

# Monitoring Sexual Violence Visits in Emergency Department Data to Improve Public Health

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## Objective

To describe characteristics of sexual violence emergency department visits in Washington State.

## Introduction

Although sexual violence is a pressing public health and safety issue, it has historically been challenging to monitor population trends with precision. Approximately 31% of incidents of sexual violence are reported to law enforcement and only 5% lead to an arrest [1], making the use of law enforcement data challenging. Syndromic surveillance data from emergency departments provides an opportunity to use care-seeking to more accurately surveil sexual violence without introducing additional burdens on either patients or healthcare providers.

## Methods

Using the National Syndromic Surveillance Program (NSSP) Electronic Surveillance System for Early Notification of Community-based Epidemics (ESSENCE) platform, staff from the Rapid Health Information Network (RHINO) program at the Washington State Department of Health created a syndrome definition for sexual violence in emergency department data using a combination of ICD-10 diagnostic codes and chief complaint terms likely to be used for sexual violence visits.

Staff executed the query using both the Chief Complaint Query Validation and Facility Location (Full Details) data sources in the NSSP ESSENCE platform. Validation occurred by examining visits from 2017 using the Original Chief Complaint, Diagnosis Combo, and Original Triage Notes fields in the data details output to determine if a visit was a true positive for sexual violence. Staff then used the R Studio platform to create n-grams to analyze commonly occurring terms in the data.

RHINO staff collaborated with colleagues in the agency's Injury and Violence Prevention Section to better understand the trends observed in the data and the utility of using syndromic surveillance to inform public health practice.

## Results

The query identified 1,550 visits for sexual violence in 2017. Female patients were disproportionately represented (87.16%), with female patients aged 10- 29 years making up 47.03% of captured visits. Overall, patients 10-29 years of age represented 52.90% of all identified visits. Older patients, particularly older men were less represented.

Among the captured visits, staff analyzed a sample of 347 visits and found that 88.76% were correctly identified as being related to sexual violence. Although triage notes are an optional field for Washington State syndromic reporting and only present in approximately 40% of records, analysis of the triage notes also provided contextual details on the time (36.89%) and place (18.44%) of the incident, and the identity of the assailant (17.29%).

Among patients 10-29 years old, several increases in the percentage of emergency department visits for sexual violence were observed in conjunction with secondary and post-secondary school term breaks, as well as at the beginning of Autumn and end of Spring terms at most Washington State universities. The trend was present in both patients 10-19 years and 20-29 years, with a stronger signal in the 10-19 year age group. The pattern was not present in either older or younger patients.

## Conclusions

The seasonal trend associated with the academic calendar in patients 10-29 years of age is consistent with other data on teen and campus dating violence [2,3] and provides another piece of information to validate and inform the work of social service groups serving adolescents and young adults. Syndromic data is particularly well suited to translating surveillance into actionable public health—having additional data to support the hypotheses of state Rape Prevention and Education programs has the potential to



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encourage greater participation from universities and other academic institutions to improve consent and sexual violence response programs. Regardless of whether patients are affiliated with a specific institution, the overall safety of the communities where students live is of importance to academic institutions. Similarly, yearly increases in visits during annual mass gatherings may be of use in communicating with event organizers strategies for reducing incidents of violence during that period.

Indexing the query for sexual violence within the NSSP ESSENCE platform allows surveillance practitioners to quickly and easily monitor emergency department visits for sexual violence using a standardized methodology. As a national platform, NSSP ESSENCE facilitates collaboration across borders between local, state, Tribal and Urban Indian, and national public health agencies. This improved availability and performance of the query. Additionally, the point-and-click nature of the ESSENCE platform makes using syndromic data more accessible for local health and social service staff who are not trained in epidemiology. The ease of collaboration between partners using the platform also makes it well suited to work which span state, local, and Tribal, and Urban Indian health needs. Data and query sharing increases the likelihood that the data will be actionable and therefore positively influence public health.

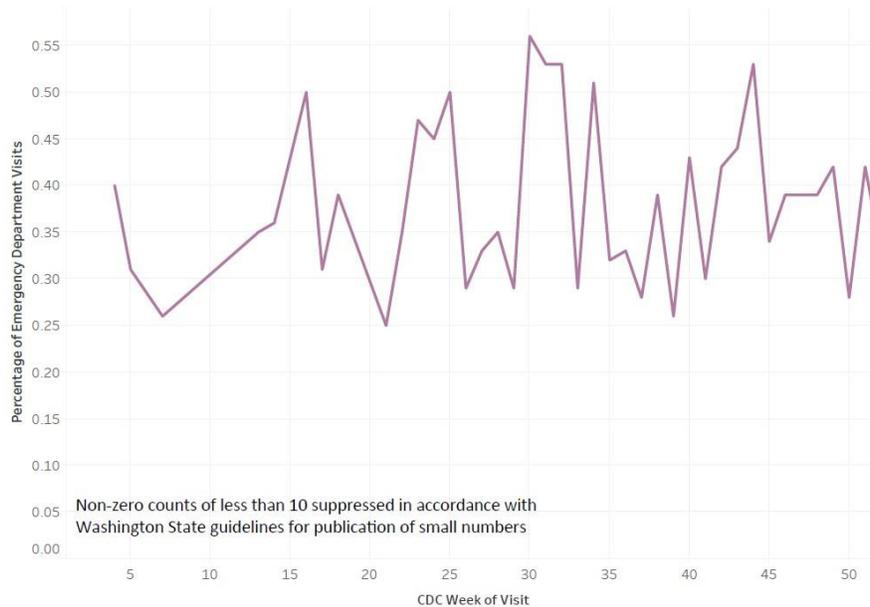
**Acknowledgement**

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Weekly Percentage of Emergency Department Visits for a Chief Complaint or Discharge Diagnosis Indicating Sexual Violence Among Patient Aged 10-29 Years in Washington State at Reporting Facilities, 2017



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### Emergency Department Visits for Sexual Violence by Patient Sex and Age Group in Washington State Among Reporting Facilities, 2017 (n=1550)

Patient Ten Year Age Group	Patient Sex		
	Female N (%)	Male N (%)	Total N (%)
00 - 09	145 (9.35%)	44 (2.84%)	189 (12.19%)
10 - 19	315 (20.32%)	26 (1.68%)	341 (22.00%)
20 - 29	414 (26.71%)	65 (4.19%)	479 (30.90%)
30 - 39	243 (15.68%)	24 (1.55%)	267 (17.23%)
40 - 49	133 (8.58%)	19 (1.23%)	152 (9.81%)
50+	101 (6.52%)	21 (1.35%)	122 (7.87%)
Total	1351 (87.16%)	199 (12.84%)	1550 (100.00%)

### Query Criteria

Chief Complaint Terms		ICD-10 Diagnosis Codes	
Inclusion	Exclusion	Inclusion	Exclusion
Sexual assault	Grape	T74.2	Z04.41
Sexual assault	Scrape	T76.2	
Rape	Disability	Z56.81	
SANE exam			
Forensic nurse			
SAB			

### Sample of Emergency Department Visits for Sexual Violence in Washington State Among Reporting Facilities, 2017 (n=347)

Match Validity	N (%)
True Positive	308 (88.76%)
False Positive	39 (11.24%)
Contextual Information in Triage Notes	N (%)
Time of Incident	128 (36.89%)
Place of Incident	64 (18.44%)
Assailant	60 (17.29%)



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