

Supplementary Table 1. Characteristics of Varicella Outbreaks and Clusters and Case Characteristics, United States 2016–2019

	Clusters or Outbreaks (≥3 Cases)	Outbreaks (≥5 Cases)	Clusters (3–4 Cases)
Outbreak/Cluster Characteristics			
Outbreaks or Clusters (#)	N=825	N=316	N=509
Duration, in days (median, IQR)	16 (9–29)	30 (17–45)	14 (4–18)
Size, # cases (median, IQR)	4 (3–6)	7 (5–10)	3 (3–4)
Total # cases	5,153	3,465	1,688
<10 cases	742 (90%)	233 (73%)	NA
Outbreak Setting (#, %)			
Daycare	126 (15%)	59 (19%)	67 (13%)
School	234 (28%)	130 (41%)	104 (20%)
Elementary (% among school outbreaks)	122 (52%)	63 (49%)	59 (57%)
Middle (% among school outbreaks)	9 (4%)	5 (4%)	4 (4%)
High (% among school outbreaks)	11 (5%)	5 (4%)	6 (6%)
Unspecified/mixed (% among school outbreaks)	92 (39%)	57 (44%)	35 (34%)
College	11 (1%)	6 (2%)	5 (1%)
Correctional or Detention	86 (10%)	44 (14%)	42 (8%)
Household/Household Contacts ^a	285 (35%)	49 (16%)	236 (46%)
Other ^b	80 (10%)	25 (8%)	54 (11%)
Unknown	3 (0%)	2(1%)	1 (0%)
Laboratory Confirmation			
≥1 case	222 (27%)	122 (39%)	100 (20%)
Cases laboratory confirmed, # (median, IQR)	2 (1–3)	2 (1–3)	1 (1–2)
Case Characteristics			
# Cases	N=5,153	N=3,465	N=1,688
Age, years (median, range)	7 (0–79)	7 (0–74)	7 (0–79)
Age Group			

	Clusters or Outbreaks (≥3 Cases)	Outbreaks (≥5 Cases)	Clusters (3–4 Cases)
<1	319 (6%)	208 (6%)	111 (7%)
1–4	1,222 (24%)	810 (23%)	412 (24%)
5–9	1,670 (32%)	1,118 (32%)	552 (33%)
10–14	755 (15%)	491 (14%)	264 (16%)
15–19	209 (4%)	135 (4%)	74 (4%)
≥20	764 (15%)	518 (15%)	246 (15%)
Unknown	214 (4%)	185 (5%)	29 (2%)
Vaccination Status (% among those with non-missing data)			
Unvaccinated	3,272 (70%)	2,281 (73%)	991 (63%)
Vaccinated	1,300 (28%)	767 (25%)	533 (34%)
1 dose	653 (14%)	397 (13%)	256 (16%)
≥2 doses ^c	540 (12%)	278 (9%)	262 (17%)
Unknown doses	107 (2%)	92 (3%)	15 (1%)
Disease history ^d	112 (2%)	68 (2%)	44 (3%)
Total with vaccination information	4,684 (91%)	3,116 (90%)	1,568 (93%)
Number of Lesions			
<50	1,545 (35%)	961 (32%)	584 (41%)
≥50	2,091 (47%)	1,390 (47%)	701 (49%)
Unknown	792 (18%)	636 (21%)	156 (11%)
Hospitalized			
Yes ^{e,f}	45 (1%)	18 (1%)	27 (2%)
No	4,681 (92%)	3,132 (92%)	1,549 (92%)
Unknown	345 (7%)	244 (7%)	101 (6%)
Complications			
Yes ^g	29 (1%)	19 (1%)	10 (1%)
No	5,011 (98%)	3,392 (98%)	1,619 (97%)
Unknown	68 (1%)	36 (1%)	32 (2%)
Laboratory confirmation			
Yes	513 (11%)	346 (11%)	167 (10%)

	Clusters or Outbreaks (≥3 Cases)	Outbreaks (≥5 Cases)	Clusters (3–4 Cases)
No	4,231 (87%)	2,738 (87%)	1,493 (89%)
Pending	6 (0%)	6 (0%)	0 (0%)
Unknown	96 (2%)	75 (2%)	21 (1%)

Abbreviation: IQR=interquartile range.

^aIncludes relatives and visitors to the household who do not live in the household; household was the most likely transmission setting.

^bOther settings included community, healthcare (hospice, drug/mental health rehabilitation facility), church, work, farm, group shelter, long-term care facility, ship, air travel, country club, and multiple settings.

^cOf 540 cluster or outbreak-associated patients who received ≥2 doses, 8 (1.5%) received 3–4 doses.

^dAmong 112 with disease history, 23 were also vaccinated (10 with 1 dose, 11 with 2 doses, and 2 with unknown number of doses).

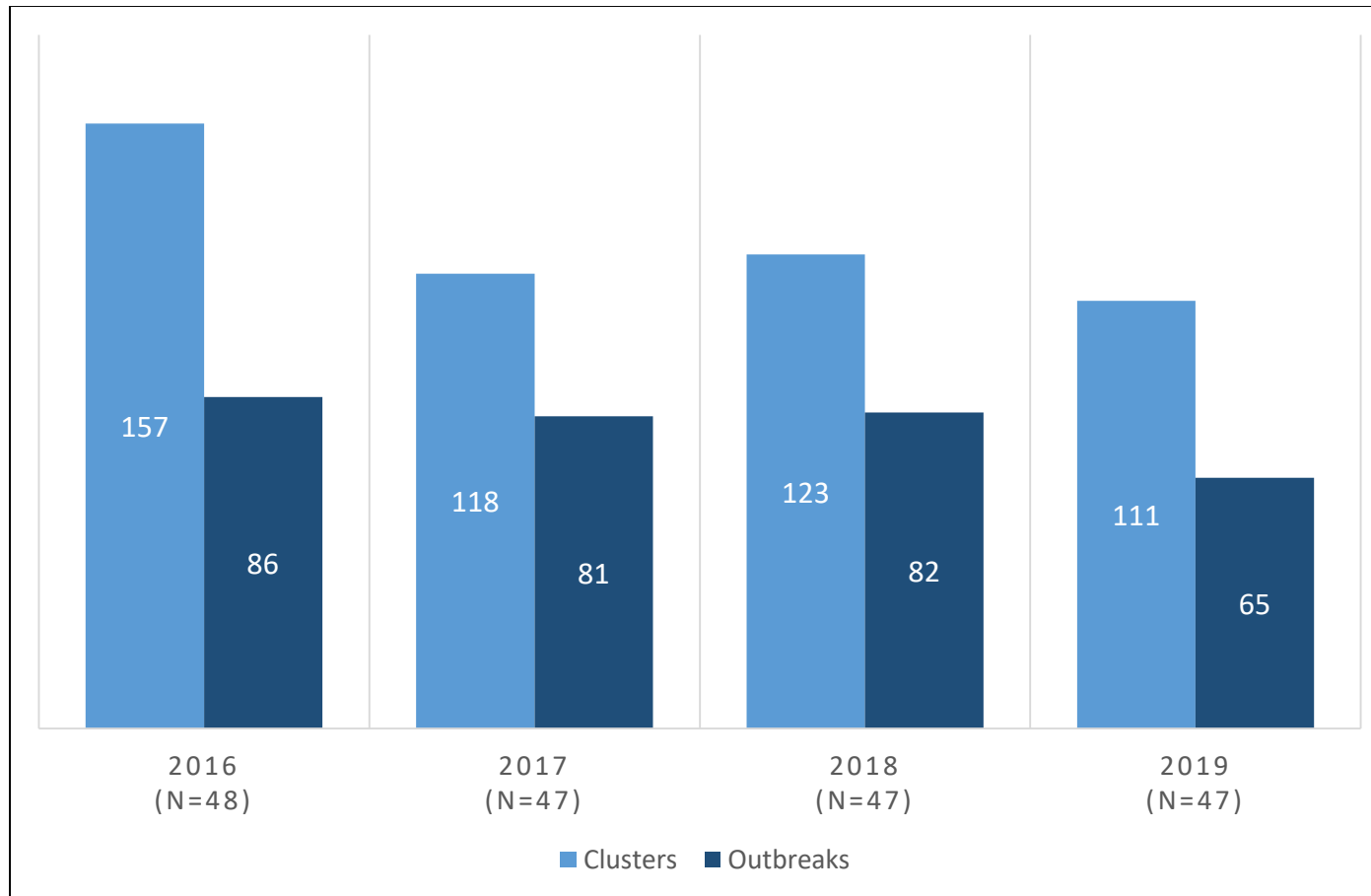
^eVaccination status of the 45 hospitalized patients: 28 (62%) unvaccinated; 8 (18%) vaccinated (4 1-dose, 4 2-doses), 3 (7%) disease history; 6 (13%) unknown vaccination status.

^fNone of the vaccinated hospitalized patients had a specified complication; 3 were hospitalized for observation. Of the hospitalized unvaccinated patients, a complication was listed only for 4 and included eye infection or involvement, groin abscess, strep throat, and febrile seizure.

^gVaccination status of the 29 patients who had a reported complication but were not hospitalized: 21 (72%) unvaccinated; 7 (24%) vaccinated, and 1 (4%) unknown vaccination status. Complications for the 21 unvaccinated patients included ataxia, cellulitis, dehydration, disseminated infection, eye infection or involvement, skin infection, GAS pharyngitis, groin abscess, strep infection, otitis media, pneumonia, and skin or soft tissue infection. Of the 7 vaccinated patients reported with a complication, 5 had the complication specified: GAS pharyngitis (n=2), secondary bacterial infection, dehydration, and otitis media.

Varicella outbreak supplement

Supplementary Figure 1. Number of varicella outbreaks and clusters reported by year, 2016–2019^a



^aDuring 2016–2019, 49 (88%) of 56 jurisdictions elected to report varicella data to CDC (including zero-reporting); 48 (98%, 44 states and 4 local jurisdictions) reported ≥ 1 outbreak