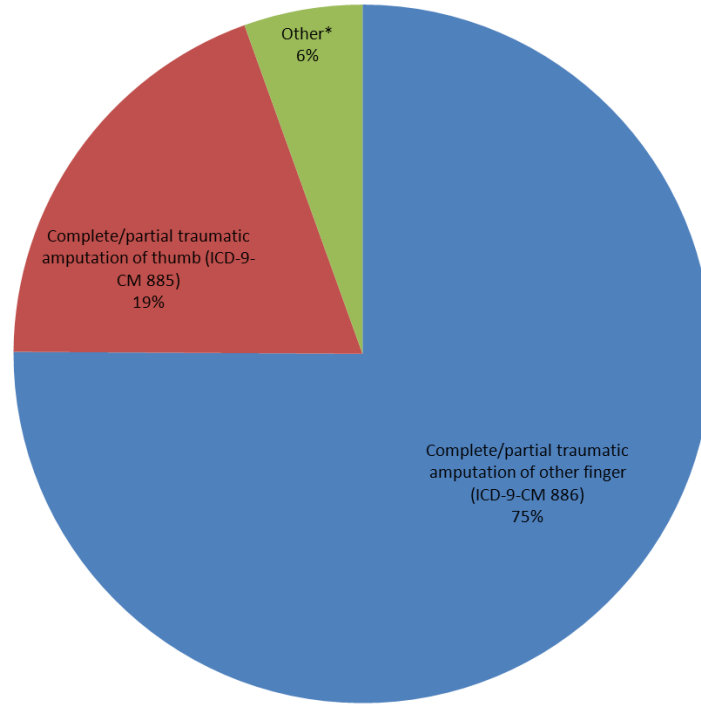


## Work-Related Amputations in North Carolina, 2010.

**Figure 1. Frequency of Assigned Amputation Diagnosis Codes, 2010**



\*Includes ICD-9-CM code categories: Complicated traumatic amputation of the fingers (886.1), Complete/partial traumatic amputation of arm and hand (887), Unilateral amputation of arm and hand at or above elbow without complication (887.2), Complete/partial Traumatic amputation of toe(s) (895), Complete/partial Traumatic amputation of foot (896), Complicated traumatic amputation of thumb (885.1), Open wound of toe(s) (893), and Complicated traumatic amputation of toe(s) (895.1)

Source: ED data from the North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC-DETECT). NC-DETECT is an advanced, statewide public health surveillance system. NC DETECT is funded with federal funds by North Carolina Division of Public Health (NC DPH), Public Health Emergency Preparedness Grant (PHEP), and managed through a collaboration between NC DPH and the University of North Carolina at Chapel Hill Department of Emergency Medicine's Carolina Center for Health Informatics (UNC CCHI). The NC DETECT Data Oversight Committee does not take responsibility for the scientific validity or accuracy of methodology, results, statistical analyses, or conclusions presented. The NC DETECT Data Oversight Committee (DOC) includes representatives from the NC DPH, UNC NC DETECT Team and NC Hospital Association.

### SUMMARY

Work-related amputations (WRA) are one of the most severe, debilitating injuries that can occur in the workplace and result in permanent damage and disfigurement, forcing workers to significantly adjust their lives physically and psychologically at work and at home. WRA are preventable, and successful approaches for making workplaces safer begin with data to better understand the problem.

WRA cases were defined as an individual aged 16 years or older who received medical care at a North Carolina hospital emergency department (ED) in 2010; was assigned a primary or contributing International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) amputation diagnosis codes of 885.0-.1, 886.0-.1, 887.0-.7, 895.0-.1, 896.0-.3

and/or 897.0-.7 following discharge. Cases were considered work-related when workers' compensation was the designated source of payment.

A total of 1,253 amputation related ED visits were identified in 2010; 264 (21%) of these were insured by workers' compensation, and 273 assigned ICD-9-CM codes were reviewed.

Complete/partial amputation of fingers other than the thumb (ICD-9-CM 886) category was the most common reported WRA (205 cases, 75%), followed by complete/partial amputation of the thumb (ICD-9-CM 885; 53 cases, 19%) (Figure 1).

The highest rates of WRA occurred among employed persons 45 to 54 years of age (8.1 ED visits per 100,000 employed persons). WRA were more than five times greater for males when compared to females. Most (75%) persons with WRA were discharged from the hospital ED (Appendix: Table 1).

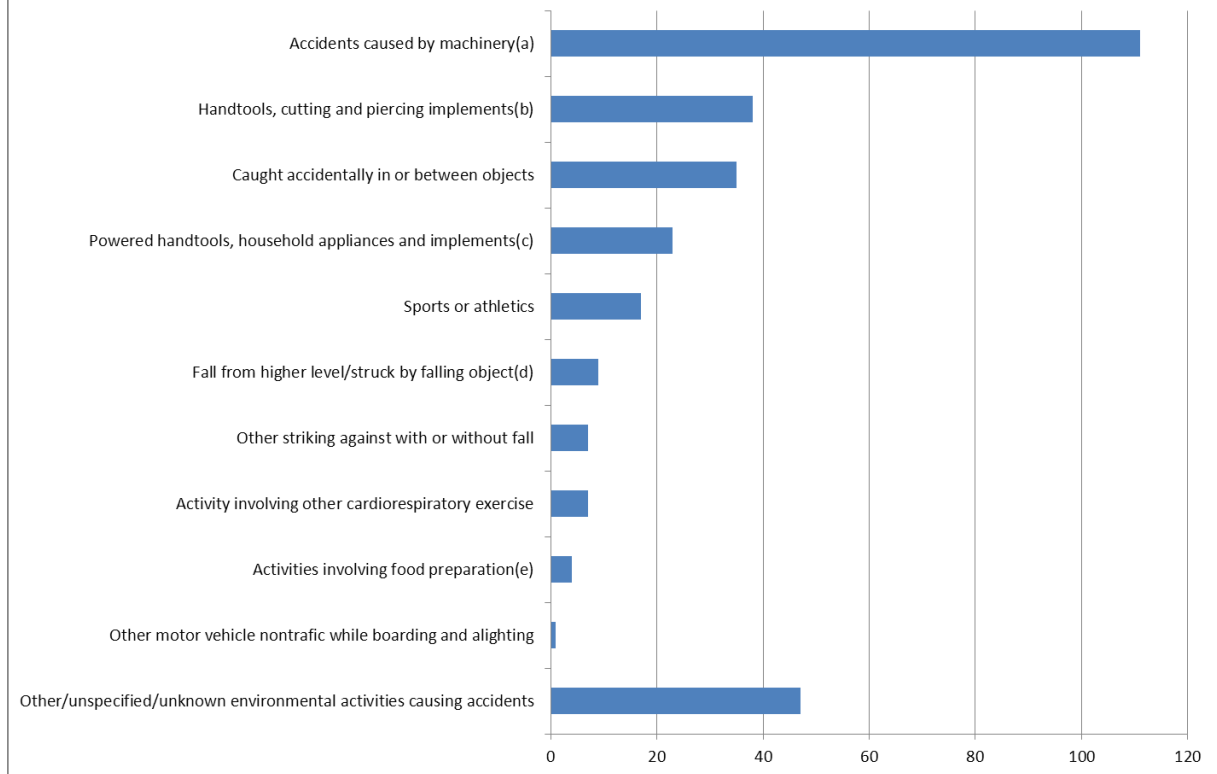
The counties with the highest number of WRA ED visits were Catawba County (21 cases, 8.0%), followed by Forsyth County (19 cases, 7.2%), and Mecklenburg County (18 cases, 6.8%) for employed residents. The counties with the highest rates of WRA per 100,000 employed residents were Alexander County (63 WRA per 100,000 employed residents), followed by Catawba County (33 per 100,000) and Wayne County (22 per 100,000) (Appendix: Table 2).

The most commonly recorded mechanisms of injury associated with WRA included: accidents caused by machinery such as those used for woodworking and forming; hand tools, instruments, implements or objects used for cutting and/or piercing; appendages being caught accidentally in or between objects; and powered hand tools, household appliances or implements (Figure 2).

Limitations of this analysis include the number of WRA in this report possibly being underestimated due to not all ED visits being reported as workers' compensation claims by workers. Employers may be exempt from workers' compensation coverage or do not provide it, workers may choose not to report their injuries as work-related if they occur on the job, and/or they may be unaware of the benefit. Additionally, ICD-9-CM codes are collected primarily for billing and administrative purposes, and are used secondarily for public health surveillance. Also, frequency of ICD-9-CM and E-codes do not correspond to number of cases, but number of times each code appears in the data; one case may be assigned multiple ICD-9-CM and E-codes. Furthermore, important variables that help describe patterns of WRA such as race, ethnicity, type of industry, and occupation are not available in ED data.

Despite these limitations, ED data are a good alternative source to estimate the numbers of work-related amputations that occur in North Carolina because ED data captured approximately 32% more WRA cases than data from the Survey of Occupational Injury and Injury (SOII), a national survey used for work-related injury and illness surveillance.

**Figure 2. Frequency of Assigned Amputation-Associated Mechanism of Injury Codes, 2010**



(a) Includes: Accidents caused by machinery (E919); agriculture machinery (E919.0); lifting machines appliances (E919.2); metalworking machines (E919.3); accidents caused by woodworking and forming machinery (E919.4); prime movers, except electrical motors (E919.5); transmission machinery (E919.6); earth moving, scraping, and other excavating machines (E919.7); other specified machinery (E919.8); and unspecified machinery (E919.9).

(b) Includes: knives, swords, daggers (E920.3); other hand tools and implements (E920.4); other specified cutting & piercing instruments or objects (E920.8); unspecified cutting/piercing instrument object (E920.9);

(c) Includes: other powered hand tools (E920.1); powered household appliance and implements (E920.2)

(d) Includes: fall from ladder (E881.0); fall from striking against other object (E888.1); struck by accidental/falling object (E916)

(e) Includes: food preparation & cleanup (E015.0); other activity involving cooking grilling (E015.9)

Source: ED data from NC-DETECT.

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(APPENDIX attached below.)

## APPENDIX

<b>Table 1. Work-Related Amputations among Employed North Carolina Residents by Age, Sex and ED Disposition, 2010</b>			
<b>Category</b>	<b>Counts</b>	<b>%</b>	<b>Rate per 100,000 Employed Residents<sup>1</sup></b>
<i>Age (Years)</i>			
16-19	-- <sup>2</sup>	-- <sup>2</sup>	7.2
20-24	24	9.1	6.5
25-34	63	23.9	7.0
35-44	53	20.1	5.6
45-54	77	29.2	8.1
55-64	31	11.7	4.8
65+	-- <sup>2</sup>	-- <sup>2</sup>	4.8
<i>Sex</i>			
Female	38	14.4	1.9
Male	226	85.6	10.6
<i>Disposition<sup>3</sup></i>			
Admitted	38	14.6	
Admitted to ICU	-- <sup>2</sup>	-- <sup>2</sup>	
Discharged	197	75.8	
Observation	-- <sup>2</sup>	-- <sup>2</sup>	
Other	-- <sup>2</sup>	-- <sup>2</sup>	
Transferred	18	6.9	
<p><sup>1</sup> Rates calculated per 100,000 employed residents of North Carolina. Denominators based on Bureau of Labor Statistics (BLS) population estimates of 2010.</p> <p><sup>2</sup> Categories with counts &lt;10 were censored for confidentiality purposes.</p> <p><sup>3</sup> Patient's anticipated status from the ED. The disposition variable is specific to NC-DETECT and has no BLS equivalent. Therefore, rates were not calculated for Disposition.</p> <p>Source: NC-DETECT, BLS Current Population Survey.</p> <p>The North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT) is an advanced, statewide public health surveillance system. NC DETECT is funded with federal funds by North Carolina Division of Public Health (NC DPH), Public Health Emergency Preparedness Grant (PHEP), and managed through a collaboration between NC DPH and the University of North Carolina at Chapel Hill Department of Emergency Medicine's Carolina Center for Health Informatics (UNC CCHI). The NC DETECT Data Oversight Committee does not take responsibility for the scientific validity or accuracy of methodology, results, statistical analyses, or conclusions presented. The NC DETECT Data Oversight Committee (DOC) includes representatives from the NC DPH, UNC NC DETECT Team and NC Hospital Association.</p>			

<b>Table 2. Rates<sup>1</sup> of Work-Related Amputations in North Carolina by Select<sup>2</sup> County, 2010</b>			
<b>County</b>	<b>Counts</b>	<b>%</b>	<b>Rate per 100,000 Employed Residents<sup>3</sup></b>
Alexander	10	3.8	62.8
Catawba	21	8.0	32.5
Wayne	11	4.2	22.3
Forsyth	19	7.2	11.8
Mecklenburg	18	6.8	4.2
Wake	17	6.4	4.0
<b>Total</b>	<b>264</b>	<b>100.0</b>	<b>7.3</b>

<sup>1</sup> Rates calculated per 100,000 employed residents of North Carolina.

<sup>2</sup> Select counties had counts  $\geq 10$ . Counties with counts  $< 10$  were censored for confidentiality purposes.

<sup>3</sup> Denominators based on BLS Local Area Unemployment Statistics (LAUS) labor force estimates of 2010.

Source: NC-DETECT, BLS-LAUS Current Population Survey.

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