Fact Sheet — North Carolina

INTRODUCTION

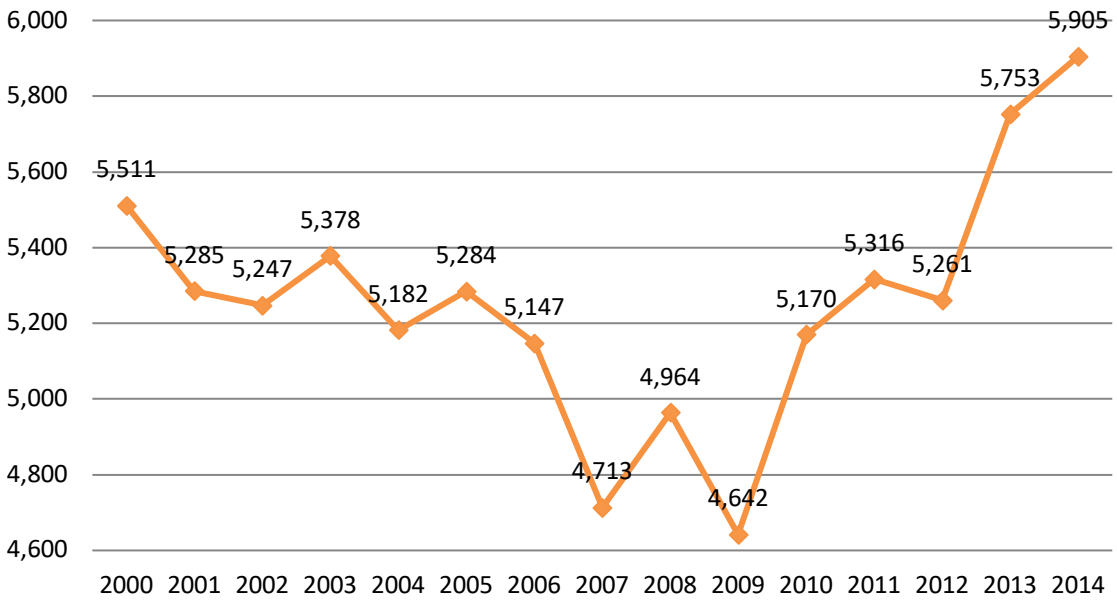
Currently, 1.9 million people are living with limb loss in the United States, with an average of 507 people continuing to lose a limb every day. This results in an estimated 185,000 amputations per year (1), and this number is expected to double by the year 2050 due to increasing rates of diabetes and vascular disease (1). Among those living with limb loss, the major causes of their amputations are vascular disease (54%) – including diabetes and peripheral arterial disease – trauma (45%) and cancer (less than 2%) (2). The most common causes of pediatric amputations, however, are lawn mower accidents (3). Non-whites comprise about 42% of the limb loss population in the U.S. (1). In 2008, the diabetes related amputation rate among African Americans was nearly four times that of whites (4).

A total of 5,905 amputations were performed in North Carolina hospitals in 2014. These amputations were performed for a variety of reasons, including diabetes and peripheral arterial disease complications. The following information details the trends and most current rates of amputation and diabetes in North Carolina.

1. AMPUTATION TRENDS OVER TIME

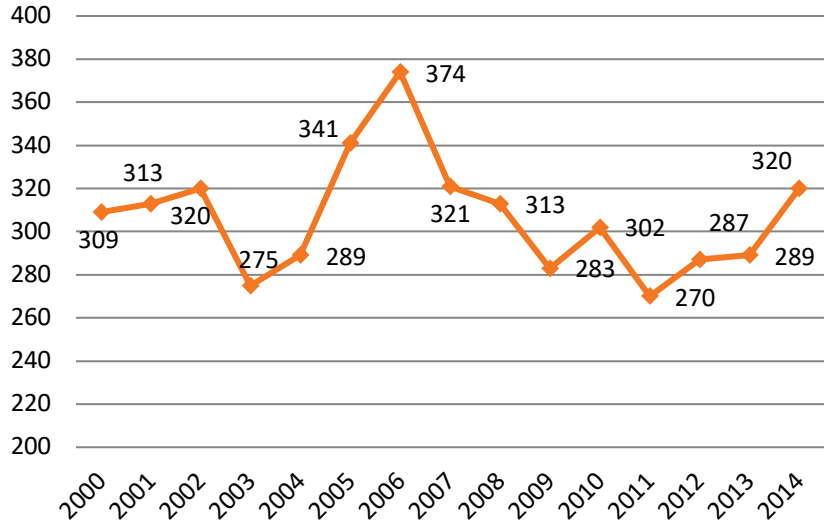
According to hospital discharge data, the number of total amputations performed in North Carolina each year increased by 4.91% from 2000-2014. A total of 72,853 of these procedures occurred in this time period. The numbers reached their lowest (4,642) in 2009, and the number of amputations was highest (5,905) in 2014. (See Graph 1.1)

Graph 1.1: Amputation Trends, North Carolina (2000 - 2014)



Source: Healthcare Cost and Utilization Project HCUPnet database http://hcupnet.ahrq.gov/

Graph 1.2 : Upper-Extremity Amputations, North Carolina (2000-2014)

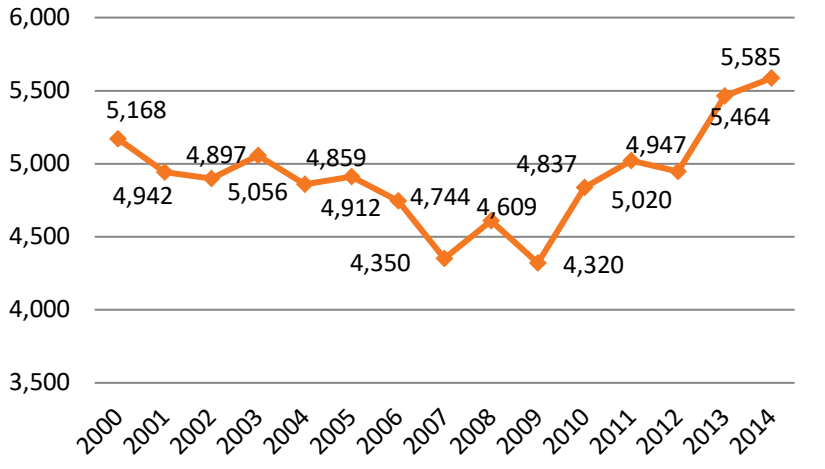


The number of upper-extremity amputations performed each year from 2000 to 2014 totaled 4,606. The lowest incidence of these amputations (270) occurred in 2011, while 2006 saw the most upper-extremity amputations (374). A 3.56% increase in upper-extremity amputations can be observed from 2000 to 2014. (See Graph 1.2)

Source: Healthcare Cost and Utilization Project HCUPnet database http://hcupnet.ahrq.gov/

The number of lower-extremity amputations performed each year ultimately increased by 8.07% from 2000 to 2014. A total of 73,710 of these procedures occurred in this time period. The highest incidence (5,585) occurred in 2014, and the lowest incidence (4,320) occurred in 2009. (See Graph 1.3)

Graph 1.3: Lower-Extremity Amputations, North Carolina (2000-2014)

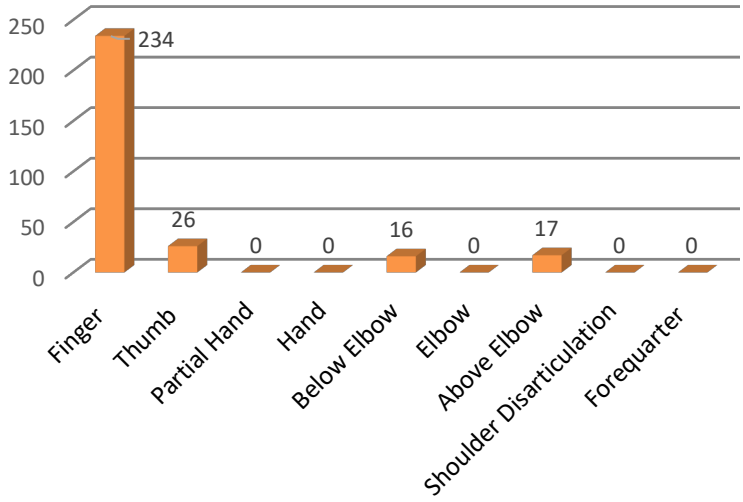


Source: Healthcare Cost and Utilization Project HCUPnet database http://hcupnet.ahrq.gov

2. TYPES OF AMPUTATIONS PERFORMED

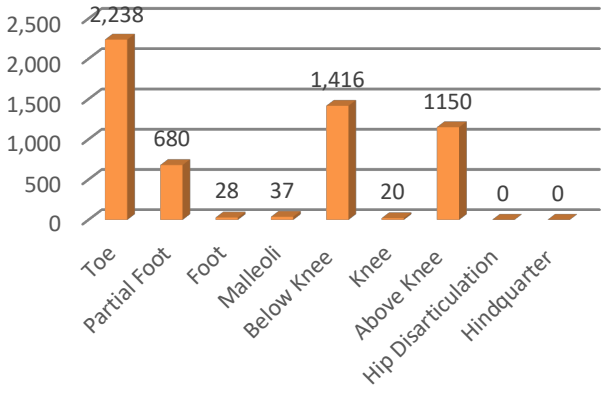
293 upper-extremity amputations were performed in 2014. The most common minor upper-extremity amputation was of the fingers (234) and the most common major upper-extremity procedures were below the elbow (16). (See Graph 2.1)

2.1:Upper-Extremity Amputations, North Carolina, 2014



Source: Healthcare Cost and Utilization Project HCUPnet database http://hcupnet.ahrq.gov/

2.2: Lower-Extremity Amputations, North Carolina, 2014



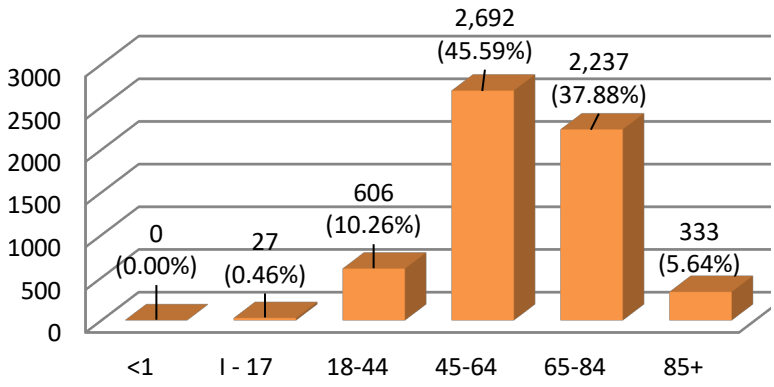
Source: Healthcare Cost and Utilization Project HCUPnet database http://hcupnet.ahrq.gov/

5,569 lower-extremity amputations were performed in 2014. In terms of minor lower-extremity amputations, toes (2,238) were amputated more often than part of the foot (680). For major lower-extremity amputations, below-knee (1,416) amputation was the most common procedure, closely followed by above knee amputation (1,150). (See Graph 2.2)

3. WHO LOSES A LIMB?

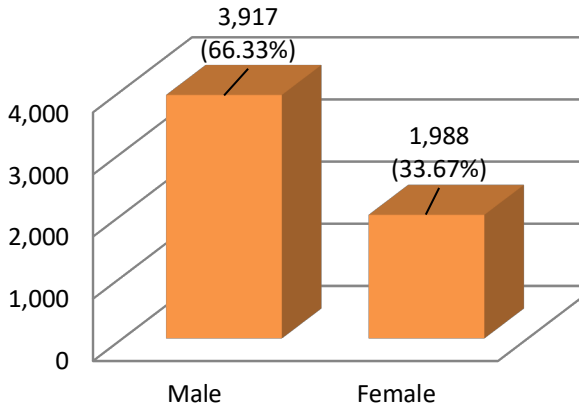
In 2014, most amputations were performed on individuals aged 45-64 years old, followed by the age group of 65-84 year olds (See Graph 3.1).

3.1: Amputations by Age Group, North Carolina (2014)



Source: Healthcare Cost and Utilization Project HCUPnet database http://hcupnet.ahrq.gov/

3.2: Amputations by Sex, North Carolina (2014)

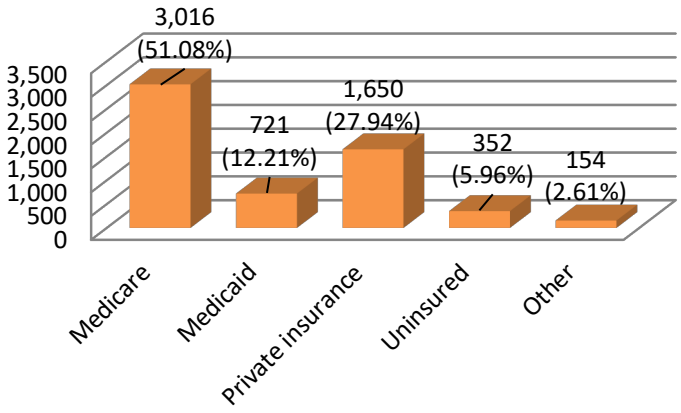


Source: Healthcare Cost and Utilization Project HCUPnet database http://hcupnet.ahrq.gov/

There were nearly 2 times more amputations performed on male patients in North Carolina than on female patients (See Graph 3.2).

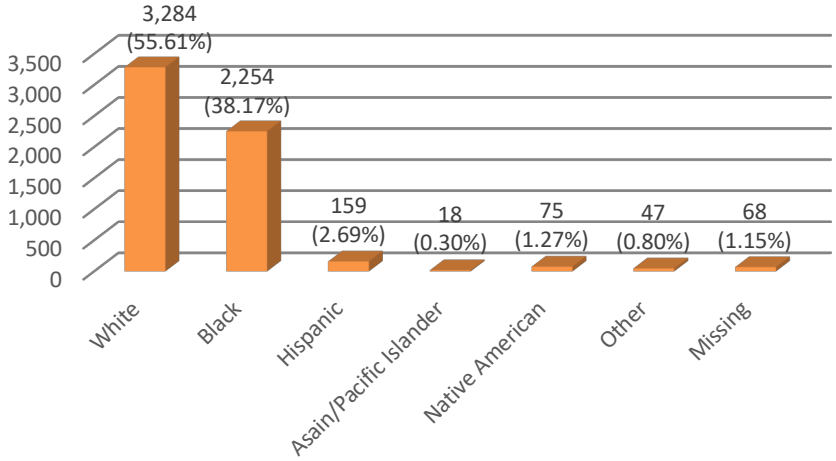
Medicare recipients ranked as the most common group to have an amputation procedure (See Graph 3.3).

3.3: Amputations by Payer Type, North Carolina (2014)



Source: Healthcare Cost and Utilization Project HCUPnet database http://hcupnet.ahrq.gov/

3.4: Amputations by Race/Ethnicity, North Carolina (2014)



The African American population of Michigan bears the heaviest burden of amputation (0.0011% of the African American population underwent amputations). This is evident when compared with the percentage of the white population that underwent amputations (0.00035%), with the Hispanic population that underwent amputations (.0002%), and with amputations in the state's population as a whole (0.00062%). (See Graph 3.4)

Source: Healthcare Cost and Utilization Project HCUPnet database http://hcupnet.ahrq.gov/

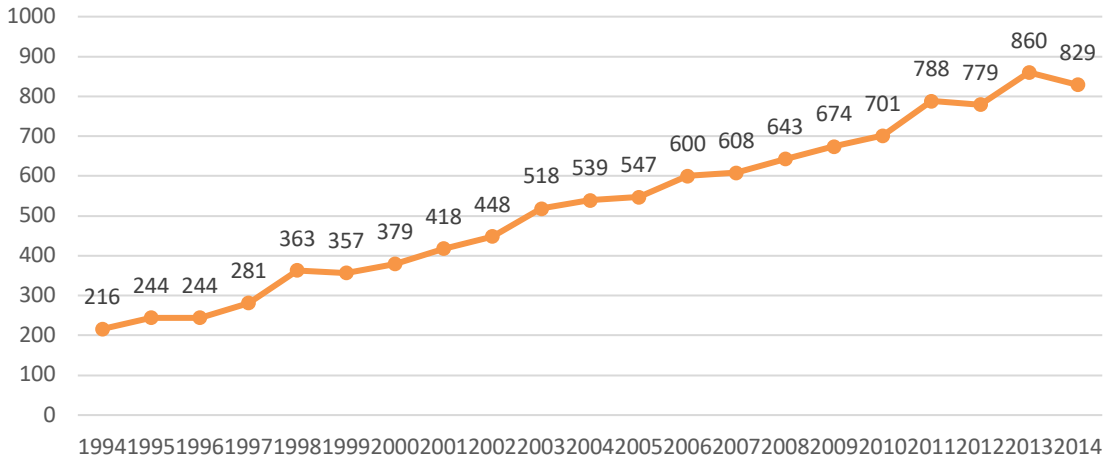
* According to Census Bureau estimation data (http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF) the population of North Carolina in 2014 was about 9,535,483 and was made up of about 9,329,284 white residents, 2,048,628 African American residents, and 800,120 Hispanic residents.

4. DIABETES TRENDS

Diabetes is a leading cause of lower-extremity amputations (5).

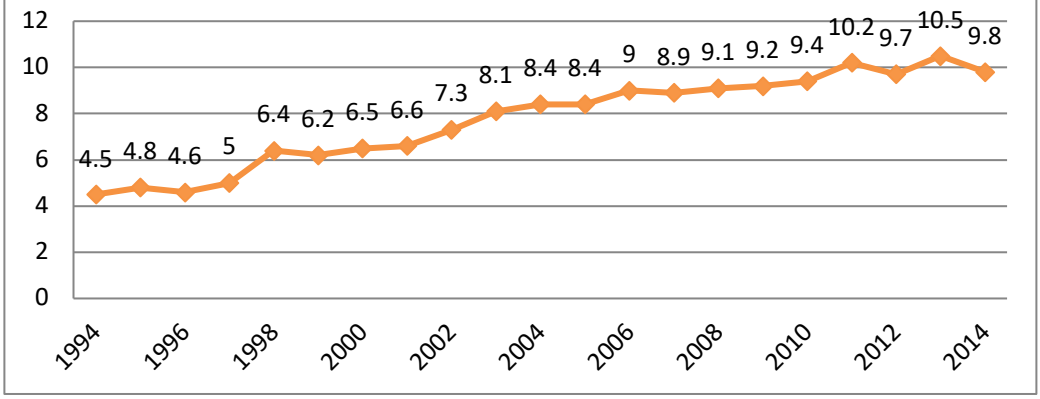
The prevalence of diabetes in the adult population of North Carolina increased 283.80% from 1994 to 2014. (See Graph 4.1)

4.1: Percentages of Adults (18+; in thousands) with Diagnosed Diabetes, North Carolina (1994 - 2014)



Source: CDC Behavioral Risk Factor Surveillance System https://gis.cdc.gov/grasp/diabetes/DiabetesAtlas.html

4.2: Yearly Rate of Exiting Diabetes Cases per 100 Adults (18+), North Carolina (1994-2014)



The annual rate of existing cases of diabetes among adults in North Carolina increased 117.77% from 1994 to 2014. (See Graph 4.2)

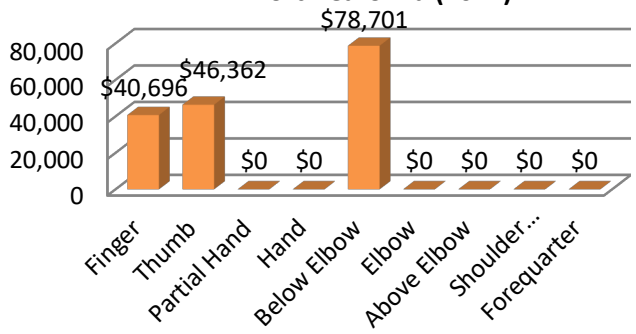
Source: CDC Behavioral Risk Factor Surveillance System https://gis.cdc.gov/grasp/diabetes/DiabetesAtlas.html

5. HEALTHCARE COSTS

For persons with a unilateral lower-extremity amputation, the two year healthcare costs, including initial hospitalization, inpatient rehabilitation, outpatient physical therapy, and purchase and maintenance of a prosthetic device, is estimated to be $91,106. The lifetime healthcare cost for persons with a unilateral lower extremity amputation is estimated to be more than $500,000 (6). It is anticipated that these healthcare costs would be higher for a person with a proximal amputation level and bilateral amputation status, due to higher prosthetic costs.

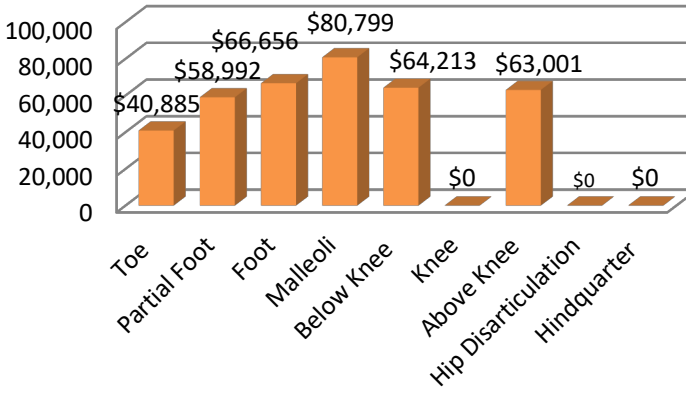
Charges represent what the hospital billed for the case, and may not represent all discharges for amputations. (See graph 5.1)

5.1: Overall Healthcare Charges for Upper-Li Amputations, North Carolina (2014)



Source: Healthcare Cost and Utilization Project HCUPnet database http://hcupnet.ahrq.gov/

5.2: Overall Healthcare Changes for Lower-Limb Amputations, North Carolina (2014)



Source: Healthcare Cost and Utilization Project HCUPnet database http://hcupnet.ahrq.gov/

Charges represent what the hospital billed for the case and may not represent all discharges for amputations. (See graph 5.2)

6. REFERENCES

1. Ziegler-Graham K, MacKenzie EJ, Ephraim PL, Travison TG, Brookmeyer R. Estimating the Prevalence of Limb Loss in the United States: 2005 to 2050. Archives of Physical Medicine and Rehabilitation2008;89(3):422-9.

2. Coalition LLTFA. Recommendations from the 2012 Limb Loss Task Force: Roadmap for Preventing Limb Loss in America. [White Paper]. 2012 February 9-12.

3. Bryant PR, Pandian G. Acquired limb deficiencies. 1. Acquired limb deficiencies in children and young adults. Archives of Physical Medicine and Rehabilitation2001;82(3B):00s3-s8.

4. Li Y, Burrows NR, Gregg EW, Albright A, Geiss LS. Declining Rates of Hospitalization for Nontraumatic Lower-Extremity Amputation in the Diabetic Population Aged 40 Years or Older: U.S., 1988-2008. Diabetes Care2012;35(2):273-7.

5. Ventkataraman PKM. Impact of patient counseling on diabetic foot ulcer patients. Indo American Journal of Pharmaceutical Research2012;2(10):1213-9.

6. MacKenzie EJ. Health-Care Costs Associated with Amputation or Reconstruction of a Limb-Threatening Injury. The Journal of Bone and Joint Surgery (American)2007;89(8):1685.