Navy Disease Reporting System case validation through use of HL7 and SADR/SIDR databases: *Chlamydia Trachomatis*

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Objective

The purpose of the study was to determine whether, through the use of existing electronic laboratory and clinical care databases, it is possible to capture the majority of reportable disease cases, and remove the burden of case finding from the commands through NDRS. Establishment of a more efficient reporting system was proposed to provide more timely disease reporting and aid in active disease surveillance.

Background

Reporting allows for the collection of statistics that show how often disease occurs, which helps researchers identify disease trends and track disease outbreaks. U.S. Navy has a modified list of reportable medical events to accommodate for deployment limiting functions. Reports on all reportable events are submitted to the Naval Disease Reporting System (NDRS). Medical event surveillance is particularly important in the military populations where medical events can have mission-degrading implications and affect troop strength.

Methods

Chlamydia cases were identified in the passive reporting system (NDRS), laboratory results (HL7) and ambulatory case diagnoses (SADR). The matching process evaluated the consistency between three independent systems, and determined whether all cases reported in NDRS had HL7 and/or SADR records. The investigator evaluated cases reported at Camp Lejeune for Navy and Marine Corps active duty members between January 1, 2006 and December 31, 2006. The Capture – Recapture statistical method was used to estimate the total number of cases not captured by any of the databases, therefore estimating the overall case load burden.

Results

A total of 583 Chlamydia cases were captured in the databases. Of the 583 cases, 431 (73.9%) were captured using electronic databases (HL7, SADR). Seventy-six cases were estimated using the Capture-Recapture method. Overall, 659 total Chlamydia cases were estimated at Camp Lejeune. Of the 659 total existing cases, 88.5% of the cases were captured using the alignment of the three data sources and 65.4% were captured using only the electronic laboratory results and provider visit data.

	HL7	**Yes**	**No**	**Yes**	**No**
	SADR	**Yes**	**Yes**	**No**	**No**
NDRS	**Yes**	89	89	110	152
	No	22	59	62	*76*

Yes: Case Captured; No: Case not captured

Figure 1 – Capture Recapture results: Number of cases captured by one or more data sources and the estimated number of cases omitted by all systems.

Conclusions

The analysis showed positive indication for using the Capture – Recapture method to establish estimates of Chlamydia case burden at Camp Lejeune. The analysis indicated that it was possible to provide an estimated number of cases missing from all three independent data sources.

Additionally, when using positive lab results and ambulatory care records only, the method estimated the number of cases relatively closely to an estimate using all three databases. The method may be useful in the estimation of case burden at a command or service-wide, given the ability to determine denominator values. This capability will enable health care providers to make decisions based on burden of disease and the potential impact it may have on troop strength and readiness.

References

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