

Cross Jurisdictional Measles Outbreak

Clark County, WA DOH, NWTEpi Center

Goals

- ▶ WA Department Of Health (State Level Perspective)
 - ▶ Significance of Measles Outbreak (MEASLES 101)
 - ▶ State-Level Measles Outbreak Response 2019
 - ▶ Things to know for Measles Response
- ▶ Clark County (Local Level Perspective)
- ▶ Intersections with Tribal Partners (Field Epi Perspective)

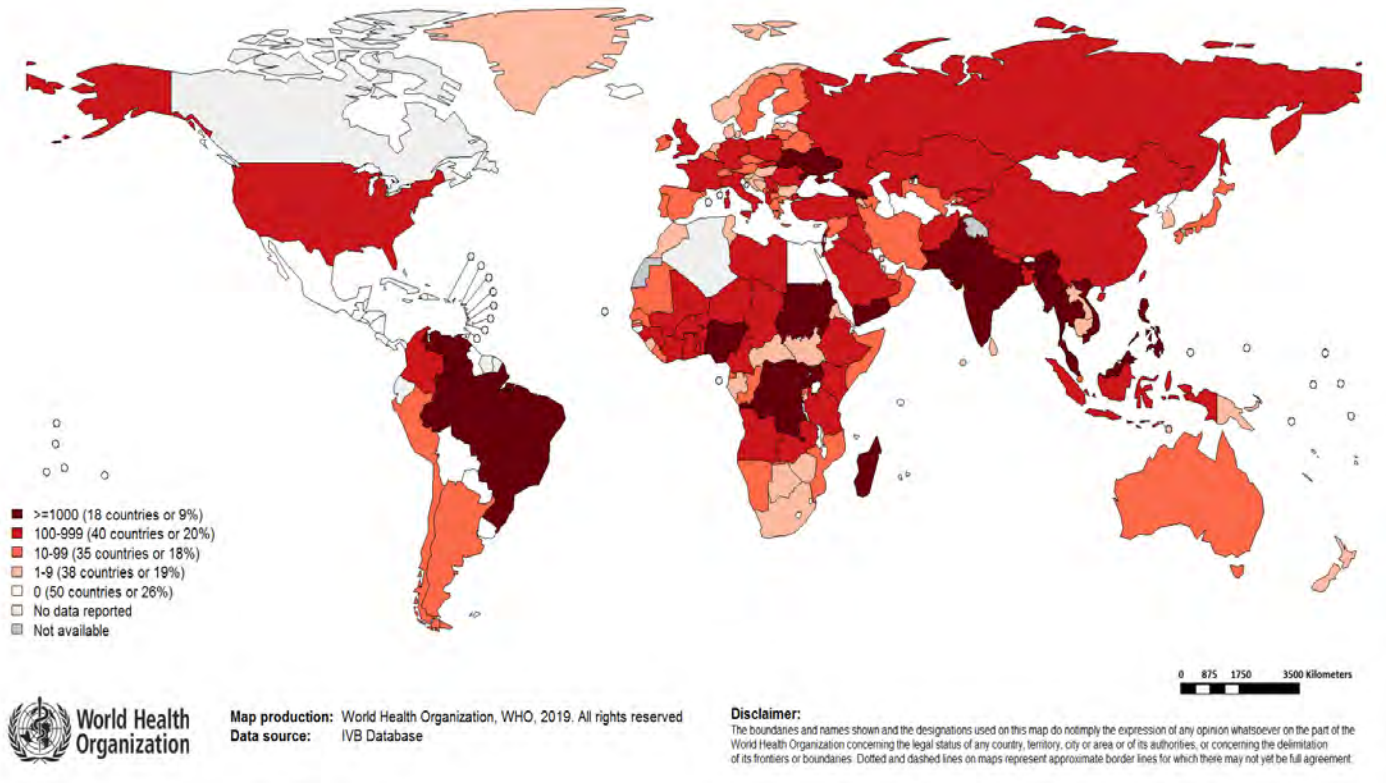
Significance of Measles in a Community

The background of the slide is white with abstract green geometric shapes on the right and bottom edges. These shapes consist of overlapping triangles and polygons in various shades of green, from light to dark, creating a modern, layered effect.

Measles in 2019, Worldwide

Number of Reported Measles Cases (6M period)

Top 10*	
Country	Cases
Ukraine	30148
India	12520
Madagascar	12038
Philippines	9585
Brazil	9581
Pakistan	6796
Venezuela (Bolivarian Republic of)	5643
Yemen	5158
Thailand	4242
Israel	2764

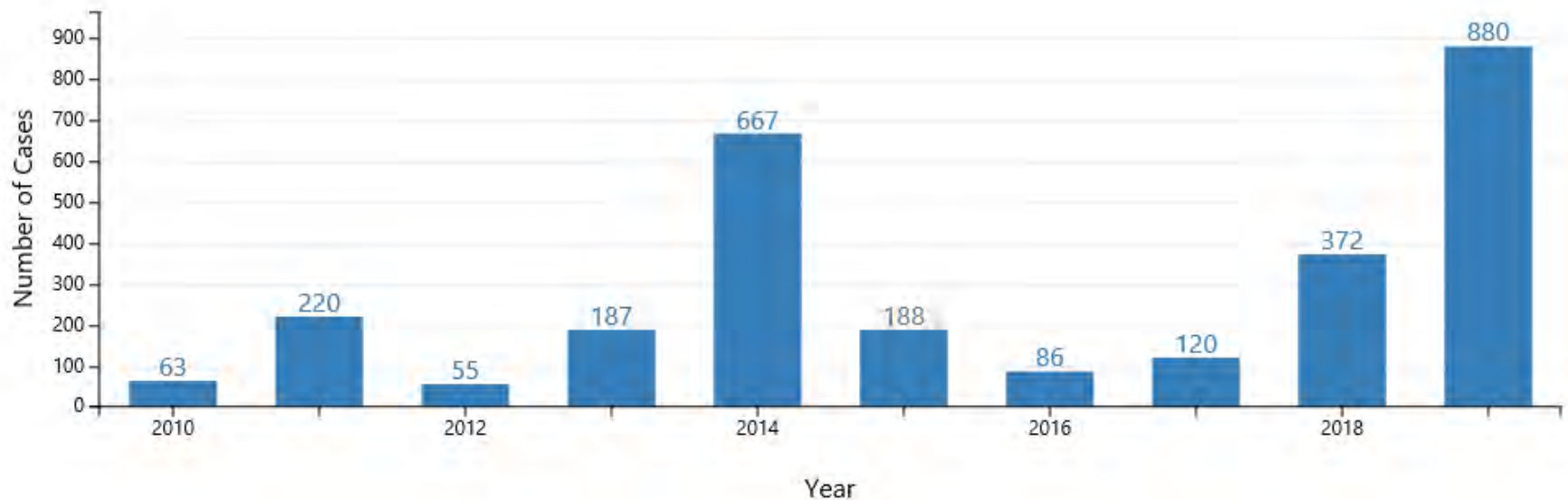


Notes: Based on data received 2019-02 - Surveillance data from 2018-07 to 2018-12 - * Countries with highest number of cases for the period

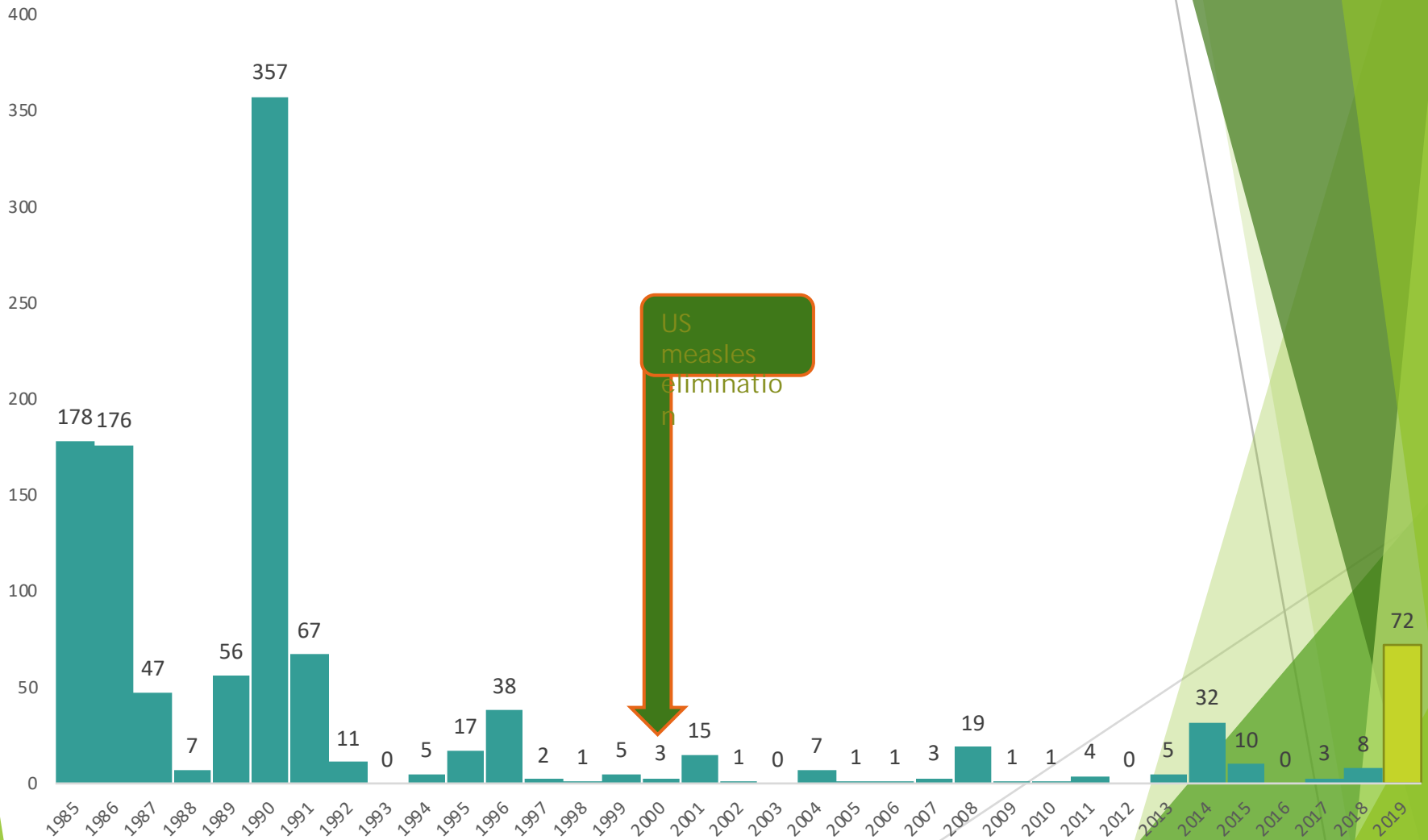
Measles in 2019, United States

Number of Measles Cases Reported by Year

2010-2019**(as of May 17, 2019)

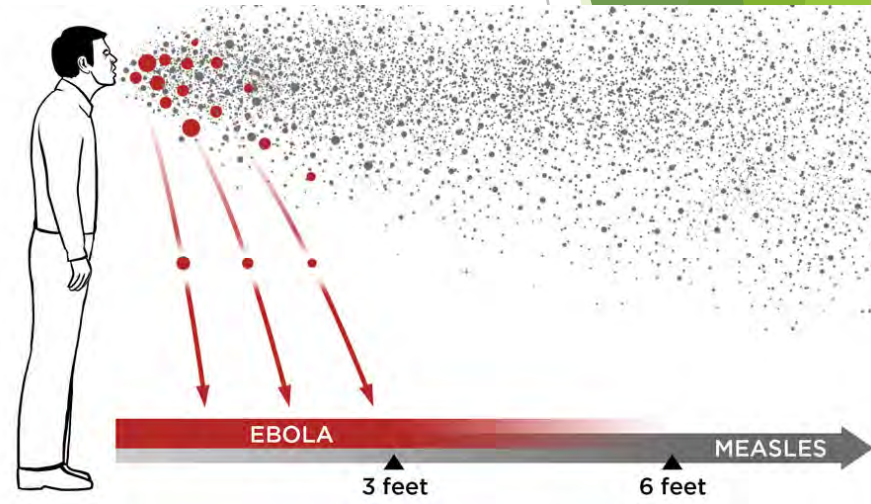


Washington State's **2019 measles outbreak** (n = 72) was the largest since 1990.



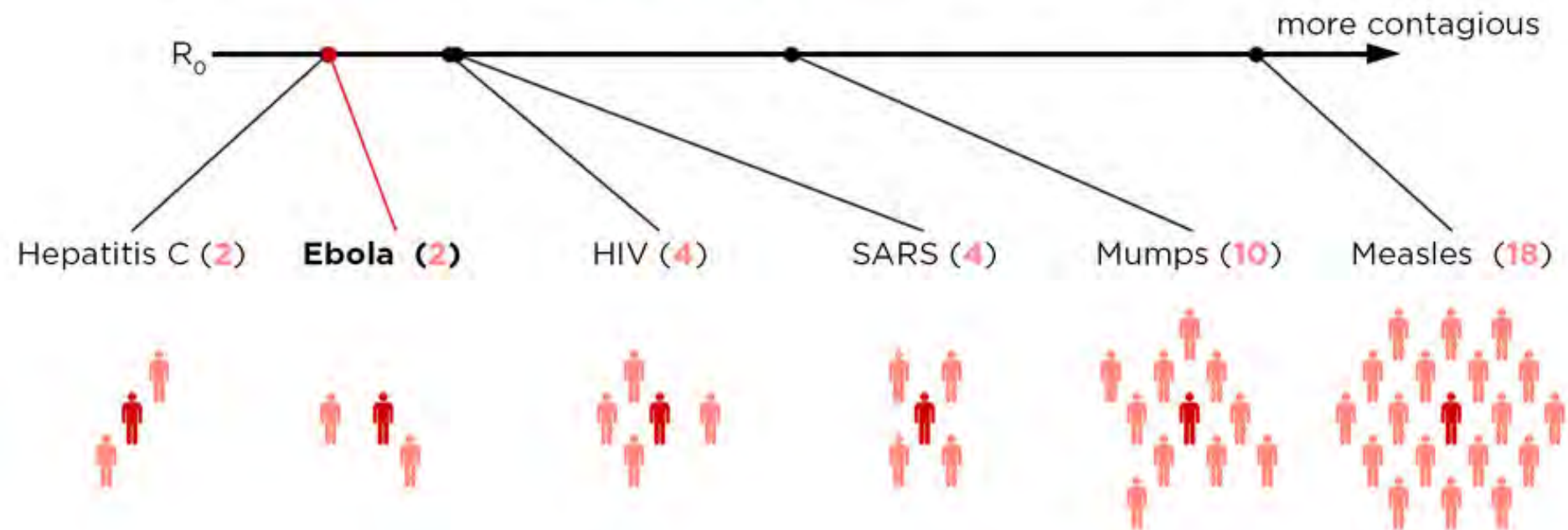
Measles Spreads Easily

- ▶ Spread via respiratory droplets and aerosol of infected person
 - ▶ coughing and sneezing, close personal contact or direct contact with infected nasal or throat secretions
- ▶ You can get measles by being in a room where an infected person has been. The virus stays in the air up to 2 hours after that person has left.
- ▶ Infected people can spread measles once they develop symptoms (and before the rash appears) and until the rash disappears.



Measles is Highly Contagious

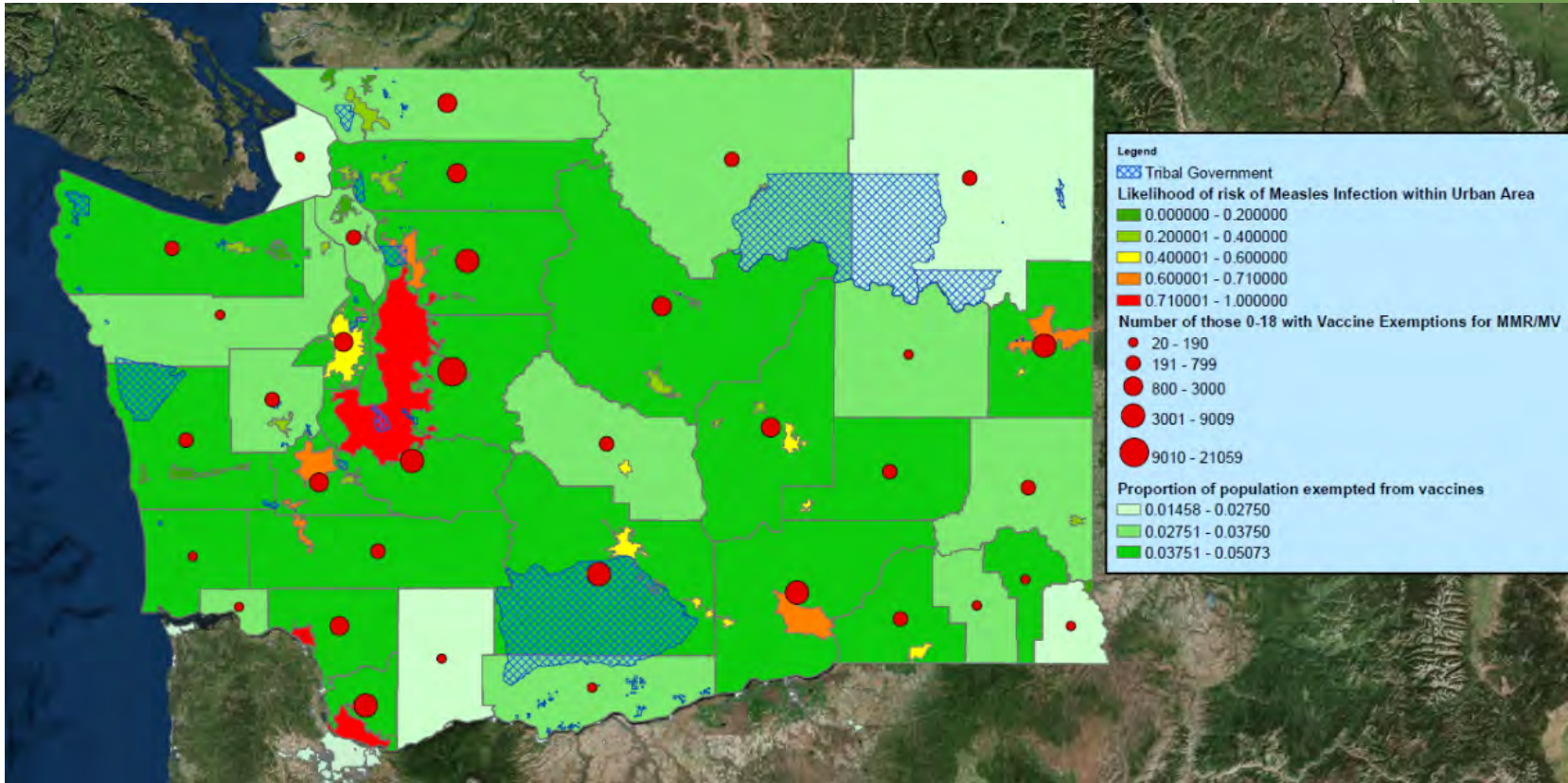
The number of **people** that **one sick person** will infect (on average) is called R_0 . Here are the maximum R_0 values for a few viruses.



Measles is so contagious that "if one person has it, 90% of the people close to them who are not immune will get it."

Source: NPR <http://www.npr.org/sections/health-shots/2014/10/02/352983774/no-seriously-how-contagious-is-ebola>

Vaccine Exemptions and Risk

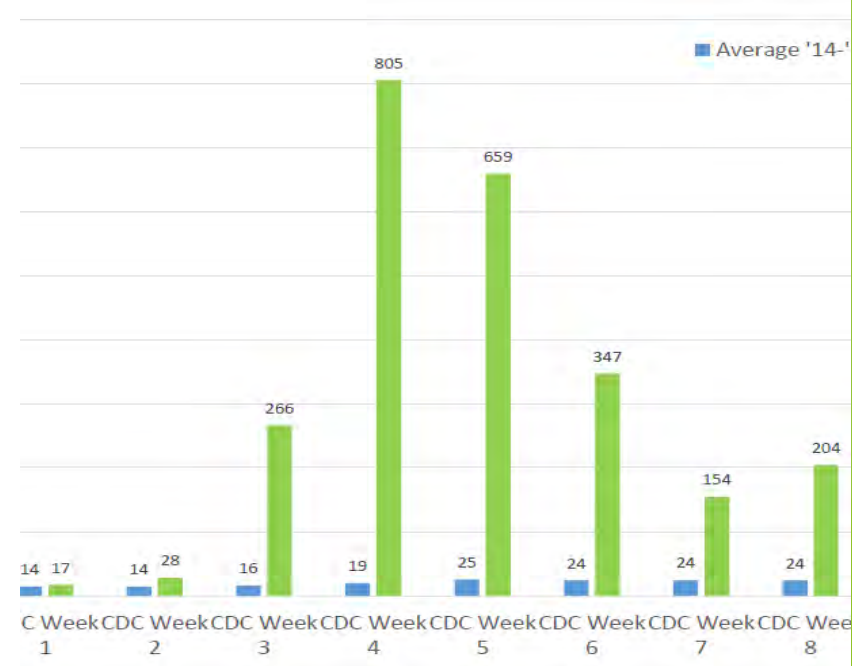
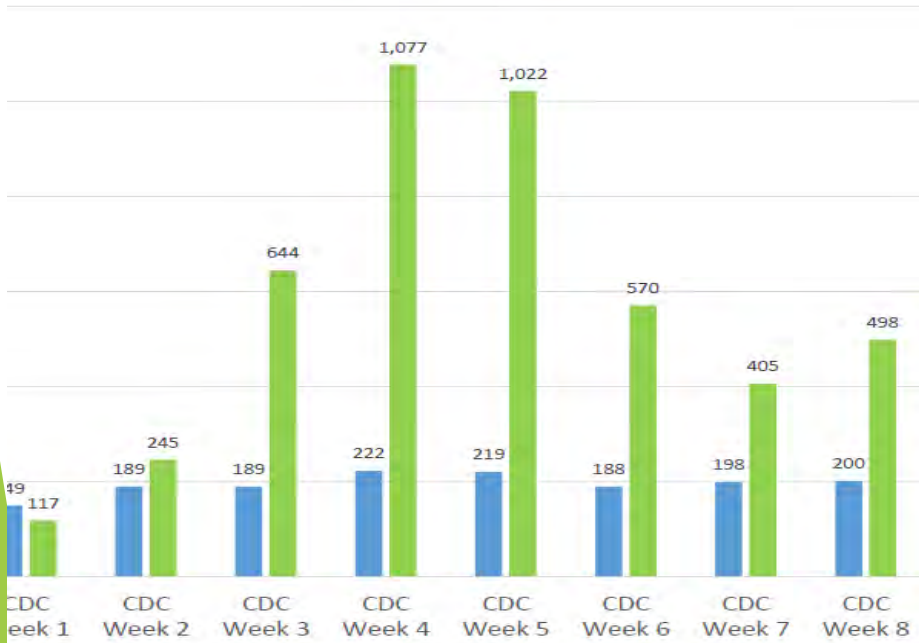


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State Level Measles Outbreak Response 2019

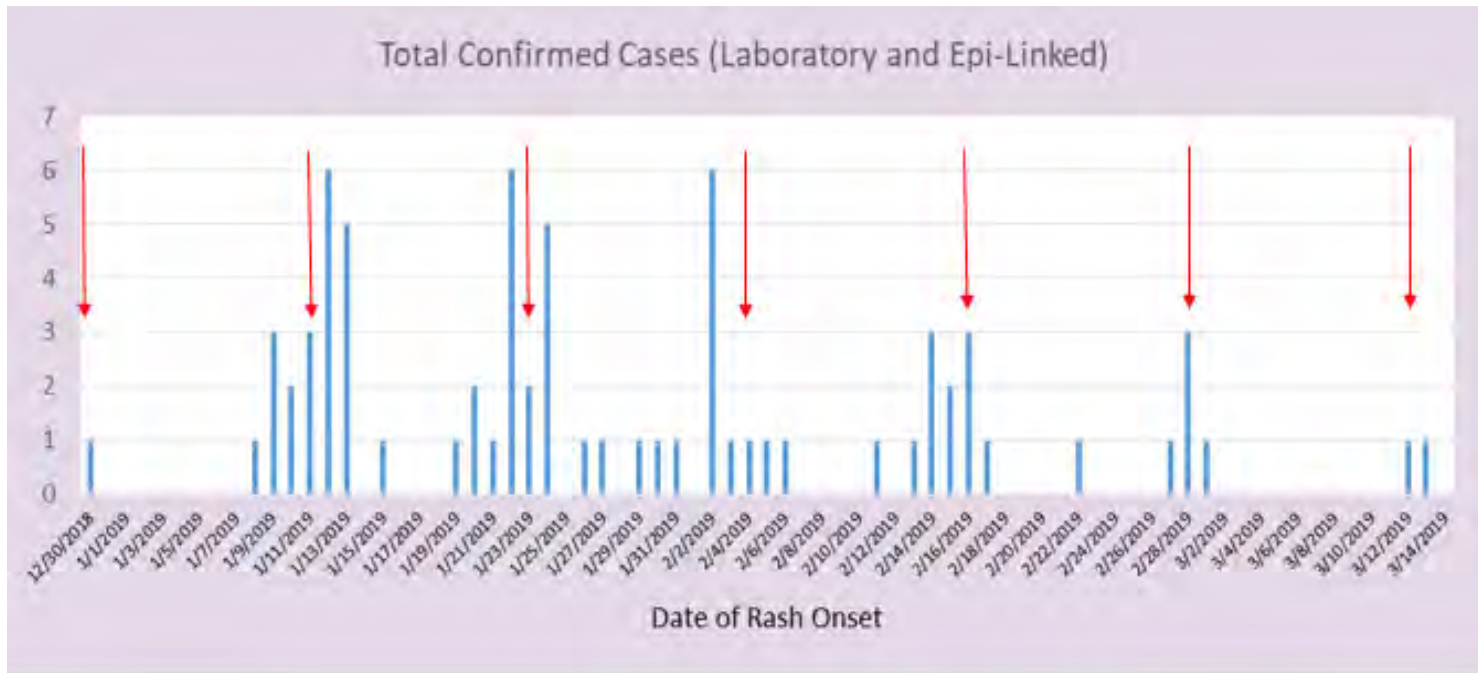
Vaccine Distribution

- ▶ Supported needs for vaccine through existing vaccine programs - saw significant increase in MMR vaccine uptake



Serial Transmission Intervals WA State Measles Outbreak 2019

Assuming Serial Transmission Interval of 12 days:



**TOTAL OF
70+ CASES**

Outbreak was declared over when 2 full incubation periods (42 days) had passed since the date of rash onset in last known case: **April 29th**

Initial Response at DOH

- ▶ Received notification and activated quickly
- ▶ Split IMT and DOH resources between three locations
 - ▶ Tumwater, Shoreline, and Clark County
- ▶ Mission was 2-fold
 - ▶ Support local jurisdictions in managing outbreak
 - ▶ Support DOH offices & coordinate agency efforts

Incident Timeline

Dec 31 2018 -
1st case
reported

Jan 16 - WA
DOH IMT
activates

Jan 25 -
Governor's
proclamation
of emergency

Feb 18 - EMAC
staff from
North Dakota
depart

Mar 11 -
WAPC call
center
deactivated

Mar 18 - Clark
County
terminates
command

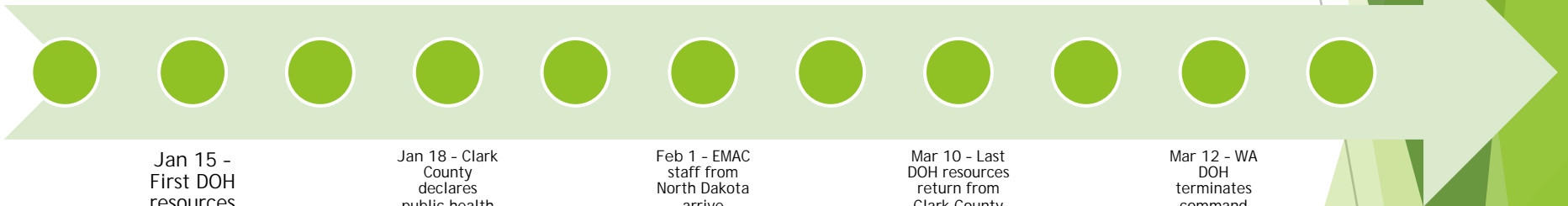
Jan 15 -
First DOH
resources
deploy to
Clark
County

Jan 18 - Clark
County
declares
public health
emergency,
WAPC call
center
activated

Feb 1 - EMAC
staff from
North Dakota
arrive

Mar 10 - Last
DOH resources
return from
Clark County

Mar 12 - WA
DOH
terminates
command



Response Concept of Operations

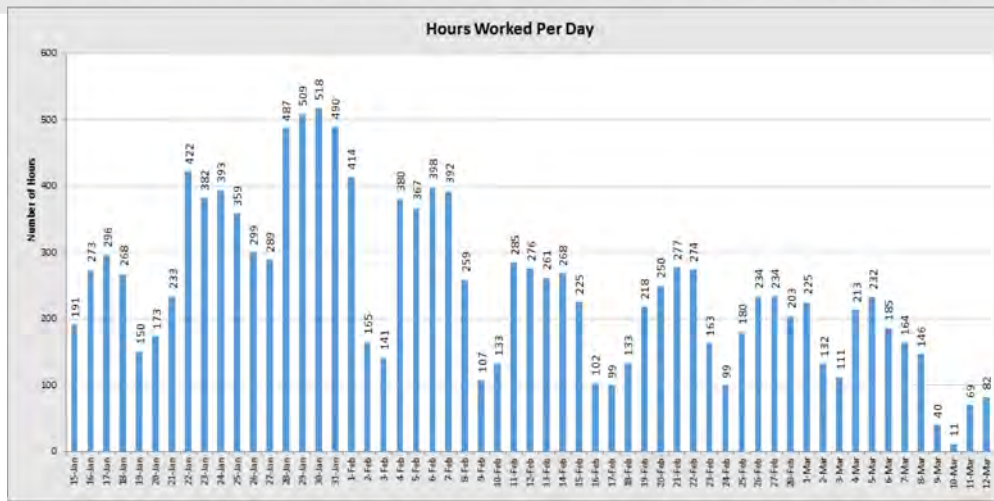
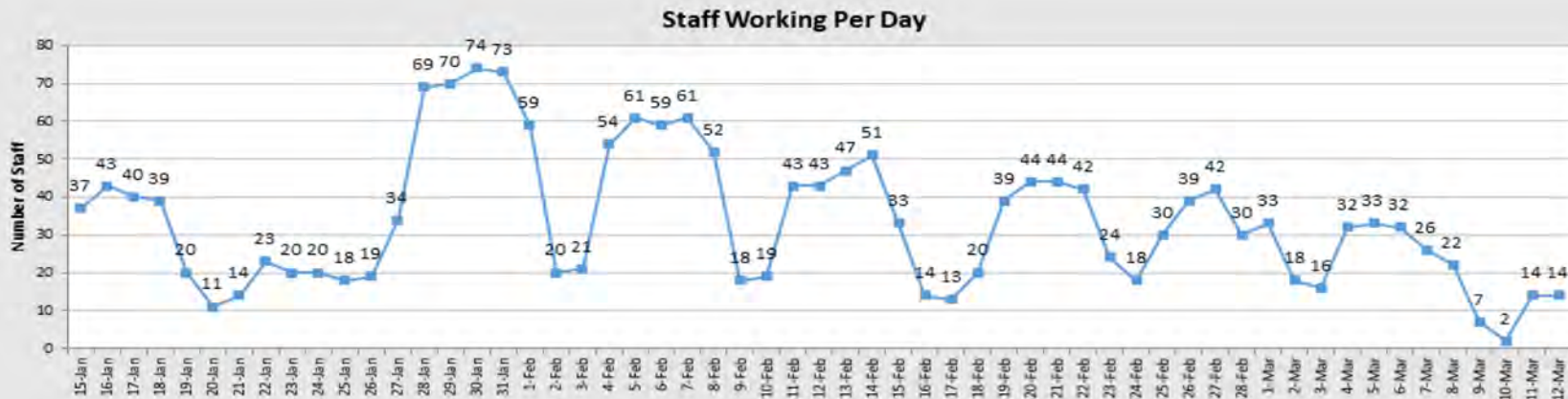
- ▶ DOH leads some key aspects of response
 - ▶ Laboratory testing
 - ▶ Mutual aid coordination
 - ▶ interjurisdictional coordination and information sharing
- ▶ ...and supports others
 - ▶ Public information
 - ▶ Epidemiology investigation
 - ▶ Subject matter expertise and guidance
 - ▶ Resource needs

EMAC Assistance

- ▶ Emergency Management Assistance Compact (EMAC) resources were needed to support the response
 - ▶ 5 IMT staff from North Dakota and 2 disease investigators from Idaho
 - ▶ IMT staff from Tennessee were on standby
 - ▶ Disease investigators from California and Alaska were on standby
- ▶ ND IMT personnel were incorporated into the DOH IMT
 - ▶ General Staff, Unit Leader, and Unit staff positions
 - ▶ Shadowing and onboarding are critical for familiarization and to build trust (at least 1 day)
 - ▶ Personality, flexibility and sense of humor are key

Response Resources (Staff)

- ▶ 260 WA DOH staff were involved in the 2+ month response efforts
- ▶ Approximately 14,000 staff hours



Mobilizing Response Resources (Staff)

- ▶ Many of the 260 staff involved had:
 - ▶ Little or no ICS training
 - ▶ No IMT or emergency response experience
- ▶ This worked really well
 - ▶ Ideal team players
 - ▶ Shadowing and handoffs
 - ▶ Process documentation and job aids

Mobilizing Response Resources (Epidemiology Response Team)

- ▶ DOH is in the process of developing a Typed, deployable Epi Response Team (ERT)
 - ▶ Not yet fully rostered or trained
 - ▶ Deployed numerous staff to assist the county
 - ▶ SMEs, Epis, data entry, IT/database support, etc.
- ▶ When developed ERT will have team leaders, field epis, data entry staff, interviewers, and IT support
 - ▶ Response validated overall planned structure of the ERT and will provide valuable lessons learned

Response Resources (Public Information)



- ▶ Public Information Officers (PIOs) responded to 164 media request

Response Cost (WA DOH only)

- ▶ \$986,700 spent (non-inclusive of County costs)
 - ▶ Avg daily cost: \$17,600
 - ▶ About \$13,334 per case (state only)
- ▶ 7 Out-of-state staff via EMAC
- ▶ 7 CDC staff and EIS officers, 1 HHS REC
- ▶ At least 38 MRC volunteers from 6 counties deployed and worked 2,131 hours (as of 3/7)

Contingency Planning

- ▶ Risk of cases appearing in other counties
 - ▶ Some areas would require substantial assistance
- ▶ Proactive contingency planning was carried out early in the incident
 - ▶ Public information approaches
 - ▶ Changes to epi investigation
 - ▶ Changes to approach to IMT management

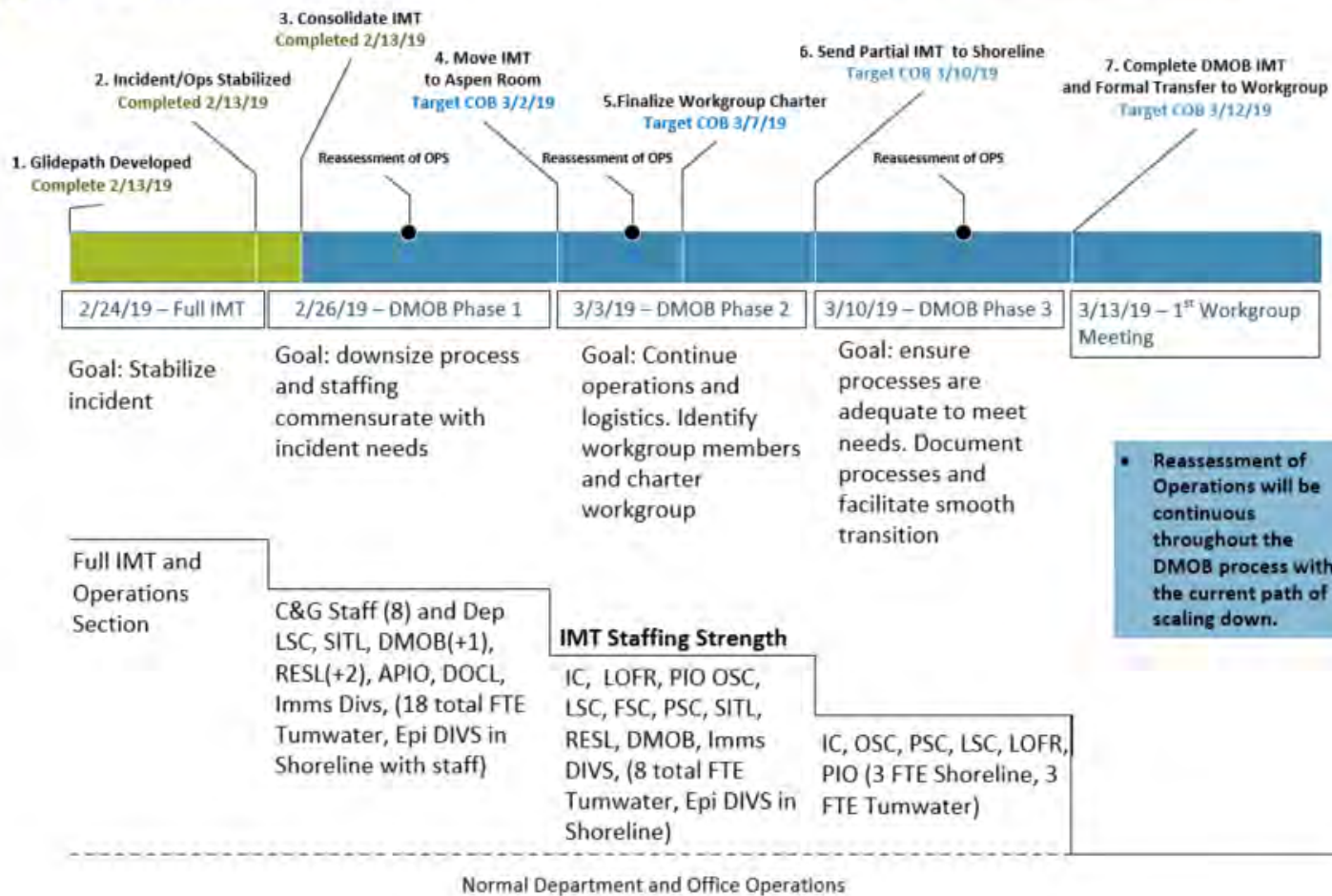
Incidents within the Incident

- ▶ Historic winter weather events
 - ▶ Difficult travel
 - ▶ Remote working
 - ▶ Agency COOP
 - ▶ Potential for ESF8 Response
- ▶ Death of a colleague
 - ▶ Staffing impacts
- ▶ Added substantial complexity
- ▶ Flexibility and creativity saved the day



IMT Demobilization and Transition

- ▶ Early demobilization planning was critical
 - ▶ Outbreaks and other PH incidents are long duration
 - ▶ Defining end state is challenging
- ▶ Previous experience was informative
 - ▶ Gradual downsizing was beneficial
 - ▶ Offices must be well supported
 - ▶ Processes must be well documented
 - ▶ Outstanding tasks must be clearly communicated
 - ▶ Must have clearly defined “hard” transition from IMT



Cross-Agency Workgroup

- ▶ DOH transitions from IMT to a workgroup
 - ▶ Provides structure for ongoing coordination
 - ▶ Allows IMT to terminate command while incident management continues
- ▶ Workgroup composed of reps from involved offices
 - ▶ Immunizations, Epi, Lab, Public Affairs, Finance, Prep & Response
 - ▶ Sponsored by Division A/S and State Epi for CD

Process Identification and Tracking

Washington State Department of Health				
Measles Outbreak Workgroup: Roles & Functions				
Incident Name: 2019 Measles				
Date and Time: 03/12/19				
Office/Division	Roles & Functions	Notes	"Last Activated" POC	Ongoing POC
All Workgroup Members	Maintain and share situational awareness with workgroup regarding progress of outbreak, progress in work objectives, workload capacity, forecasted changes, and any challenges that arise.	Conduct work according to processes documented in charter and according to processes developed in response to this incident.	N/A	<u>Workgroup Leads:</u> Cynthia Harry (206) 418-5553
	Attend workgroup meetings, collaborate to achieve workgroup goals, and share progress of workgroup with key audiences in home office/division.			Mike Boysun (206) 418-5518
Communicable Disease Epidemiology	Provide technical assistance to local health jurisdictions, including supporting measles case and contact investigation in accordance with WAC 246.101.510.2.	Continue to provide continuity of investigation of outbreak cases until the last known case is 42 days old; and the outbreak is declared over.	Mike Boysun (206) 418-5518	Cynthia Harry (206) 418-5553
	Share epidemiological measles report information with workgroup members and identified leadership as it is developed.			Mike Boysun (206) 418-5518
	Notify all local health jurisdictions and out of state partners of residents within their jurisdictions who are known contacts to measles cases within the impacted jurisdictions.			Chas DeBolt (206) 418-5431
	Work with WA Public Health Laboratories and local health jurisdictions to facilitate assessment, submission, and prioritization of samples for measles testing.			
	Track and report all measles specimens from local health jurisdictions to WA Public Health Laboratories, including specimen results to the appropriate jurisdictions, including Oregon Public Health Lab, Minnesota Public Health Lab, and CDC.			
	Coordinate with local health jurisdictions to maintain a statewide epidemiological profile and descriptive summary of the measles outbreak.			

WA DOH Outbreak Summary

- ▶ 74 cases of measles required full strength of agency capability to effectively support and coordinate
- ▶ Prepare for concurrent incidents and proactively plan for contingencies
- ▶ Statewide LHJ mutual aid was utilized, however erosion of public health capacity over many years has produced gaps. Limitations were evident in this incident
- ▶ EMAC proved essential and valuable. Should serve as a primary resource in PH emergencies even in non-federally declared incidents
- ▶ Shadowing and on the job training proved as valuable as previous ICS training. Ideal Team Players (hungry, humble, people-smart) were always successful with adequate onboarding, even without prior experience.
- ▶ Anti-vaccination groups have had significant impact in certain communities resulting in increased vulnerability and adding incident complexity.



INITIAL STEPS TO RESPOND TO POSSIBLE MEASLES IN YOUR COMMUNITIES

What is Evidence of Immunity to Measles?

Born before 1957


Documentation of age-appropriate vaccination :

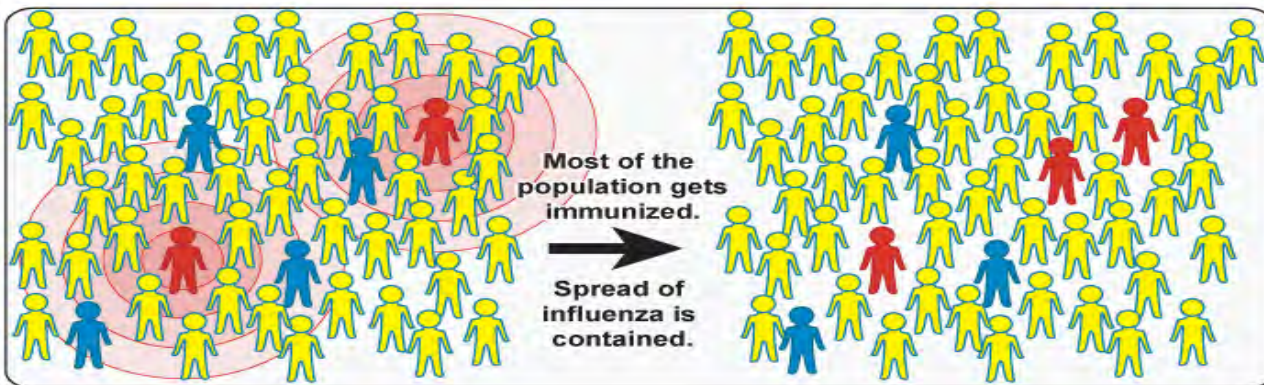
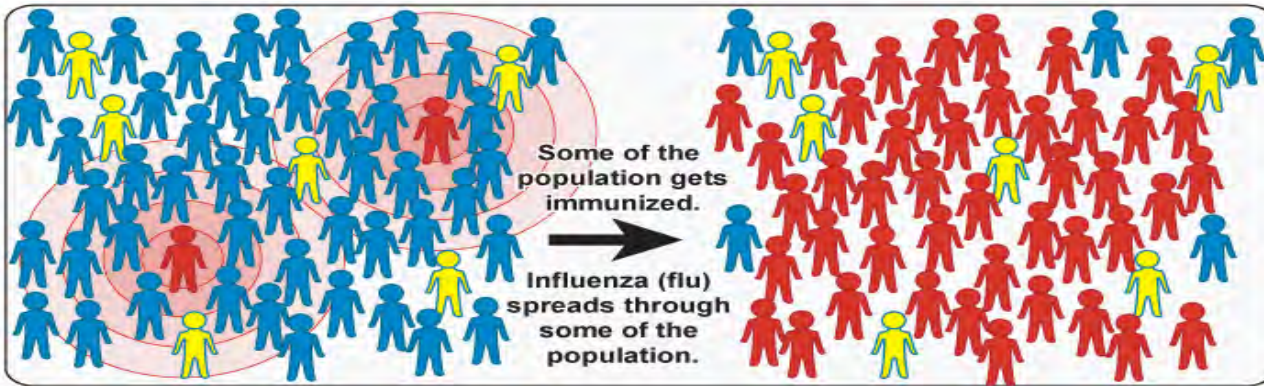
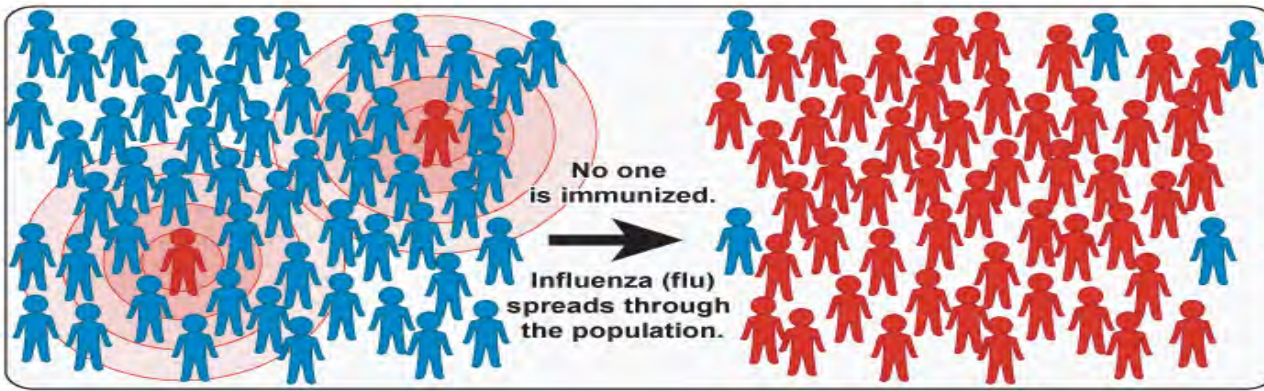
- preschool-aged children & adults not at high risk: 1 dose
- infants 6-11 months who travel internationally: 1 dose
- school-aged children (grades K-12): 2 doses
- health care workers: 2 doses
- students at post-secondary ed. institutions: 2 doses
- adults (& toddlers) who travel internationally: 2 doses

Laboratory evidence of immunity (or past disease)

 = not immunized but still healthy

 = immunized and healthy

 = not immunized, sick and contagious



Measles Case Definition

Centers for Disease Control and Prevention

- Generalized maculopapular rash lasting 3 or more days

(**Measles recognition tip**: A typical measles rash starts on the face and spreads downward)

- Fever of 101F (38.3 C) or more

(**Measles recognition tip**: Fever starts 2-4 days before the rash, and is still present when the rash appears)

- Cough, or conjunctivitis, or coryza

(**Measles recognition tip**: Measles is a respiratory illness and these symptoms are typically prodromal and start before the rash)

Provider Assessment (from Clark County based on DOH version)

Patient Information:	Name:	DOB:	Local Health Jurisdiction	
Address:	City:	County:	State:	Zip:
Evaluation date:	(If patient is a minor) Parent/Guardian Name:		Phone #: (____) ____-____	
Reporting Facility:	Clinician name:		Clinician phone #: (____) ____-____	
Consider measles in the differential diagnosis of patients with FEVER and RASH:				
A) What is the highest temperature recorded?	°F	Fever onset date: ____ / ____ / ____ <input type="checkbox"/> NA - afebrile		
B) Does the patient have a rash?	YES	NO	If no rash, do not collect measles specimens. Consider rule out testing for other causes of febrile rash illness.	
C) Rash characteristics:			Rash onset date: ____ / ____ / ____	
<ul style="list-style-type: none"> Was rash preceded by one of the symptoms listed in (D) by 2-4 days? Did fever overlap rash? Did rash start on head or face? 			Measles rash is generally red, maculopapular and may become confluent. It typically starts at the hairline, then progresses down the face and body. Rash onset typically occurs 2-4 days after symptom onset, which includes fever and at least one of the "3 Cs" (below).	
D) Has the patient had any of the following?			Onset date: ____ / ____ / ____	
<ul style="list-style-type: none"> Cough Runny nose (coryza) Red eyes (conjunctivitis) 			Onset date: ____ / ____ / ____	
E) Known high risk exposure in past 21 days? <i>(ex: to a confirmed case, international travel)</i>			Date/time and place of exposure:	
F) What's the patients immunity status?	<input type="checkbox"/> Unknown <input type="checkbox"/> Unimmunized <input type="checkbox"/> Born before January 1, 1957 <input type="checkbox"/> At least one documented measles vaccine. Vaccine date: 1 st dose: ____ / ____ / ____ 2 nd dose: ____ / ____ / ____			

Measles is highly suspected in a febrile patient if you answer YES to B + at least one item in both C & D + YES in E.

Link to DOH version (will update soon to reflect Clark County changes):

<https://www.doh.wa.gov/Portals/1/Documents/Pubs/348-490-MeaslesAssessmentQuicksheetProviders.docx>

Begin to Manage Possible Exposure in Clinic

- Who was in the clinic when the suspected measles case arrived?
- Who has arrived since?
 - Babies under 1
 - Pregnant women
- Consider assigning someone immediately to make a list of persons that will need to be contacted if measles is confirmed.
- Do not use the room for 2 hours after the patient with possible measles leaves.
- ALL staff should already have recommended immunity.

Measles in Clark County

Monica Czapla, MPH
Infectious Disease Program Manager
Clark County Public Health

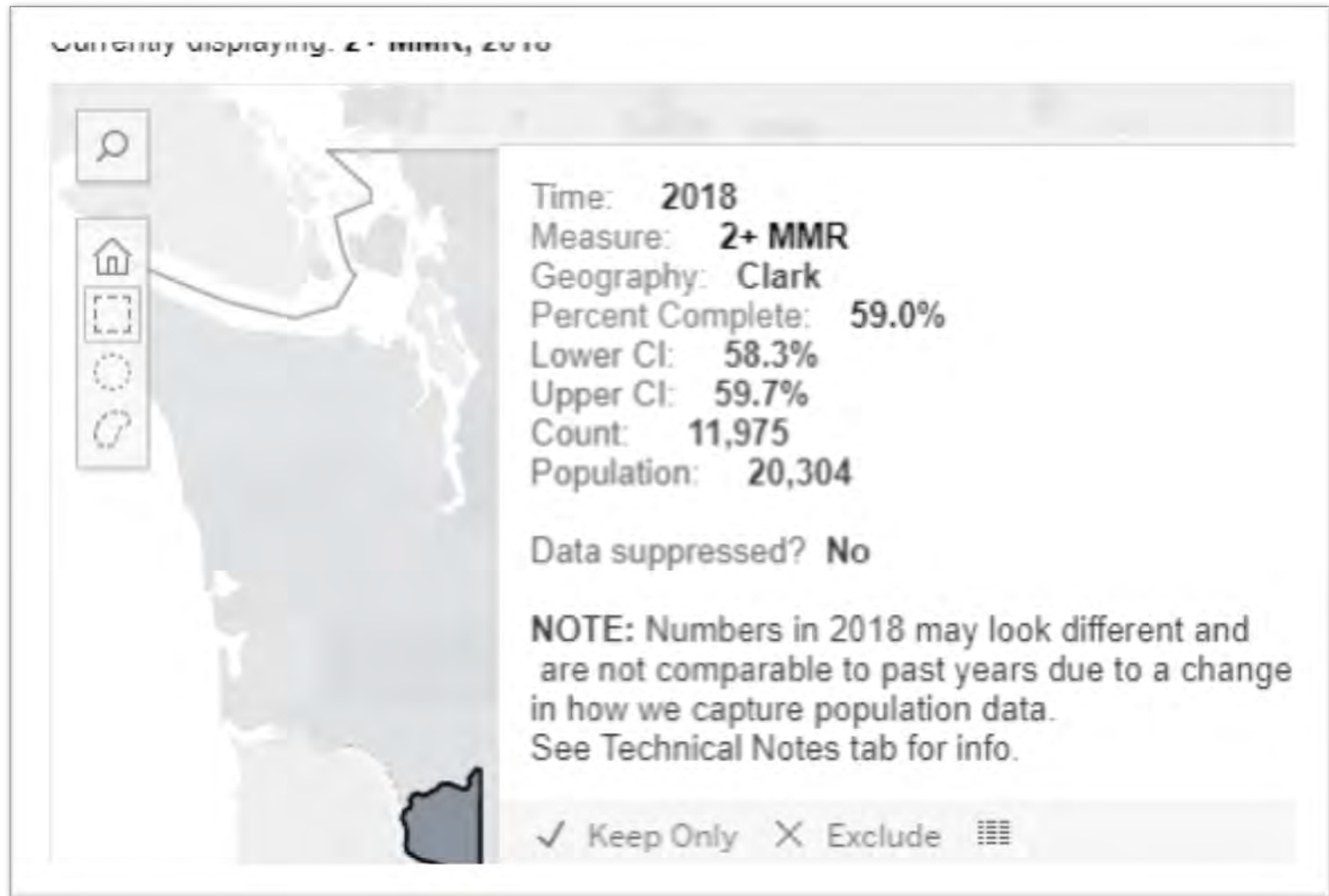


Overview

- Measles & MMR in Clark County (pre-outbreak)
- What a measles investigation looks like in Clark County
- The 2019 Clark County outbreak
- Lessons learned



MMR: 4 to 6 year old immunization rates, 2018



<https://www.doh.wa.gov/DataandStatisticalReports/HealthDataVisualization/ImmunizationDataDashboards/PublicHealthMeasures>



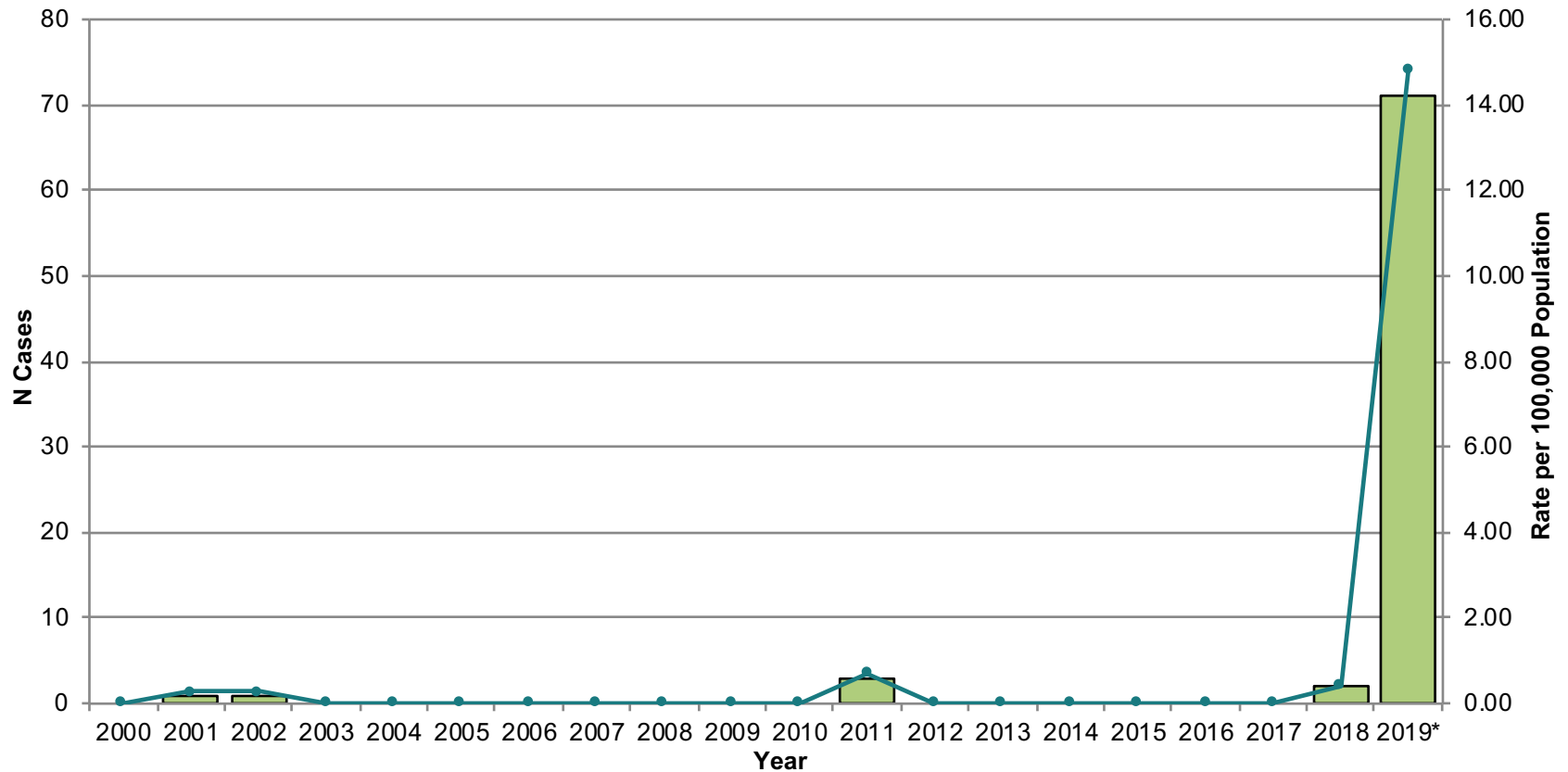
K-12 Complete for required immunizations by school

K-12 Immunization Coverage, 2017-2018 School Year, Clark County, WA



Measles in Clark Count

Clark County Measles Cases and Rates per 100,000 Population *Since Measles Elimination*



*2019 numbers are year to date.



Case & Contact Investigation Process

☐ Triage and evaluate suspect cases




Clark County Public Health
Suspect Measles Evaluation Worksheet
Suspect and confirmed cases are IMMEDIATELY reportable to Clark County Public Health

Patient Information:		Name:	DOB:
Address:	City:	County:	State:
Evaluation date:	(If patient is a minor) Parent/Guardian Name:		Phone #: ()
Reporting Facility:	Clinician name:	Clinician phone #: ()	
Consider measles in the differential diagnosis of patients with FEVER			
A) What is the highest temperature recorded?	°F	Fever onset date: ___/___/___	<input type="checkbox"/> NA - afebrile
B) Does the patient have a rash?	YES NO	If no rash, do not collect. Consider rule out testing for other causes.	
C) Rash characteristics:		Rash onset date: ___/___/___	Measles rash is generally red, becomes confluent. It typically starts on the face and progresses down the face and body. It occurs 2-4 days after symptoms and at least one of the "3 Cs" (Cough, Coryza, Conjunctivitis).
• Was rash preceded by one of the symptoms listed in (D) by 2-4 days?			
• Did fever overlap rash?			
• Did rash start on head or face?			
D) Has the patient had any of the following?		Onset date: ___/___/___	
• Cough			
• Runny nose (coryza)			
• Red eyes (conjunctivitis)			
E) Known high risk exposure in past 21 days? <i>(ex. to a confirmed case, international travel) Call CCPH CD Team for known exposures.</i>		Date and place of exposure:	
F) What's the patient's immunity status?	<input type="checkbox"/> Unknown <input type="checkbox"/> Unimmunized <input type="checkbox"/> At least one documented measles vaccine		
	1 st dose: ___/___/___		
	2 nd dose: ___/___/___		

Measles is **highly suspected** in a febrile patient if you answer YES to B + at least one item

IF MEASLES IS SUSPECTED, IMMEDIATELY:

- Mask and isolate the patient (in negative air pressure room when possible).
- Call Clark County Public Health to report the suspected measles case and request pickup.
- Collect **ALL** of the following specimens, if testing is approved:
 - Nasopharyngeal (NP) swab for rubeola PCR and culture (the preferred respiratory specimen)
 - Swab the posterior nasal passage with a Dacron™ or rayon swab and place the transport medium. Store specimen in refrigerator until pickup is authorized.
 - Urine for rubeola PCR and culture:
 - Collect at least 50 ml of clean voided urine in a sterile container and store in refrigerator.



Clark County Public Health
Measles Suspect Case Checklist

Date Reported: ___/___/___

Case Name: _____ Phone #: () _____
 DOB: ___/___/___ Sex: M F Parent/Guardian: _____
 Relationship to case: _____

Date completed:	Staff Initials:	Case Evaluation Status

Potential:

- Complete suspect case evaluation (see [Suspect Measles Worksheet](#)).
- Conduct EMR review to confirm clinical presentation and onset dates.
- Complete interview if clinical or exposure information is missing.

Suspect (decided to test):

- Recommend testing and advise on specimen collection and storage.
- Advise case to remain quarantined at home until results are received.
- Update case summary line list.
- Create case folder under appropriate H: Investigations folder.

Specimen Handling & Shipping:

- Shipping team notified, shipper name: _____
- Pick up and package specimens follow shipping [workflow](#).

Determine case classification:

- Confirmed Lab Negative Ruled out

- Notify case/family
- Notify testing provider and fax results
- Notify Epi to update the Measles Database and case summary line list



For confirmed cases only:

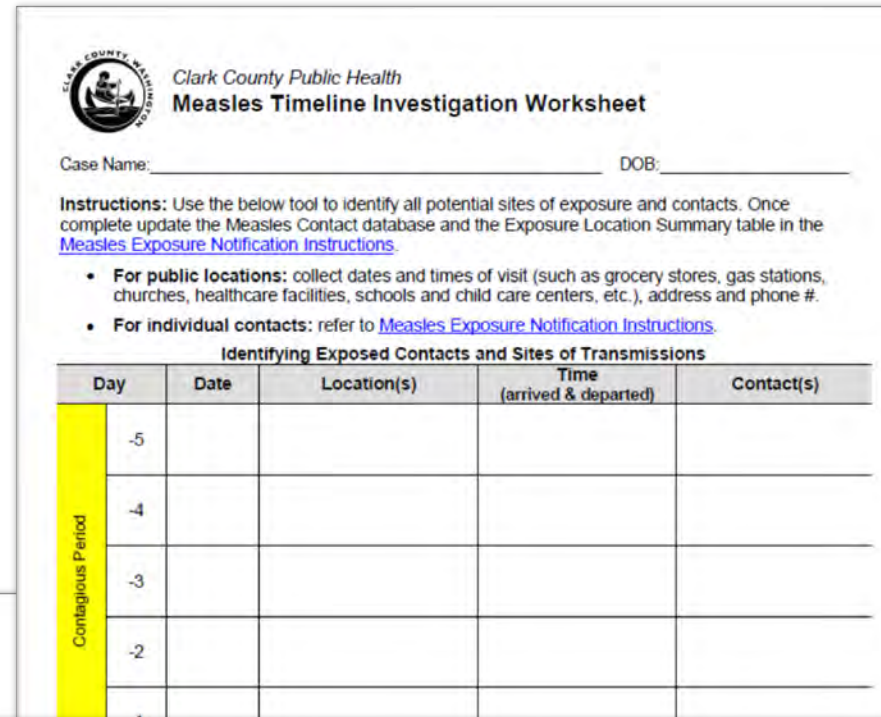
- Complete interview & exposure and contagious period timelines with case, if still contagious confirm isolation
- Close contact list entered into database
- Send exclusion letter to school, daycare or workplace if applicable.



Case & Contact Investigation Process

☐ Identify contacts :

- HH contacts, facility generated line lists (schools, healthcare facilities)
- Press releases / measles outbreak webpage



Clark County Public Health
Measles Timeline Investigation Worksheet

Case Name: _____ DOB: _____

Instructions: Use the below tool to identify all potential sites of exposure and contacts. Once complete update the Measles Contact database and the Exposure Location Summary table in the [Measles Exposure Notification Instructions](#).

- **For public locations:** collect dates and times of visit (such as grocery stores, gas stations, churches, healthcare facilities, schools and child care centers, etc.), address and phone #.
- **For individual contacts:** refer to [Measles Exposure Notification Instructions](#).

Identifying Exposed Contacts and Sites of Transmissions

Day	Date	Location(s)	Time (arrived & departed)	Contact(s)
Contagious Period	-5			
	-4			
	-3			
	-2			
	-1			



CLARK COUNTY WASHINGTON

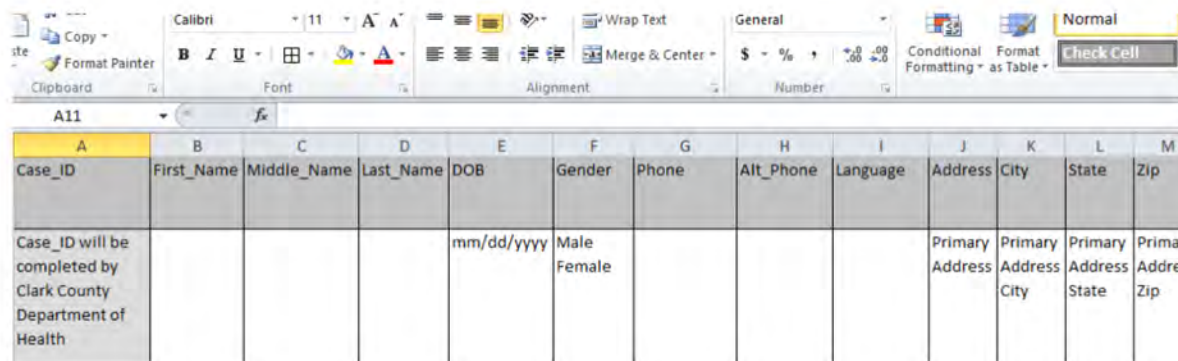
News Release

Jan. 15, 2019

Contact: Marissa Armstrong, communications specialist, Public Health
360.518.1731 cell; marissa.armstrong@clark.wa.gov

Public Health investigating two additional confirmed, 11 suspected measles cases

Vancouver, Wash. – Clark County Public Health is investigating two additional confirmed measles and 11 suspected cases, all among children. These are in addition to the 13 confirmed measles cases Public Health announced Jan. 4.



Microsoft Excel spreadsheet showing a data table with columns: Case_ID, First_Name, Middle_Name, Last_Name, DOB, Gender, Phone, Alt_Phone, Language, Address, City, State, Zip. The spreadsheet includes a ribbon with tabs for Clipboard, Font, Alignment, Number, and Conditional Formatting. A 'Check Cell' button is visible in the bottom right corner.

Case_ID	First_Name	Middle_Name	Last_Name	DOB	Gender	Phone	Alt_Phone	Language	Address	City	State	Zip
Case_ID will be completed by Clark County Department of Health				mm/dd/yyyy	Male Female				Primary Address	Primary Address City	Primary Address State	Primary Address Zip

Case & Contact Investigation Process

☐ Notify identified contacts, and.....

- Identify high risk and recommend post-exposure prophylaxis (PEP).
- Assess for evidence of immunity to measles (passive or active).



Clark County Public Health

Measles Contact Notification Worksheet

Last Name: _____ First Name: _____

DOB: ___/___/___ Address: _____

Parent/Guardian Name: _____

Relationship to case: _____ County: _____

Language: _____ Phone Number: (____) _____

Initial Exposure Location: _____ Date/Time: _____

Last Exposure Location: _____ Date/Time: _____

Risk Factors: Pregnant Immunocompromised* <12 mo.

Occupation: Student Health care (incl. school health staff)

Self-reported immunity status: Unknown Not Vaccinated Titer Previous
 Vaccinated: County: _____ State: _____ Co

Request proof of immunity: No Yes → Date: ___/___/___
Sent via: fax (564.397.8080) email (immzrecords@clark.wa)

WAIS reviewed: Yes → Not in WAIS No MMR in WAIS [

Measles Contact Investigation Exposure Notification Instructions

Before calling review:

- [Connect to Care Plan](#)
- Contact Notification Worksheet

Initial interview talking points:

- As part of an investigation into a confirmed case of measles, we are following up with individuals who may have had contact or shared a space with a contagious person.
- Confirm exposure: "Right now, we are following up with individuals who may have been present at (exposure location AND time)".
 - If not exposed, end interview and update database.
 - If exposed, complete the rest of the Contact Notification Worksheet.

Interview questions for all confirmed contacts:

- Ask if client was accompanied by anyone at the exposure location. If accompanied by someone, ask for name, DOB, address, and phone number.
- Confirm demographics and address of residence on file. "We have some questions we are asking everybody to help us contain this outbreak."

Case & Contact Investigation Process

❑ Implement control measures:

- Social distancing (school exclusion, home isolation/quarantine)
- Daily active monitoring (IVR or direct phone calls)

The screenshot shows a dashboard titled "Forms and Reports" with a "Return to Home Screen" link in the top right. The dashboard is organized into several sections:

- Notification Letters:** Includes buttons for "Active Monitoring Letters, Contacts not Reached", "Active Monitoring Letter, Reached and Notified", and "Passive Monitoring Letter", each with a "View List" button below it.
- Mailing Labels:** Includes buttons for "Active, Contacts not Reached", "Active, Reached and Notified", and "Passive".
- QC Reports:** Includes buttons for "Passive Monitoring contacts w/o immunity" and "Active Monitoring contacts w/ immunity", each with a "View List" button below it. Below these are three buttons for "Contacts Missing Case ID", "Contacts with no phone number", and "Contacts with no phone or address", each with a "View List" button below it.
- Summary Reports:** Includes buttons for "Out of Jurisdiction Daily List" and "Contact Notifications", each with a "View List", "View Summary", and "View Details" button below it.
- Workflow Reports:** Includes buttons for "Run Daily Call Lists" (with a "Print To Template" button) and "Contacts with no contact attempts" (with a "View List" button).
- IVR Reports:** Includes buttons for "IVR Active Monitoring List (All English)", "IVR Active Monitoring List (All Spanish)", and "IVR Active Monitoring List (All Russian)", each with a "View List" button below it. Below these are three buttons for "Daily IVR Review", "Daily IVR No Response Report (last 3 days)", and "Daily IVR Symptoms Report", each with a "View List" button below it.

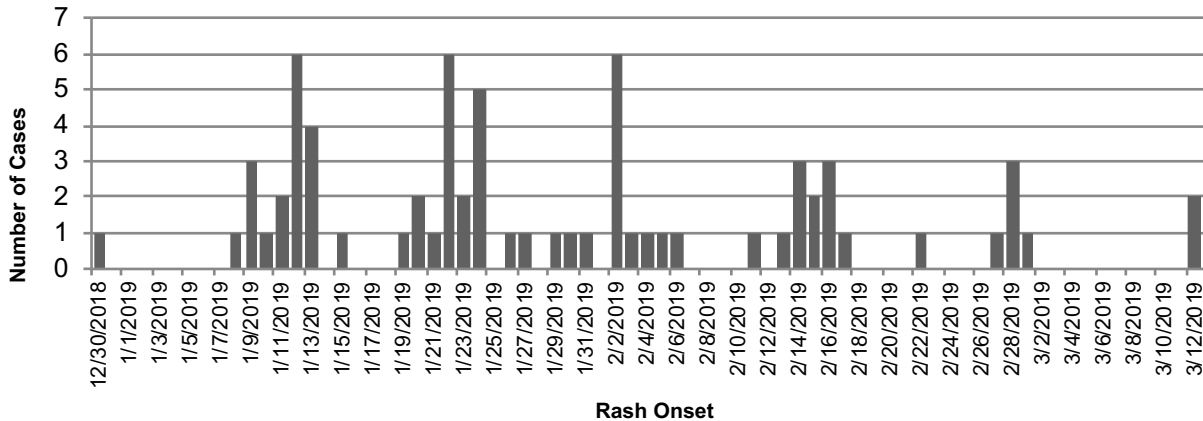


Case & Contact Investigation Process

☐ Use the epi data to inform response:

- Who, What, Where, When?

Confirmed Measles - Clark County, Washington



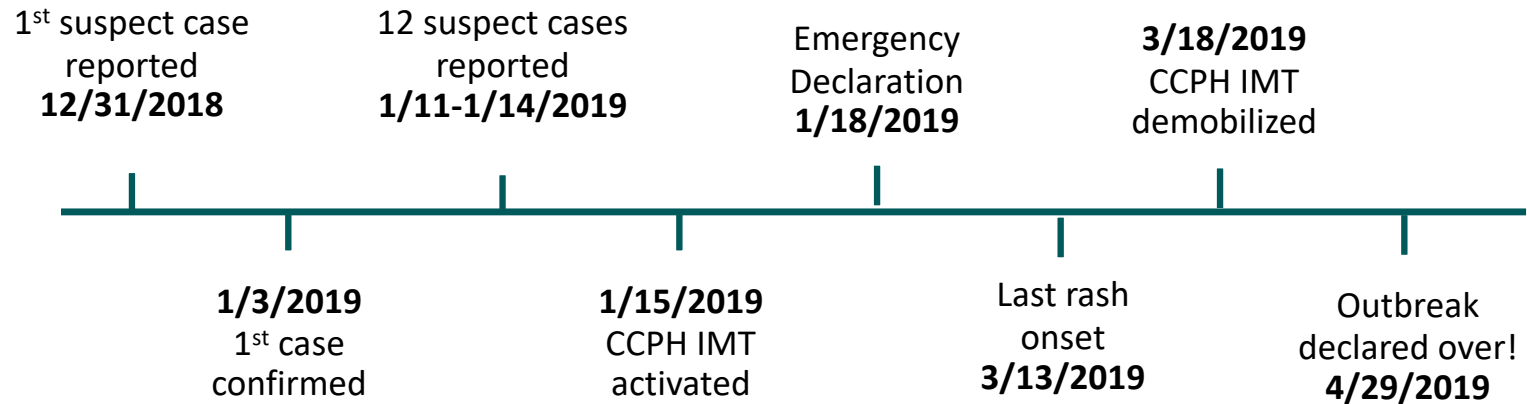
Date	Monitoring Type		
	Active	Clinical	IG
3/7/2019	212	18	11
3/8/2019	208	17	11
3/9/2019	107	10	11
3/10/2019	67	10	11
3/11/2019	66	10	11
3/12/2019	56	10	11
3/13/2019	55	10	11
3/14/2019	52	8	11
3/15/2019	52	8	11
3/16/2019	52	8	3
3/17/2019	52	8	3
3/18/2019	52	8	0
3/19/2019	52	8	0
3/20/2019	52	8	0
3/21/2019	49	8	0
3/22/2019	35	8	0
3/23/2019	20	7	0
3/24/2019	0	5	0
3/25/2019	0	5	0

Confirmed cases disaggregated by most likely site of exposure.	n	%
International Travel	1	1.4%
General Public*	18	25.4%
School/Daycare	11	4.2%
Household	36	50.7%
Unknown	5	7.0%
Total:	71	100.0%



The 2019 Clark County Outbreak

Timeline overview



The 2019 Clark County Outbreak

*Early recognition,
CD team needed help.*

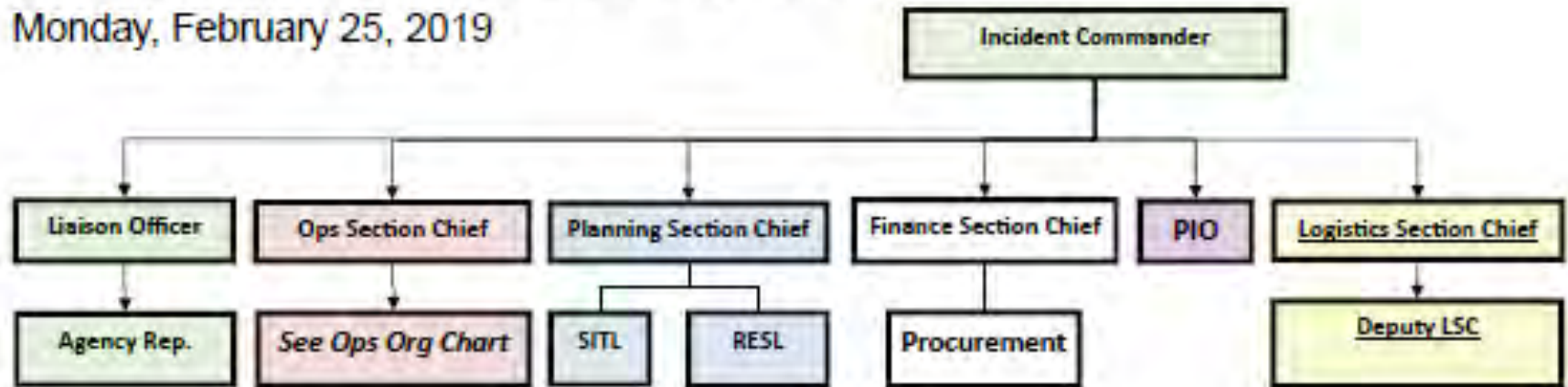
By January 14th			
Date	Cases	Contacts	Exposure Events
12/31/2018	1	104	1
1/1/2019			
1/2/2019			
1/3/2019			
1/4/2019			
1/5/2019			
1/6/2019			
1/7/2019			
1/8/2019			
1/9/2019			
1/10/2019			
1/11/2019	1	6	3
1/12/2019	3	26	11
1/13/2019	5	308	23
1/14/2019	5	153	6
	14	493	44



IMT Structure Overview

Measles Command & General Staff Organizational Chart

Monday, February 25, 2019

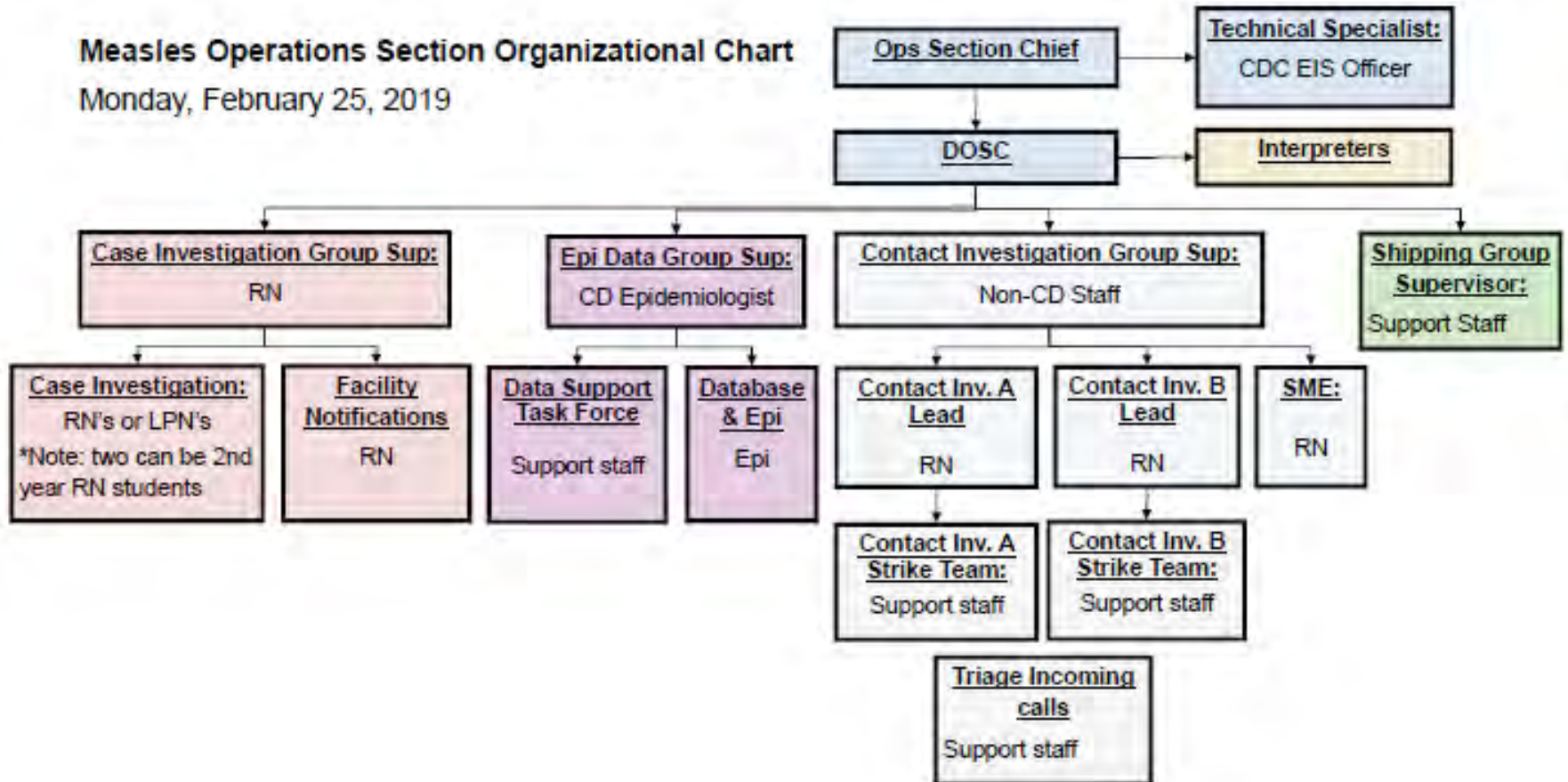


CCPH spent 63 days in incident response.



Operations Structure Overview

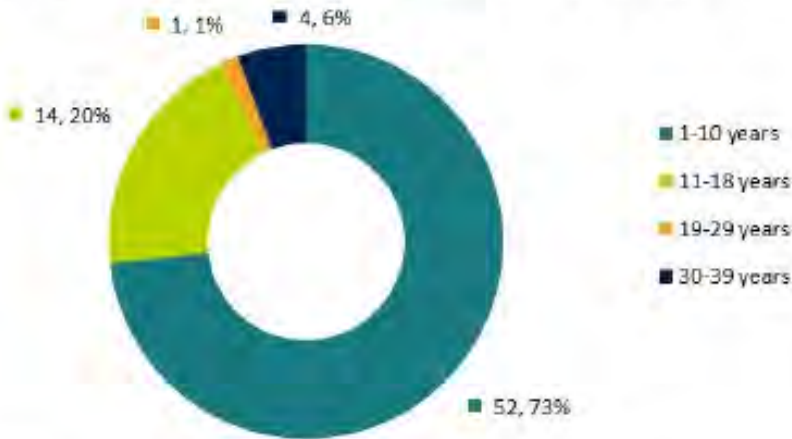
Measles Operations Section Organizational Chart
Monday, February 25, 2019



Outbreaks – they’re a lot of work!

71 confirmed cases

Age Breakdown of Measles Cases in Clark County, as of 4/29/19



*Two confirmed cases previously included in Clark County totals were removed and are included in Georgia totals.

Immunization status

Unimmunized	61
Unverified	7
One MMR	3



849 *students excluded from*
fifteen schools
 in three public school districts and two private schools

1,183 calls received by Poison Control



investigation contacts

4,138 contacted for initial interviews

3,300 monitoring letters sent

816 on daily monitoring



722 news articles
209 media interviews
101 Facebook posts
83 Twitter posts
65 news releases



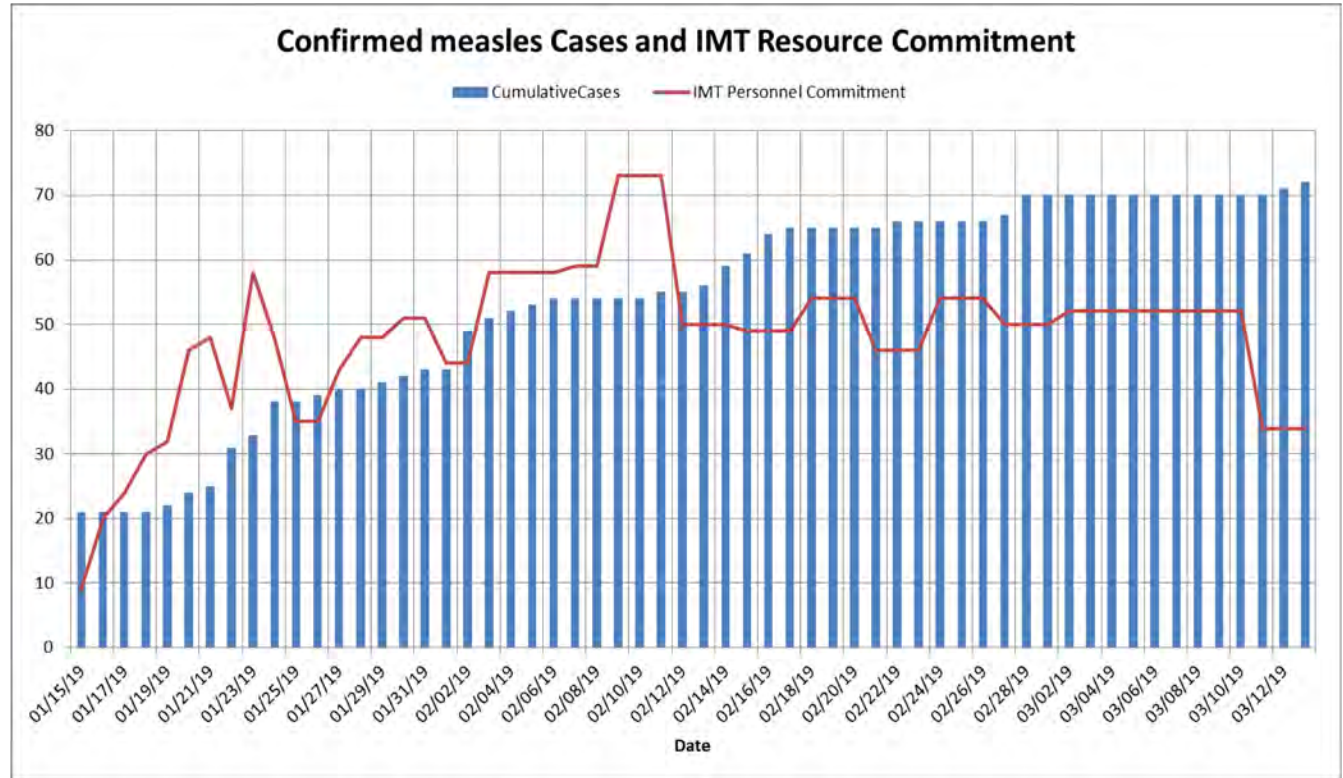
Outbreaks – they take a lot of resources!

**Partnerships!
Partnerships!
Partnerships!**

**237
Responders**

*DOH, OSPHL, CDC,
MRC, other state & LHJ
partners*

*Doesn't include
general GCD
support.*



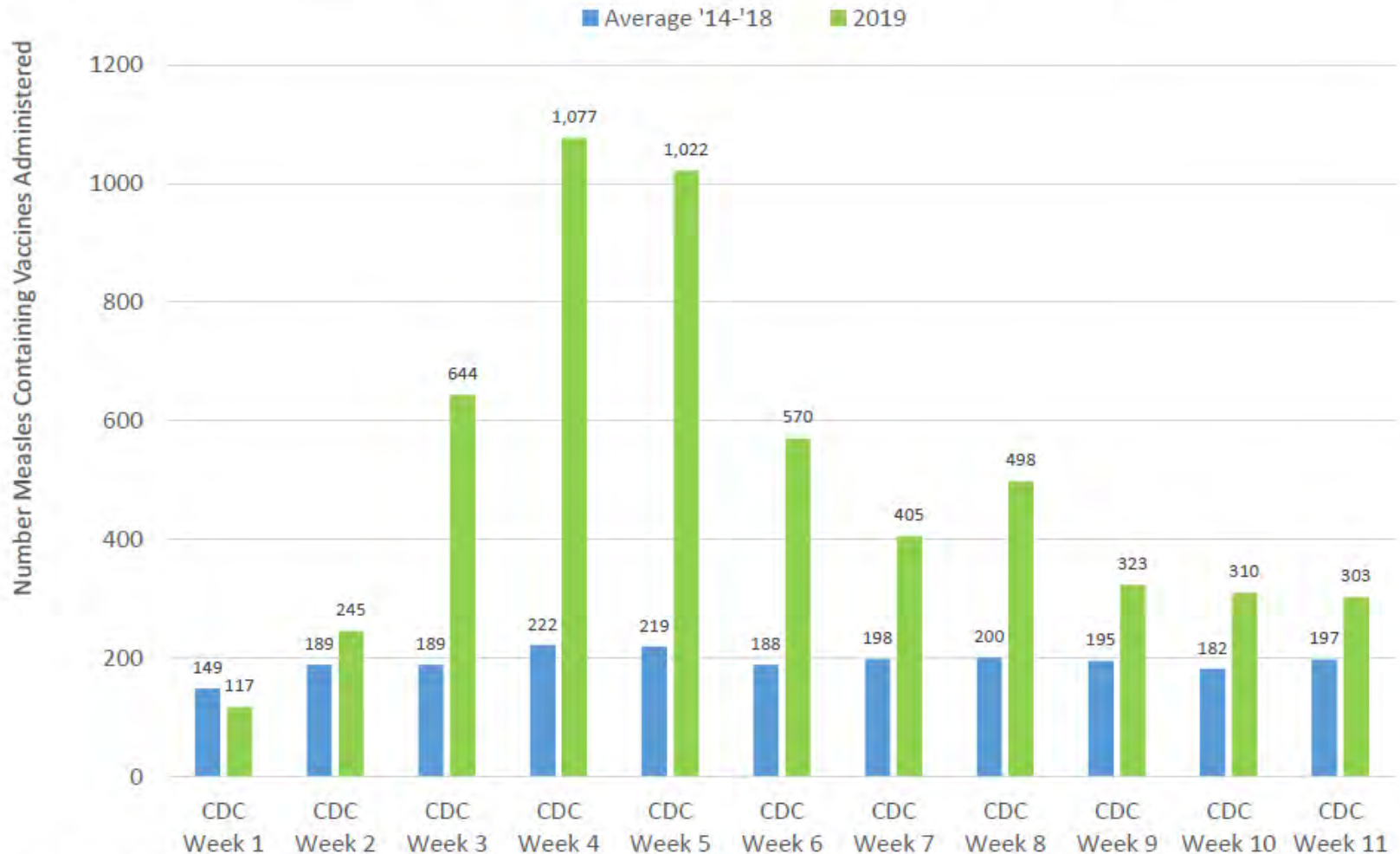
Response costs

Clark County Public Health \$864,679



Increased demand for MMR

Number of Measles Containing Vaccines Administered to Those 0-18 Years Old by Week*
Comparing Average Number in 2014-2018 with 2019, Clark County, WA



Data source: WA State Immunization Information System; all vaccines administered as of 3/16/2019 and reported as of 3/18/2019

*CDC Week is Sunday-Saturday; Week 3 2019 started 1/13/2019

Consider when planning your response team

Staffing:

- Investigation team (*CD, PHN, Epi, support staff, etc.*)
- Cultural liaison
- IMT (need and size)
- PIO or media support
- After hours contact
- Partner coordination & communication
- Regular communicable disease work

Other resources:

- Data systems (do you have them?) and management
- Need for a call center
- Increased demand for IG or MMR



Lessons Learned

- **Know your investigation resources (or where to get them from)!**
- **Staff transition & training plans**
- **Communication plans**
 - Internal response teams
 - External partners (local health systems, schools, neighboring jurisdictions)
 - Community
 - Media requests
- **Use epidemiology to inform response**
- **Line list templates standardized for all contact investigations**
- **LHJ management of school exclusions**
- **Daily active monitoring using automated phone calls**



Questions?

