# Potentially Preventable Hospitalizations among American Indians & Alaska Natives in Washington, 2010-2013

## Hospital Discharge Fact Sheet Series (#2)

Potentially preventable hospitalizations are inpatient hospitalizations that might be avoided with high quality outpatient treatment and disease management.[1] Expenditures for these hospitalizations add to the high cost of medical care. In addition, hospitalization itself and complications that develop during hospitalization can cause additional morbidity and mortality.[2] Potentially avoidable hospitalizations can serve as useful indicators of unmet community health needs.[1]

Rates of potentially preventable hospitalizations are higher for vulnerable populations with limited access to care. Hospital stays are more likely to be potentially preventable among certain groups, including males, patients ages 65 and older, uninsured patients, and those living in rural or poorer communities.[1]

This factsheet describes potentially preventable hospitalizations among American Indians and Alaska Natives (AI/AN) in Washington, using AI/AN race-corrected 2010-2013 hospital discharge data from the IDEA-NW Project.
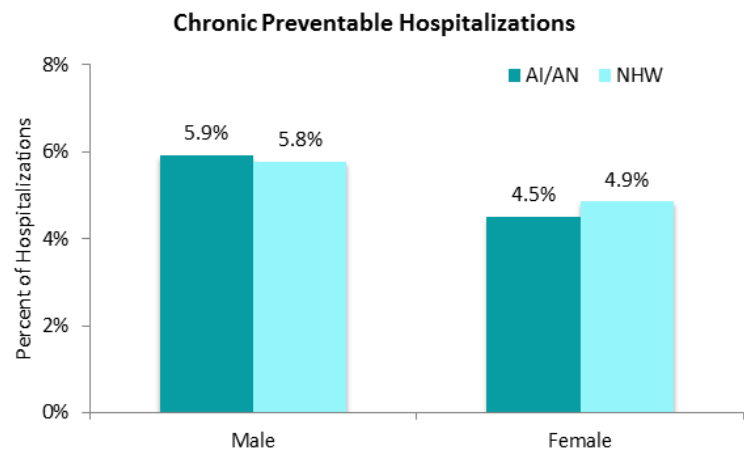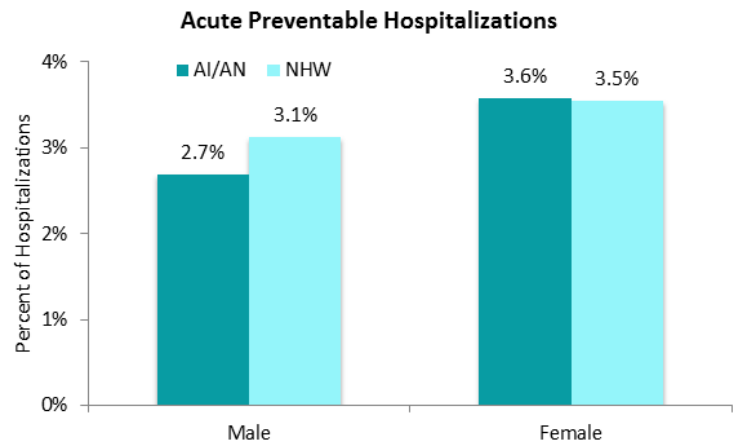
## Overall Preventable Hospitalizations

- Overall, AI/AN had a slightly lower percentage of overall preventable hospitalizations compared to NHW.
- Male AI/AN had a higher percentage than female AI/AN.

### Acute Preventable Hospitalizations

- The overall AI/AN percentage of acute preventable hospitalizations was slightly lower compared to NHW.
- Female AI/AN had a higher percentage than male AI/AN.
- Male AI/AN had a lower percentage than male NHW.

### Chronic Preventable Hospitalizations

- The percentage of chronic preventable hospitalizations for male AI/AN was 1.4 times higher than female AI/AN.
- While male AI/AN had a slightly higher percentage compared to male NHW, female AI/AN had a slightly higher percentage compared to female NHW.



**Acute Preventable Hospitalizations**

| | AI/AN N (%) | NHW N (%) |
|---|---|---|
| **Overall Preventable Hospitalizations** | | |
| Male | 2,193 (8.6%) | 59,611 (8.9%) |
| Female | 3,043 (8.1%) | 74,978 (8.4%) |
| Both Sexes | 5,236 (8.3%) | 134,589 (8.6%) |
| **Acute Preventable Hospitalizations** | | |
| Male | 686 (2.7%) | 20,953 (3.1%) |
| Female | 1,346 (3.6%) | 31,668 (3.5%) |
| Both Sexes | 2,032 (3.2%) | 52,621 (3.4%) |
| **Chronic Preventable Hospitalizations** | | |
| Male | 1,507 (5.9%) | 38,658 (5.8%) |
| Female | 1,697 (4.5%) | 43,310 (4.9%) |
| Both Sexes | 3,204 (5.1%) | 81,968 (5.2%) |

*N = number of hospitalizations*

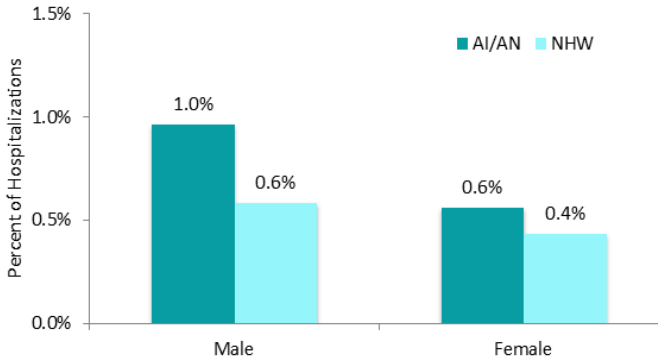

**Chronic Preventable Hospitalizations**

**Overall Preventable Hospitalizations:** *Includes discharges (ages 18+) admitted for one of the following conditions: diabetes with short-term complications, diabetes with long-term complications, uncontrolled diabetes without complications, diabetes with lower-extremity amputation, chronic obstructive pulmonary disease, asthma, hypertension, heart failure, angina without a cardiac procedure, dehydration, bacterial pneumonia, or urinary tract infection.*

**Acute Preventable Hospitalizations:** *Includes discharges (ages 18+) admitted for one of the following conditions: dehydration, bacterial pneumonia, or urinary tract infection.*

**Chronic Preventable Hospitalizations:** *Includes discharges (ages 18+) admitted for one of the following conditions: diabetes with short-term complications, diabetes with long-term complications, uncontrolled diabetes without complications, diabetes with lower-extremity amputation, chronic obstructive pulmonary disease, asthma, hypertension, heart failure, or angina without a cardiac procedure.*
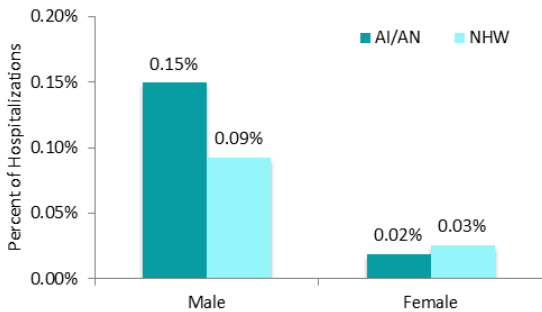
### Diabetes Short-Term Complications



### Diabetes Long-Term Complications



### Uncontrolled Diabetes



### Lower-Extremity Amputation among Patients with Diabetes



## DIABETES SHORT-TERM COMPLICATIONS

- Male AI/AN had a slightly higher percentage compared to female AI/AN.
- Both male and female AI/AN had slightly higher percentages than their NHW counterparts, and males had a wider disparity than females.

## DIABETES LONG-TERM COMPLICATIONS

- Overall, AI/AN had a slightly higher percentage compared to NHW.
- The percentage for male AI/AN was 2.2 times higher than female AI/AN.
- AI/AN males had a higher percentage compared to NHW males.

| | AI/AN N (%) | NHW N (%) |
|---|---|---|
| **Diabetes Short-Term Complications** | | |
| Male | 246 (1.0%) | 3,929 (0.6%) |
| Female | 212 (0.6%) | 3,896 (0.4%) |
| Both Sexes | 458 (0.7%) | 7,825 (0.5%) |
| **Diabetes Long-Term Complications** | | |
| Male | 278 (1.1%) | 4,757 (0.7%) |
| Female | 196 (0.5%) | 3,632 (0.4%) |
| Both Sexes | 474 (0.8%) | 8,389 (0.5%) |
| **Uncontrolled Diabetes** | | |
| Male | 29 (0.11%) | 404 (0.06%) |
| Female | 26 (0.07%) | 341 (0.04%) |
| Both Sexes | 55 (0.09%) | 745 (0.05%) |
| **Lower Extremity Amputation among Patients with Diabetes** | | |
| Male | 38 (0.15%) | 618 (0.09%) |
| Female | 7 (0.02%) | 228 (0.03%) |
| Both Sexes | 45 (0.07%) | 846 (0.05%) |

*N = number of hospitalizations*

## UNCONTROLLED DIABETES

- Overall, AI/AN had a higher percentage than NHW.
- The percentage for female AI/AN was higher compared to female NHW.
- Male AI/AN and male NHW had a similar percentages.

## LOWER EXTREMITY AMPUTATION AMONG PATIENTS WITH DIABETES

- Overall, AI/AN had a similar percentage compared to NHW.
- The percentage for males was higher compared to females.

*Diabetes Short-Term Complications: Includes discharges (ages 18+) admitted for diabetes short-term complications (ketoacidosis, hyperosmolarity, coma).*

*Diabetes Long-Term Complications: Includes discharges (ages 18+) admitted for diabetes with long-term complications (renal, eye, neurological, circulatory, or complications not otherwise specified).*

*Uncontrolled Diabetes: Includes discharges (ages 18+) admitted for diabetes without mention of short-term or long-term complications.*

*Lower Extremity Amputation among Patients with Diabetes: Includes discharges (ages 18+) with ICD-9-CM procedure code for lower-extremity amputation and diagnosis code of diabetes.*

### CHRONIC OBSTRUCTIVE PULMONARY DISORDER (COPD) OR ASTHMA IN ADULTS

- Overall, AI/AN (ages 18+) had a lower percentage of COPD or asthma hospitalizations compared to NHW.
- Female AI/AN (ages 18+) had a higher percentage compared to male AI/AN.

### ASTHMA IN YOUNGER ADULTS

- The percentage among female AI/AN ages 18-39 was higher than the percentage for male AI/AN.
- Female AI/AN ages 18-39 had a higher percentage of asthma hospitalizations compared to female NHW.

### BACTERIAL PNEUMONIA

- Male AI/AN had a slighly higher percentage of bacterial pneumonia hospitalizations compared to female AI/AN.
- Both male and female AI/AN had slightly higher percentages than their NHW counterparts (2.0% vs. 1.9% for males, 1.9% vs. 1.8% for females).

**COPD or Asthma in Adults**



**Asthma in Younger Adults**



**Bacterial Pneumonia**



|  | AI/AN N (%) | NHW N (%) |
|---|---|---|
| **Asthma in Younger Adults** |  |  |
| Male | 16 (0.06%) | 431 (0.06%) |
| Female | 88 (0.23%) | 1,056 (0.12%) |
| Both Sexes | 104 (0.16%) | 1,487 (0.10%) |
| **COPD or Asthma in Older Adults** |  |  |
| Male | 340 (1.3%) | 10,304 (1.5%) |
| Female | 620 (1.6%) | 15,511 (1.7%) |
| Both Sexes | 960 (1.5%) | 25,815 (1.7%) |
| **Bacterial Pneumonia** |  |  |
| Male | 503 (2.0%) | 13,945 (2.1%) |
| Female | 710 (1.9%) | 15,854 (1.8%) |
| Both Sexes | 1,213 (1.9%) | 29,799 (1.9%) |

*N = number of hospitalizations*
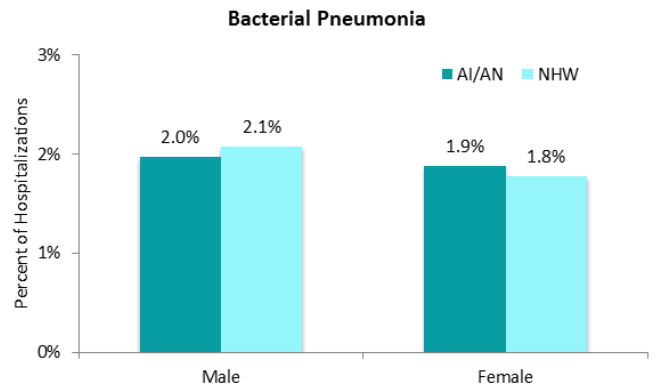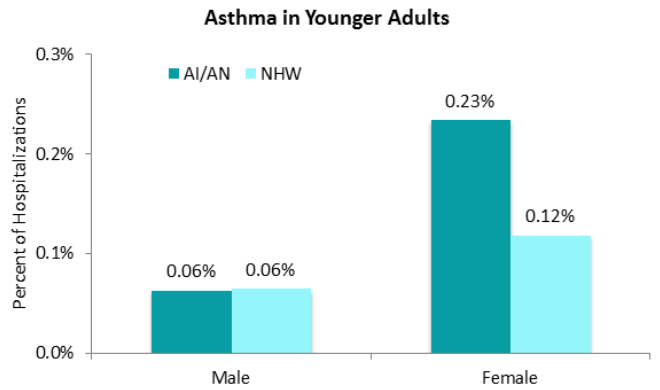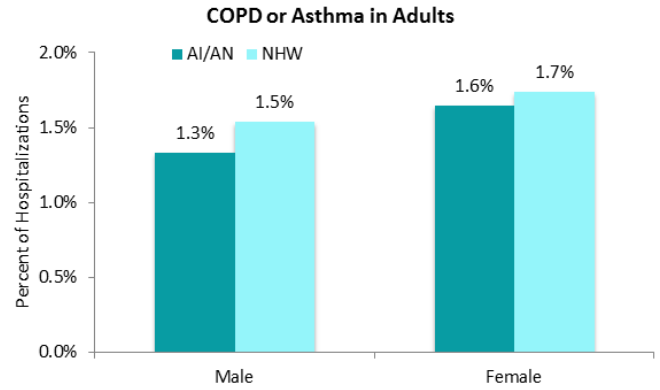
*COPD or Asthma in Adults: Includes discharges (ages 18+) with either a principal ICD-9-CM diagnosis code for COPD (excluding acute bronchitis); or a principal ICD-9-CM diagnosis code for asthma; or a principal ICD-9-CM diagnosis code for acute bronchitis and any secondary ICD-9-CM diagnosis codes for COPD (excluding acute bronchitis).*
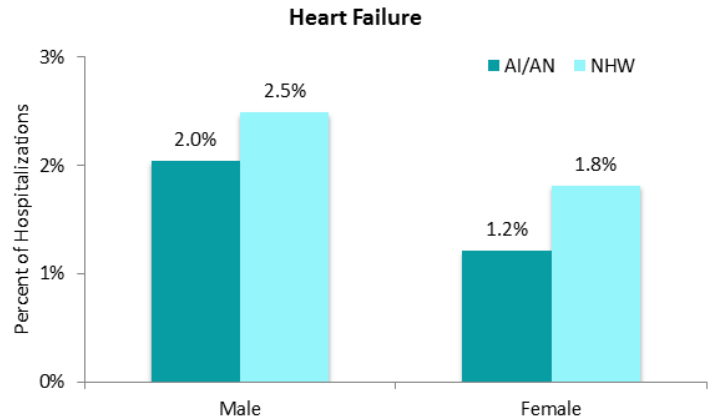
*Asthma in Younger Adults: Includes discharges (ages 18-39) with a principal ICD-9-CM diagnosis code for asthma.*

*Bacterial Pneumonia: Includes discharges (ages 18+) with a principal ICD-9-CM with a principal ICD-9-CM diagnosis code for bacterial pneumonia.*

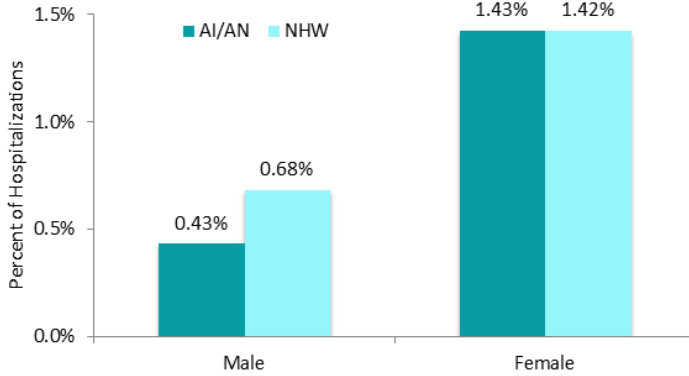## OTHER PREVENTABLE HOSPITALIZATIONS

### HEART FAILURE

- Overall, AI/AN had a lower percentage of heart failure hospitalizations compared to NHW.
- The percentage of heart failure hospitalizations among male AI/AN was 1.7 times higher compared to female AI/AN.
- Both male and female AI/AN had lower percentages compared to their NHW counterparts, and this difference was greater among males.
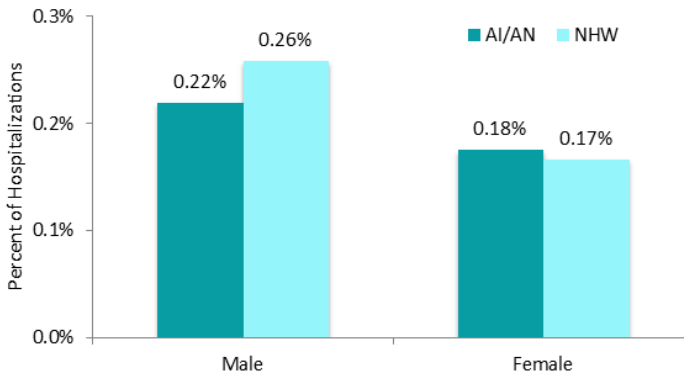
*Heart Failure: Includes discharges (ages 18+) with a principal ICD-9-CM diagnosis code for heart failure.*
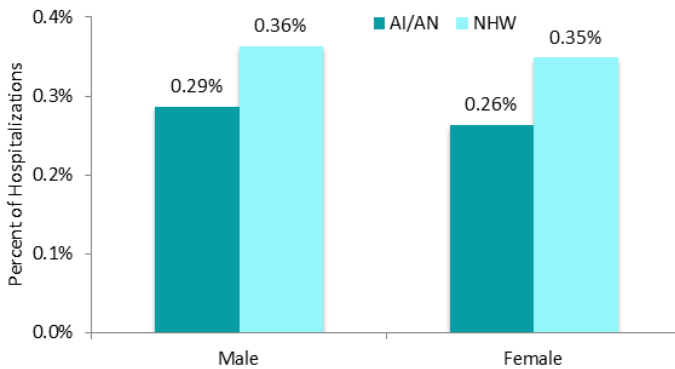
**Heart Failure**

### Urinary Tract Infection



### Perforated Appendix



### Dehydration



### Urinary Tract Infection

- Overall, AI/AN had a similar percentage of urinary tract infection hospitalizations compared to NHW.
- The percentage for female AI/AN was 3.5 times higher compared to male AI/AN.

### Perforated Appendix

- Overall, AI/AN had the same percentage of perforated appendix hospitalizations as NHW.
- Male and female AI/AN had the same percentage of perforated appendix hospitalizations.

### Dehydration

- Overall, AI/AN had a similar percentage of hospitalizations for dehydration compared to NHW.
- Male and female AI/AN had about the same percentage of hospitalizations for dehydration.

| | AI/AN N (%) | NHW N (%) |
|---|---|---|
| **Heart Failure** | | |
| Male | 521 (2.0%) | 16,669 (2.5%) |
| Female | 456 (1.2%) | 16,223 (1.8%) |
| Both Sexes | 977 (1.6%) | 32,892 (2.1%) |
| **Urinary Tract Infection** | | |
| Male | 110 (0.43%) | 4,573 (0.68%) |
| Female | 537 (1.43%) | 12,704 (1.42%) |
| Both Sexes | 647 (1.02%) | 17,277 (1.11%) |
| **Perforated Appendix** | | |
| Male | 56 (0.22%) | 1,733 (0.26%) |
| Female | 66 (0.18%) | 1,486 (0.17%) |
| Both Sexes | 122 (0.19%) | 3,219 (0.21%) |
| **Dehydration** | | |
| Male | 73 (0.29%) | 2,435 (0.36%) |
| Female | 99 (0.26%) | 3,110 (0.35%) |
| Both Sexes | 172 (0.27%) | 5,545 (0.35%) |

*N = number of hospitalizations*

*Urinary Tract Infection: Includes discharges (ages 18+) with a principal ICD-9-CM diagnosis code for urinary tract infection.*

*Perforated Appendix: Includes discharges (ages 18+) with any-listed ICD-9-CM diagnosis codes for perforations or abscesses of appendix.*

*Dehydration: Includes discharges (ages 18+) with a principal ICD-9-CM diagnosis code for dehydration; or any secondary ICD-9-CM diagnosis codes for dehydration and a principal ICD-9-CM diagnosis code for hyperosmolality and/or hypernatremia, gastroenteritis, or acute kidney injury.*

[1] Stranges, Elizabeth and Carol Stocks. "Potentially Preventable Hospitalizations for Acute and Chronic Conditions, 2008." Nov. 2010. *Agency for Healthcare Research and Quality*`, Rockville, MD. https://www.hcup-us.ahrq.gov/reports/statbriefs/sb99.pdf

[2] Maslow, Katie and Joseph G. Ouslander. "Measurement of Potentially Preventable Hospitalizations." Feb. 2012. *ITQA Long-Term Quality Alliance*, Washington, DC. https://interact2.net/docs/publications/LTQA%20PreventableHospitalizations_021512_2.pdf

### The IDEA-NW Project

The Improving Data and Enhancing Access - Northwest (IDEA-NW) Project at the Northwest Tribal Epidemiology Center and Northwest Portland Area Indian Health Board routinely conducts record linkages with state datasets, including hospital discharge datasets, to correct for AI/AN misclassification in state data.

For hospital discharge data, linkage identified the prevalence of AI/AN racial misclassification among all post-linkage AI/AN was 16.9 for Oregon, and 28.4% for Washington.

For more information, visit the IDEA-NW Project's website:
www.npaihb.org/epicenter/project/improving_data_enhancing_access_northwest_idea_nw.