sites January 2012- May 2012



Virologic Data

One of the BIDS programs sentinel sites has been providing virologic data from all the molecular respiratory testing done in the hospital site. The following graphs include several reportable conditions such as influenza and respiratory syncytial virus (RSV), and also infections that are not reportable such as adenovirus, parainfluenza, coxsackievirus/echovirus, rhinovirus, and coronavirus.

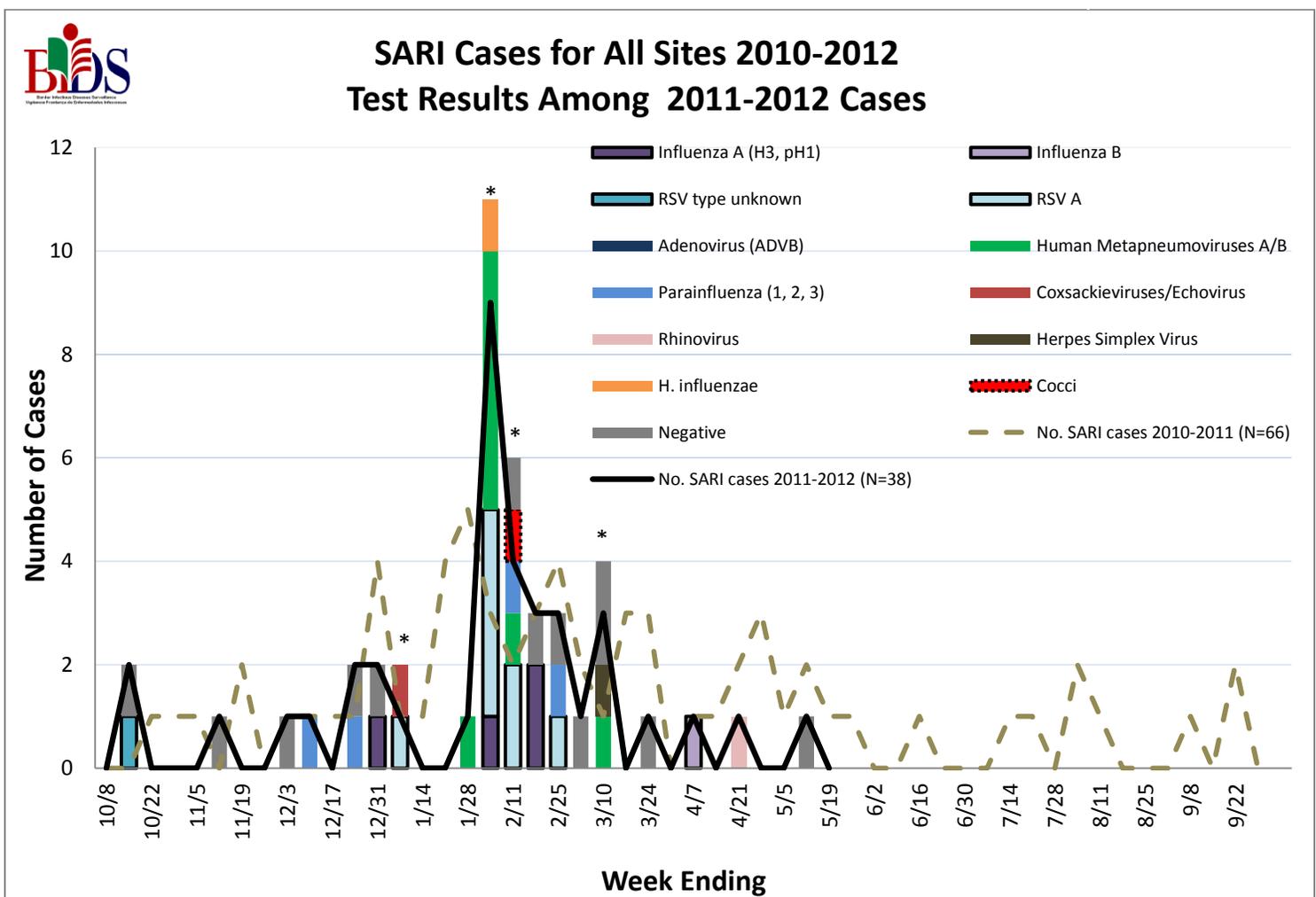
Among the positive viral test results at Sentinel Hospital Site 1 (N=916), 37% were positive for Influenza, 26% were positive for coxsackieviruses, echoviruses, and rhinovirus, and 15% were positive for RSV.



Severe Acute Respiratory Infections (SARI) Surveillance

Severe Acute Respiratory Infections (SARI) surveillance is currently conducted by the BIDS program at selected hospitals in Arizona counties in the US-Mexico border region. SARI is defined as a hospital admission with a fever of at least 100°F plus either a cough or a sore throat. Integrating hospital-based surveillance for SARI with existing influenza surveillance will complement and strengthen both of these surveillance activities. Enhancing hospital-based surveillance for respiratory pathogens will increase the ability to detect influenza strains currently in circulation, and monitor causes of morbidity and mortality among inpatients with SARI. Overall, this will provide a clearer epidemiological picture of influenza activity in our community.

SARI cases are tested by a reverse-transcriptase polymerase chain reaction (RT-PCR) viral panel test that includes: respiratory syncytial virus A and B; parainfluenza virus 1, 2, 3, and 4; human metapneumoviruses A/B; rhinovirus; adenovirus (ADVB and ADVE); influenza A and B; coronavirus (NL63, HKU1, 229E, and OC43); coxsackieviruses/echovirus; bocavirus. Bacterial testing for *Mycoplasma pneumoniae*, *Chlamydia pneumoniae*, *Legionella pneumophila* and *Bordetella pertussis* is also conducted. Serum from these patients is tested for Coccidioidomycosis. Among the cases in the 2011-2012 season, 22.5% (n=9) were positive for RSV, 20% (n=8) were positive for human metapneumovirus and 13% (n=5) were positive for Influenza. One case was positive for coccidioidomycosis; this case had a co-infection with a viral result.

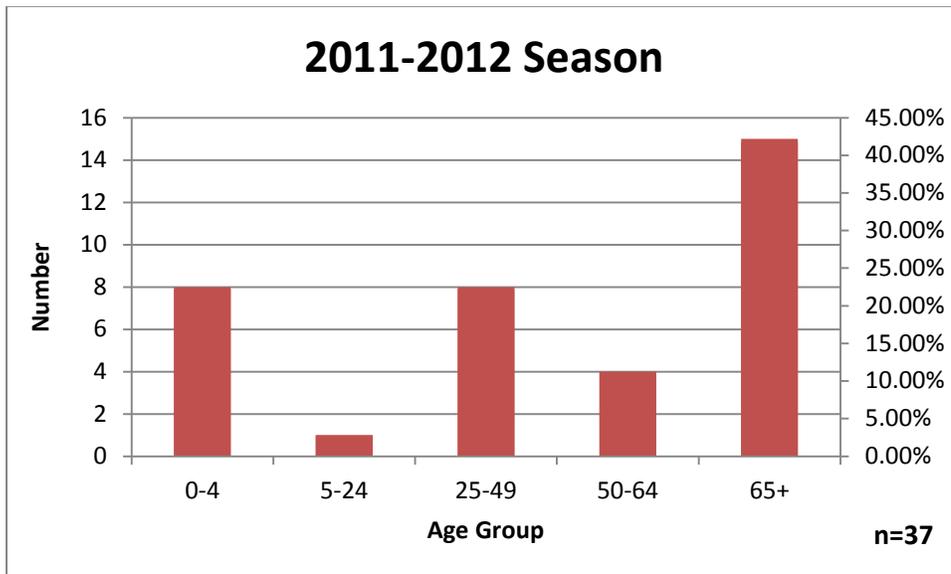


*Co-infections in weeks ending 1/7, 2/4, 2/11, and 3/10- all etiologies identified are represented.

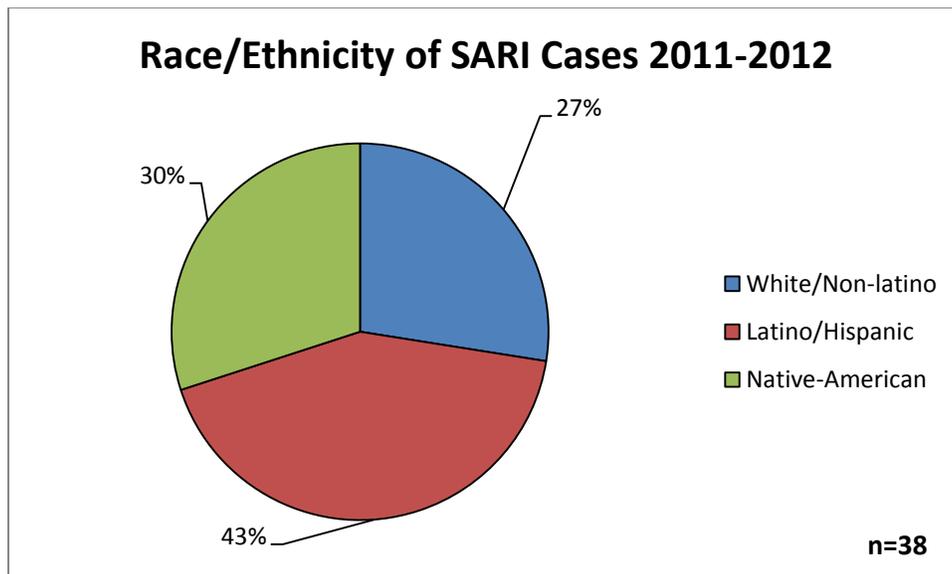
**35% (n=14) tested negative for all etiologies

Demographics of SARI cases

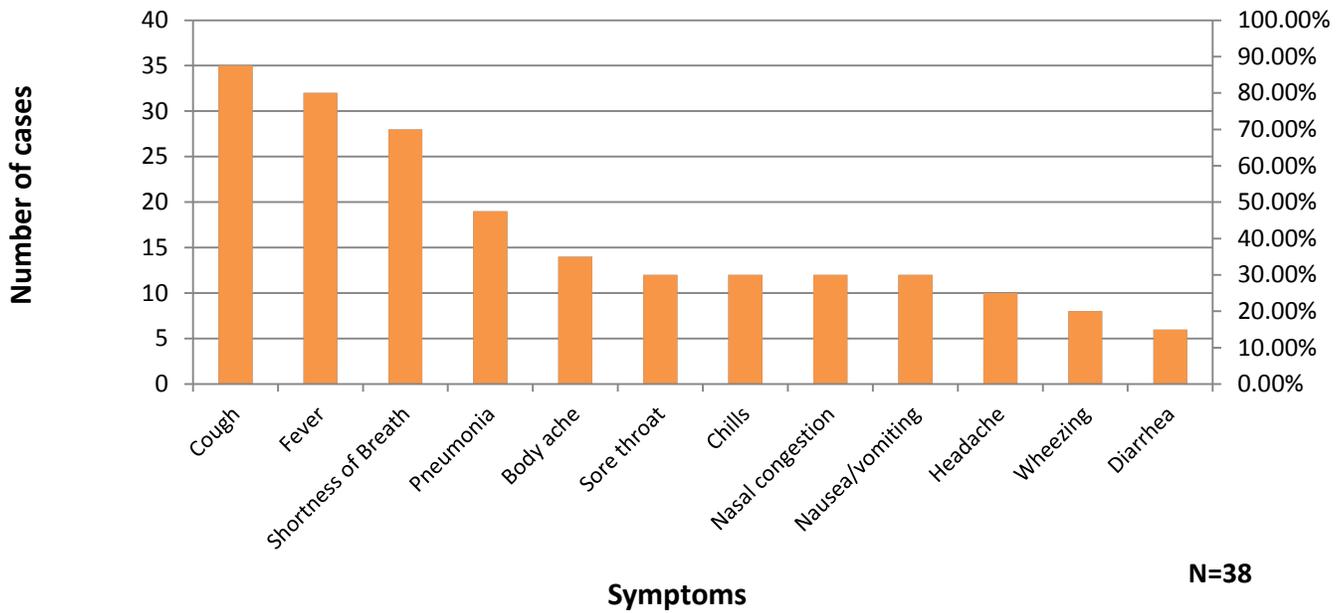
The following graphs and histograms give an overview of the demographics, symptoms, and comorbidities of the SARI cases. Sample sizes may be different due to missing responses on the SARI case report form.



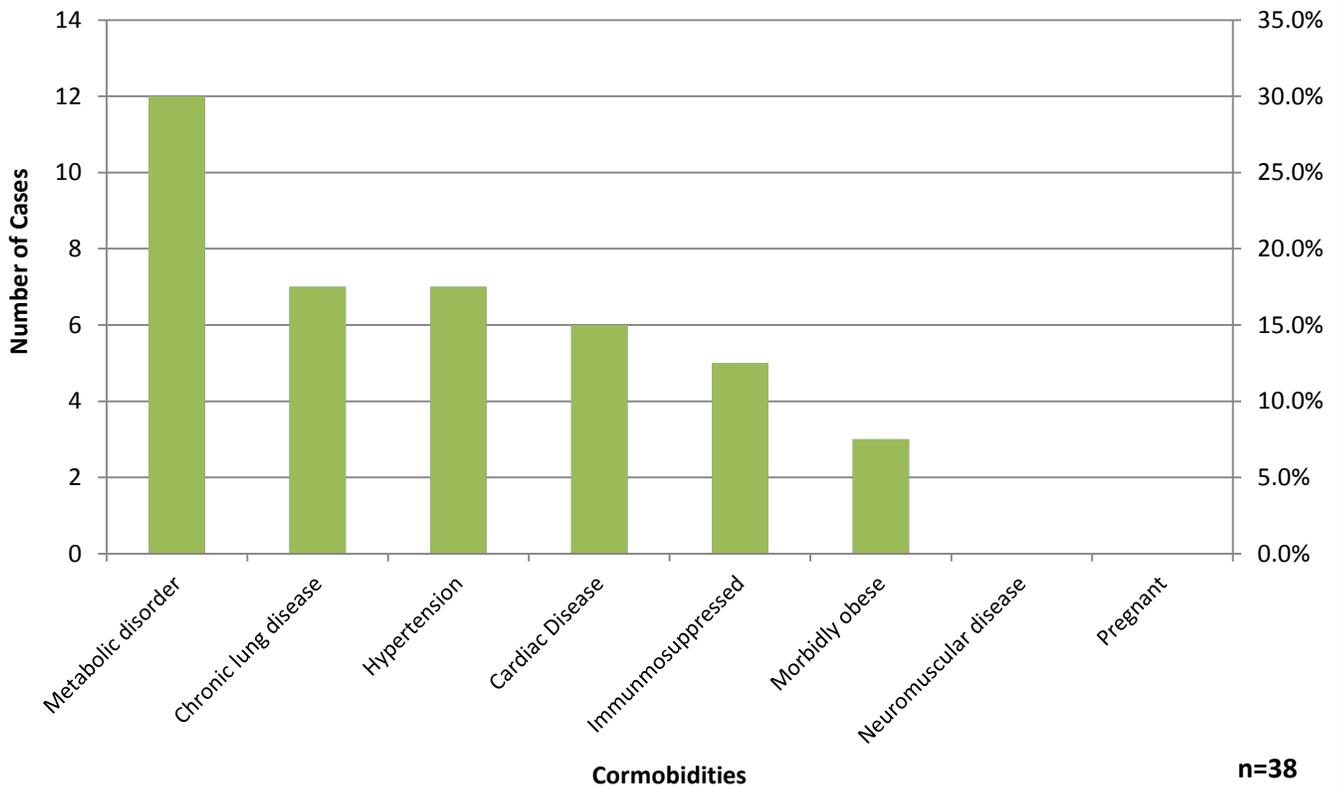
Number of		
Gender	SARI cases	Percent
Female	23	61%
Male	15	39%



Symptoms of SARI cases 2011-2012



Cormobidities of SARI Cases of 2011-2012



ACKNOWLEDGEMENTS:

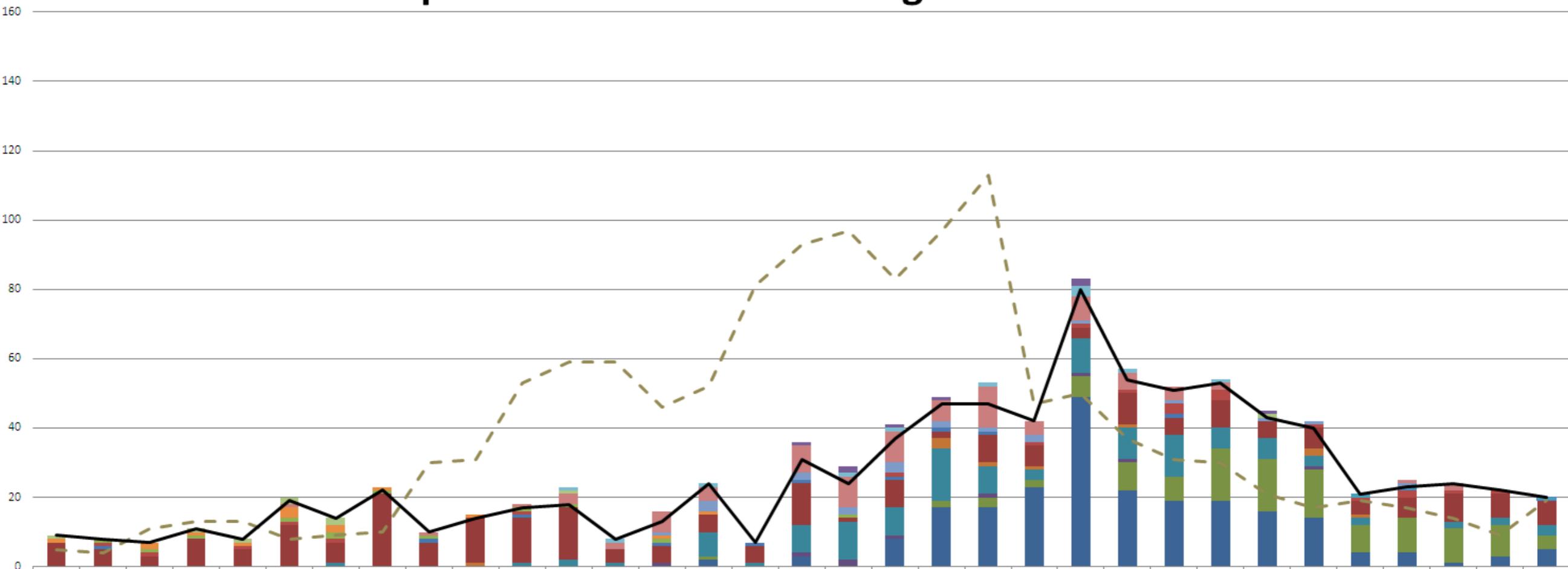
We gratefully acknowledge all our border partners for their contributions and support of the border influenza network including: Border Infectious Disease Surveillance Program, Early Warning Infectious Disease Surveillance, Naval Health Research Center Laboratory, Cochise County Health Department, Pima County Health Department, Santa Cruz County Health Department, Yuma County Health Department, and all participating hospital facilities.

Any questions please contact Orion McCotter: mccotto@azdhs.gov

Sentinel BIDS Hospital-Site 1 Positive Virologic Results 2010-2012



Positive Viruses



Week Ending	10/8	10/15	10/22	10/29	11/5	11/12	11/19	11/26	12/3	12/10	12/17	12/24	12/31	1/7	1/14	1/21	1/28	2/4	2/11	2/18	2/25	3/3	3/10	3/17	3/24	3/31	4/7	4/14	4/21	4/28	5/5	5/12	5/19		
Coronavirus-HKU1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0
Coronavirus-229E	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	1	0	1	0	3	1	0	1	0	0	0	0	0	0	0	0	
Bocavirus	1	0	0	1	1	2	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	
Human Metapneumovirus A/B	0	0	0	0	0	1	0	0	1	0	1	3	2	6	4	0	8	9	9	6	12	4	7	5	4	2	0	0	0	1	2	0	0	0	
Coronavirus-OC43	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	2	2	3	2	1	2	1	0	1	0	1	1	0	1	0	0	0		
Parainfluenza 4	1	0	2	1	1	3	2	1	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Parainfluenza 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Parainfluenza 1	0	1	1	1	0	1	2	1	1	0	1	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Adenovirus (ADVB)	0	1	1	0	1	1	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	1	1	3	3	0	1	1	2	1	1	0	
Coronavirus-NL63	0	1	0	0	0	0	0	0	1	0	1	0	0	1	0	1	1	0	1	1	1	1	0	0	1	0	0	0	0	0	0	0	0	0	
Coxsackieviruses/Echovirus or Rhinovirus	7	5	3	8	5	12	6	21	7	13	13	15	4	5	5	5	12	1	8	2	8	6	3	9	5	8	5	6	4	6	8	7	7		
RSV B	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3	1	1	0	1	0	0	0	2	1	0	0	0	0	0	
RSV A	0	0	0	0	0	0	1	0	0	0	1	2	1	0	7	1	8	11	8	15	8	3	10	9	12	6	6	3	2	0	2	2	3		
RSV (unsubtyped)	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	1	0	1	0	1	1	0	0	1	0	0	0	0	0	0		
Influenza B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	3	2	6	8	7	15	15	14	8	10	10	9	4		
Influenza A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	3	0	8	17	17	23	49	22	19	19	16	14	4	4	1	3	5		
No. Positive Results 2010-2011	5	4	11	13	13	8	9	10	30	31	53	59	59	46	52	81	93	97	83	97	113	47	50	37	31	30	21	17	19	17	14	9	19		
No. Positive Results 2011-2012	9	8	7	11	8	19	14	22	10	14	17	18	8	13	24	7	31	24	37	47	47	42	80	54	51	53	43	40	21	23	24	22	20		