

# Study of Adult Emergency Room Visits with a Dental-Related Diagnosis in Hawai'i: 2016-2020

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HAWAI'I ORAL HEALTH COALITION

Study Biostatisticians:

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UH JABSOM Biostatistics Core Facility

# Organizational Acknowledgements

The Family Health Services Division-Hawai'i State Department of Health

The Association of State and Territorial Dental Directors (ASTDD)

The Laulima Data Alliance

The Biostatistics Core Facility Team - University of Hawai'i John A. Burns School of Medicine

The Hawai'i Public Health Institute

The Hawai'i Children's Action Network

The Oral Health Progress and Equity Network (OPEN)

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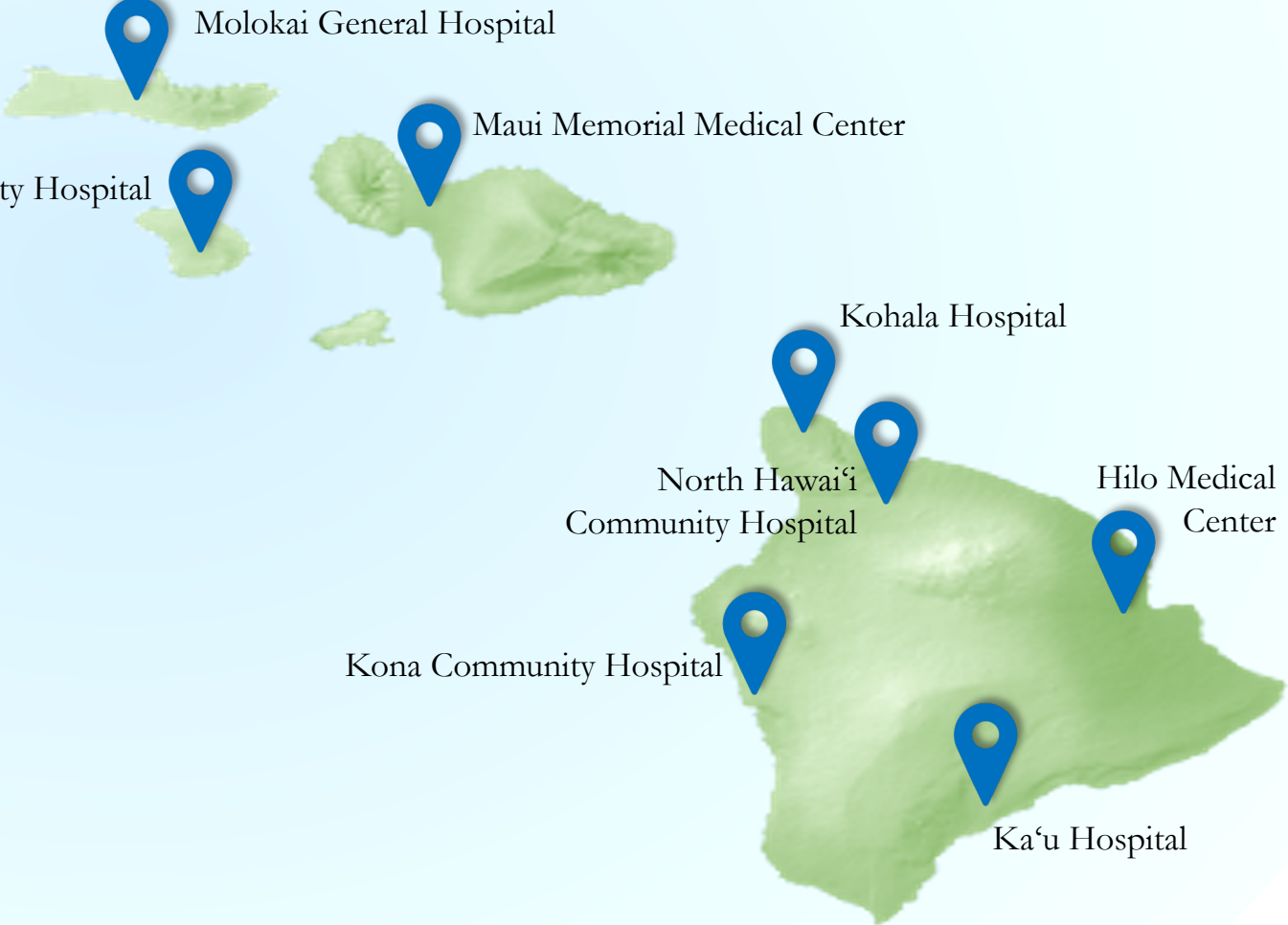
# Study Limitations

- Data represents only information gathered from Laulima, which is the repository for health care institutional data statewide.
- No data was collected or analyzed on oral health acute care-related visits to acute care centers, FQHCs, or other dental services sites.

# Emergency Rooms (ERs) in Hawai'i



- Kahuku Medical Center
- Wahiawa General Hospital
- The Queen's Medical Center – West Oahu
- Pali Momi Medical Center
- Kaiser Foundation Hospital
- The Queen's Medical Center
- Straub Clinic and Hospital
- Kapiolani Center for Women & Children
- Adventist Health Castle



# Study Methods

# Study Design and Data

- This was a descriptive cross-sectional study looking at trend analysis over 5 years (2016-2020)
- Study Purpose: To examine the frequency and rate of ER visits with a dental-related diagnosis among adults ( $\geq 21$  years old) in Hawai'i over 5 years
- Data source: The Laulima Data Alliance
- Data: Outpatient/Inpatient primary diagnosis and secondary diagnosis data from 2016-2020
- Study Exclusions:
  - Patients ages 20 years and younger
  - Patients residing outside Hawai'i
  - Patients who did not use ER services

# Demographics of Study Population

- Sex (male, female)
- Age group (21-44y, 45-64y, 65-84y, +85y)
- County (Honolulu, Hawaii, Maui, Kauai)
- Community Areas (Central Honolulu, East Honolulu, West Honolulu, Ewa, Kaneohe/Kailua, North Shore, Pearl City/Aiea, Waianae; Hilo/North Hawaii, Kona, South Hawaii; West & Central Maui, Molokai/Lanai/East Maui; East Kauai, North & West Kauai)
- Primary Source of Payment (private, Medicare, Medicaid, other, self-pay)  
Categorized based on the SEDD/HCUP coding guide
- Race/Ethnicity (White, NH/Part NH, Pacific Islander, Filipino, Japanese, Other Asian, Other)  
Categorized based on the SEDD/HCUP coding guide  
“White” includes White/Caucasian and Arab/Arabian  
“Other” includes Black, Native American (Alaska Native, American Indian), Hispanic (Mexican, Hispanic, Portuguese, Other Hispanic or Latino, Puerto Rican), and other races

# Study Variables

- Frequency (%) of ER visits with a principal dental-related diagnosis and with any listed dental-related diagnosis
  - Identified by the ICD-10 codes for non-traumatic dental conditions (ASTDD)
  - Principal diagnosis: a first-listed diagnosis
  - Any listed diagnosis: a first-listed and/or a secondary diagnosis
  - Frequency by demographic characteristics
- Cumulative total charges for the ER visits
- Number of the ER visits per patient
- Rate of ER visits with dental-related diagnosis
  - Rate by county and age group

# Top 10 Principal Dental-Related ICD-10 Diagnoses of ER Visits: Hawaii 2016-2020

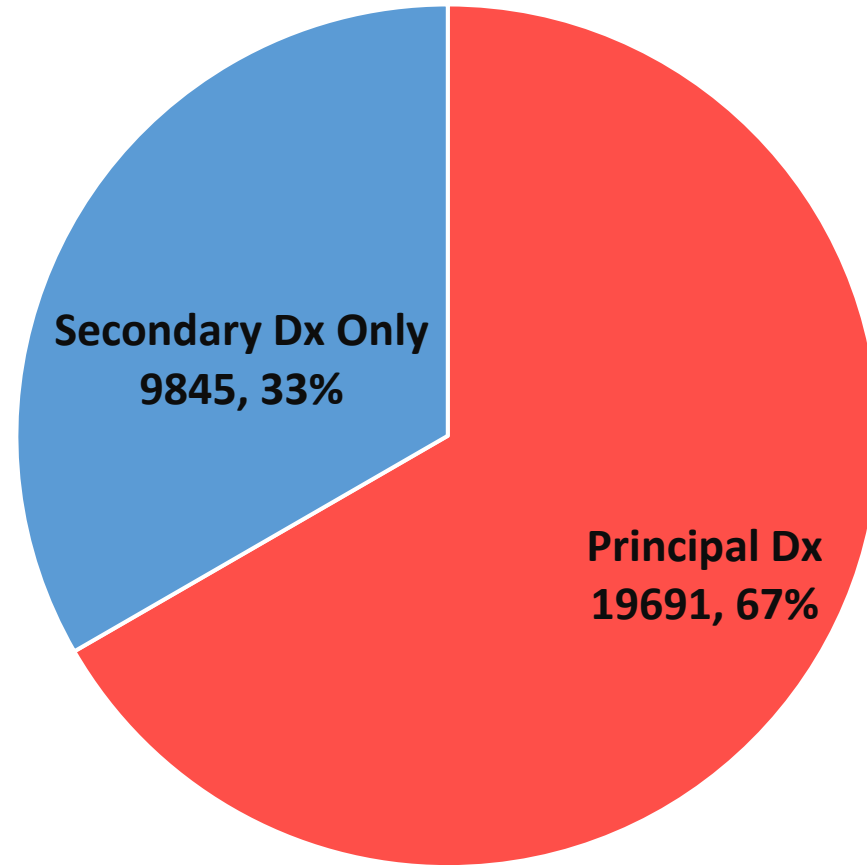
	ICD10	Count (%)	Description
1	K0889	4991 (20.8)	Other specified disorders of teeth and supporting structures
2	K047	4333 (18.1)	Periapical abscess without sinus
3	K029	2799 (11.7)	Dental caries, unspecified
4	R6884	1322 (5.5)	Jaw pain
6	K088	743 (3.1)	Other specified disorders of teeth and supporting structures
5	K1120	667 (2.8)	Sialadenitis, unspecified
8	K122	495 (2.1)	Cellulitis and abscess of mouth
7	K1379	491 (2.0)	Other lesions of oral mucosa
9	K130	306 (1.3)	Disease of lips
10	K068	304 (1.3)	Other specified disorders of gingiva and edentulous alveolar ridge

# Summary of Findings for ER Visits with a Dental-Related Diagnosis: Hawai'i 2016-2020

1. There was a total of 29,536 ER visits with a dental related diagnosis by adults aged 21 years and older
2. 67% (19,691) of the adult visits had a principal dental diagnosis that they visited the ER
3. A significant proportion of the ER visits with a principal dental-related diagnosis were treated:
  - in Honolulu County (56%, 11,118)
  - for those aged 21-44 years old (62%, 12,138)
  - for Medicaid recipients (49%, 9,680)
  - Native Hawaiian/Part Native Hawaiian (24%, 5,018) patients
4. A large portion of Medicaid claims for ER visits with a principal diagnosis were submitted for Native Hawaiians/Part Native Hawaiian (31%, 2,991) patients
5. Medicaid claims constituted 45% of the cumulative total charges for the ER visits with a principal dental-related diagnosis (\$12.3M)
6. An average of 10% of patients who visited ER for dental-related conditions revisited the ER at least twice in the same year
7. Higher rates of ER visits with a dental-related diagnosis were found for Hawai'i County, Kaua'i County, and in 21-44 year old patients.

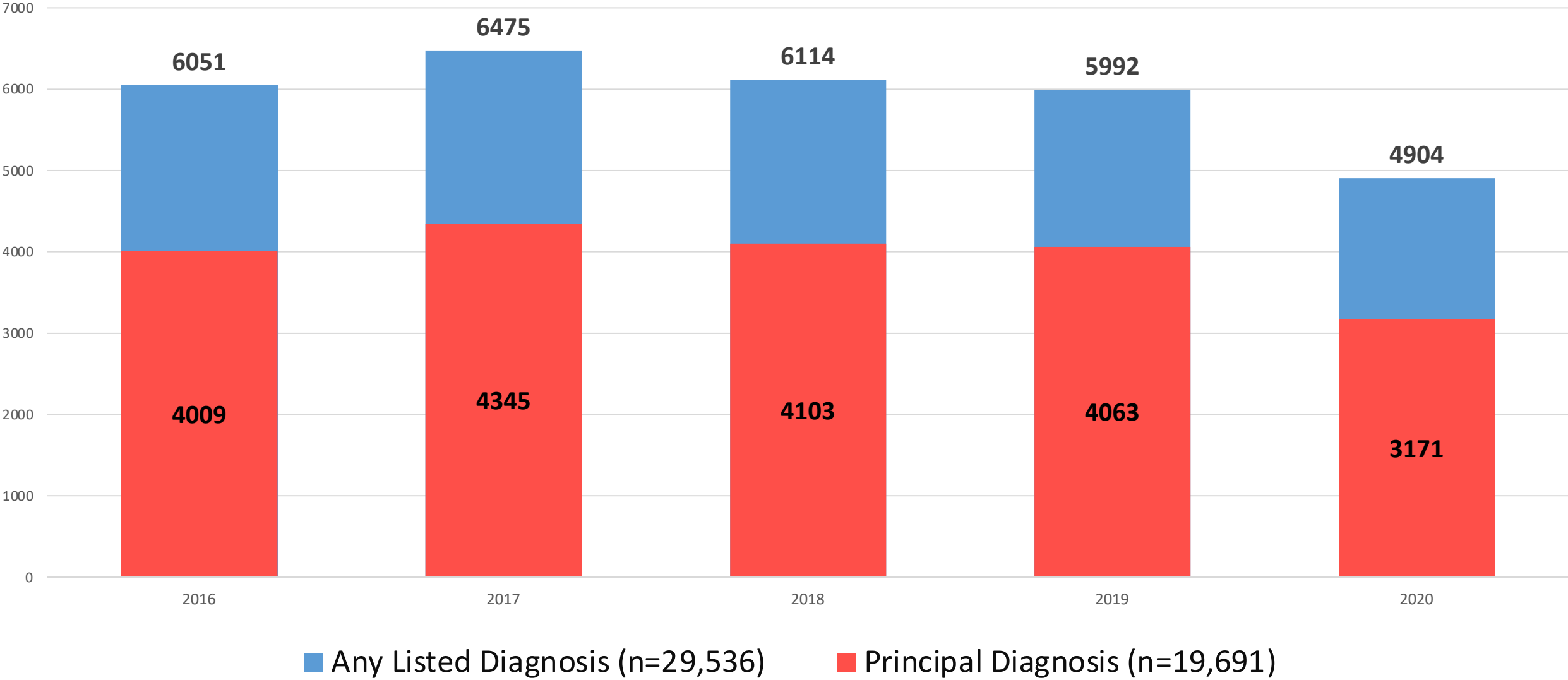
# Study Results

# ER Visits with Any Listed (Principal/Secondary) Diagnosis: Hawaii 2016-2020

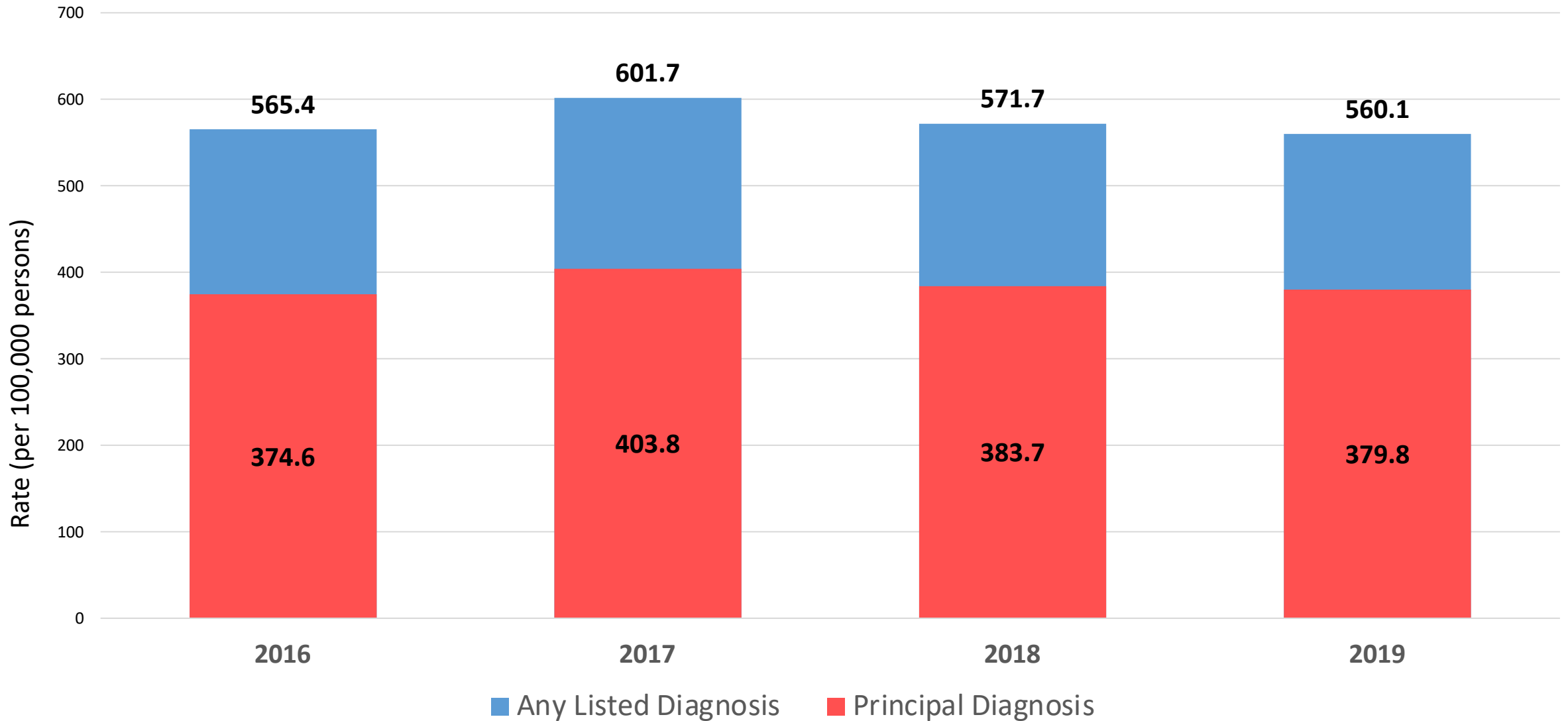


■ Principal Dx    ■ Secondary Dx Only

# ER Visits with a Dental-Related Diagnosis: Hawaii 2016 - 2020

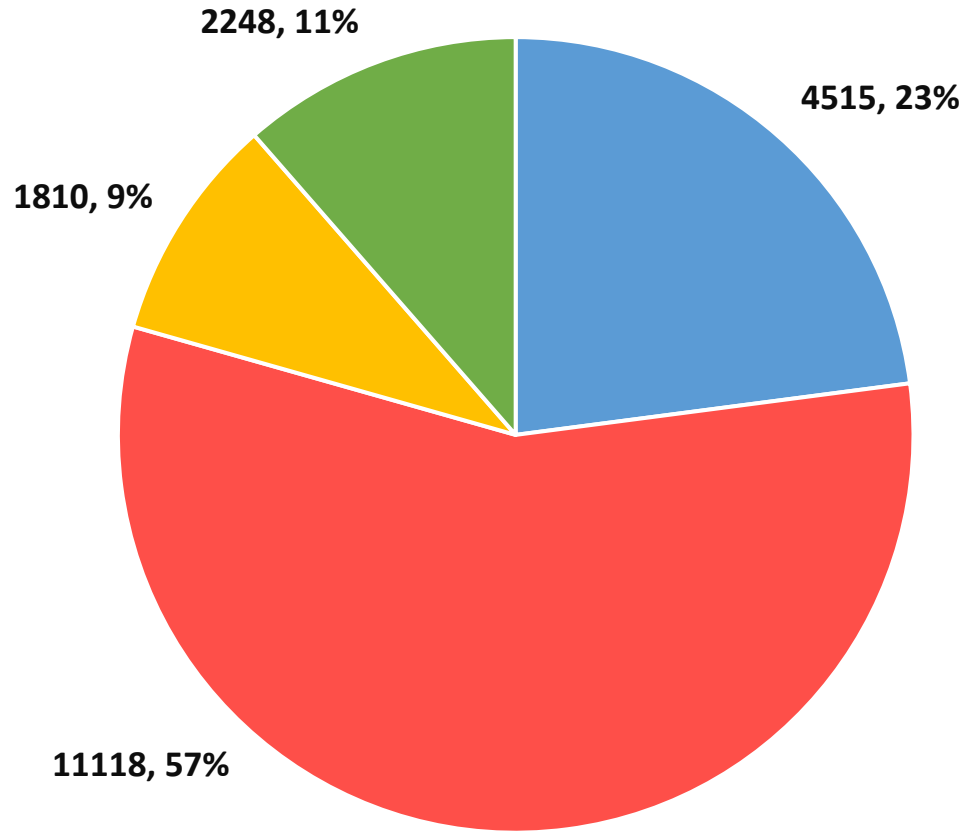


# Rates of ER Visits with a Dental-Related Diagnosis: Hawaii 2016-2019



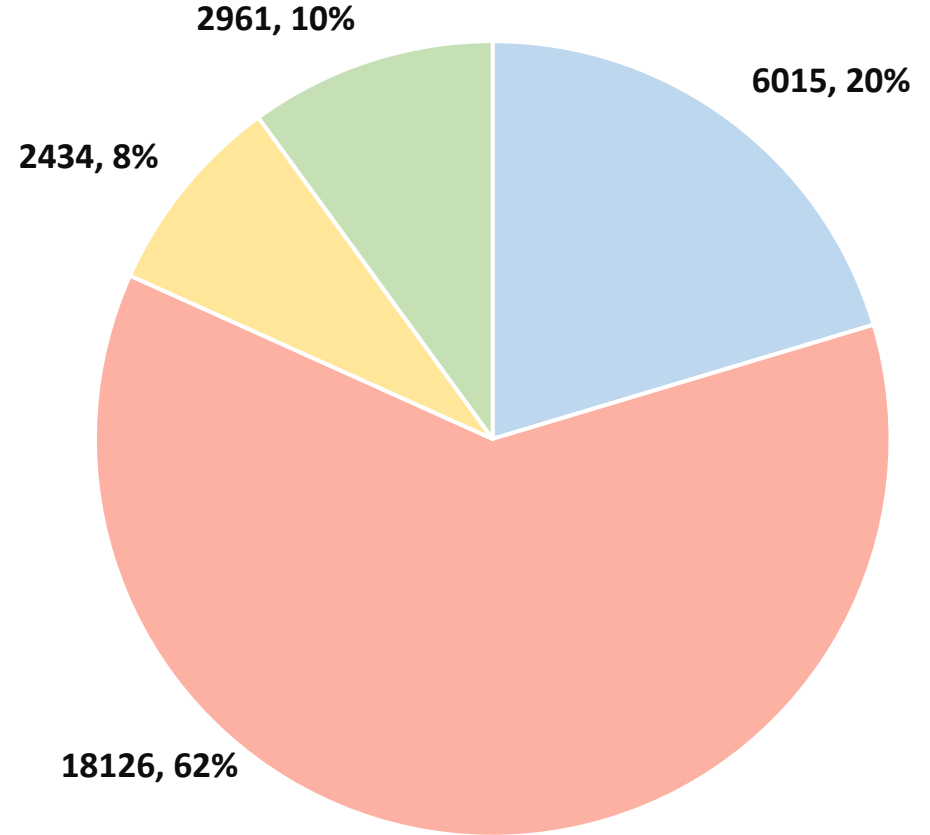
# ER Visits with a Dental-Related Diagnosis by County of Residence: Hawaii 2016-2020

Principal Diagnosis (n=19,691)



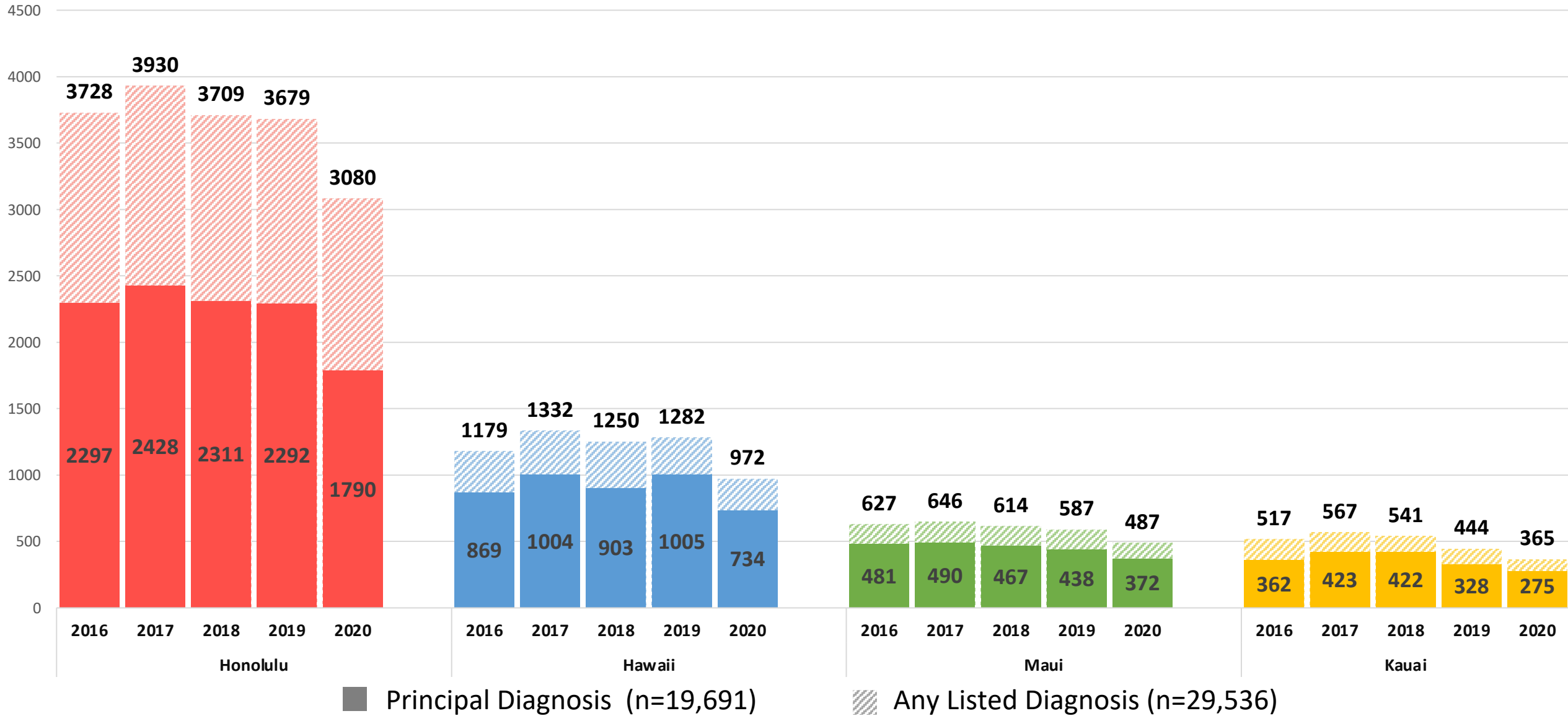
■ Hawaii ■ Honolulu ■ Kauai ■ Maui

Any Listed Diagnosis (n=29,536)

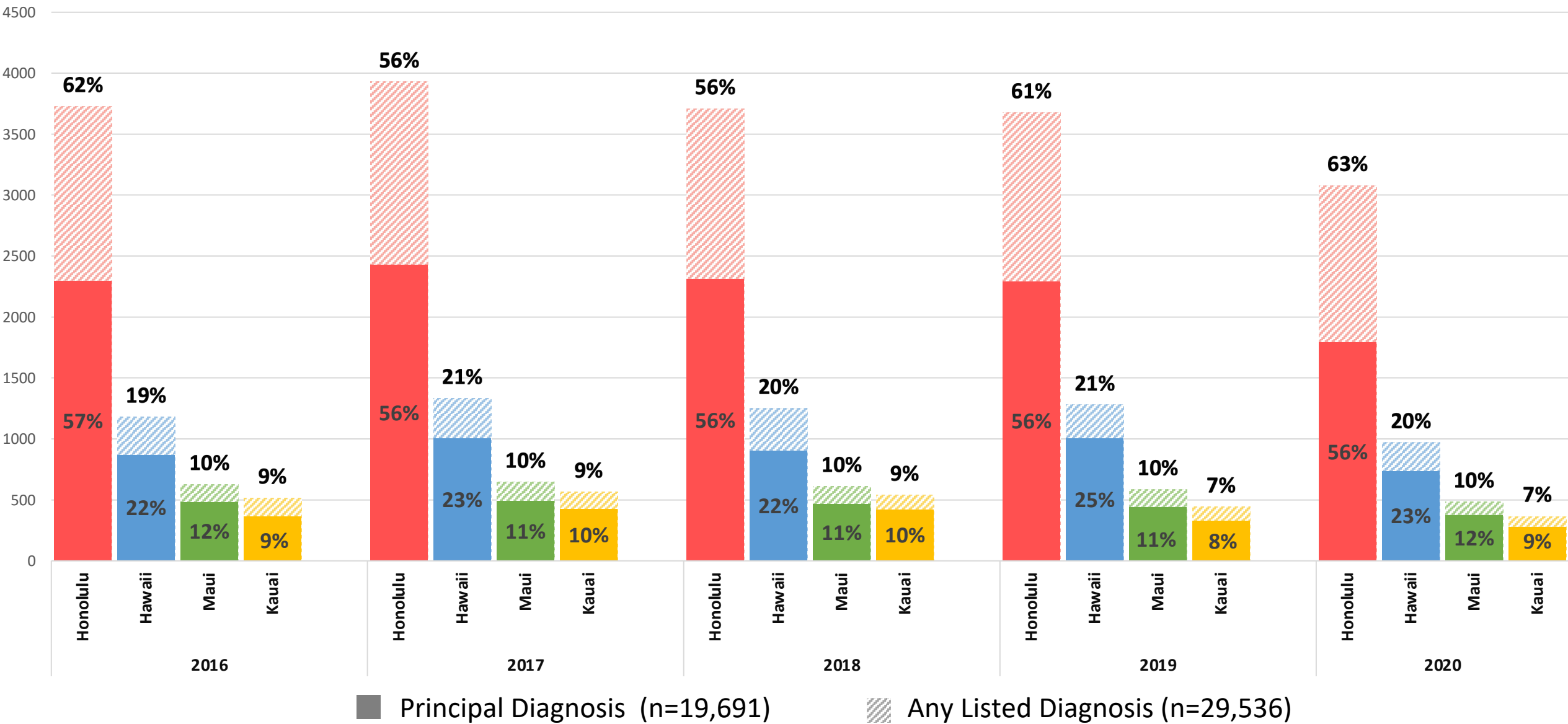


■ Hawaii ■ Honolulu ■ Kauai ■ Maui

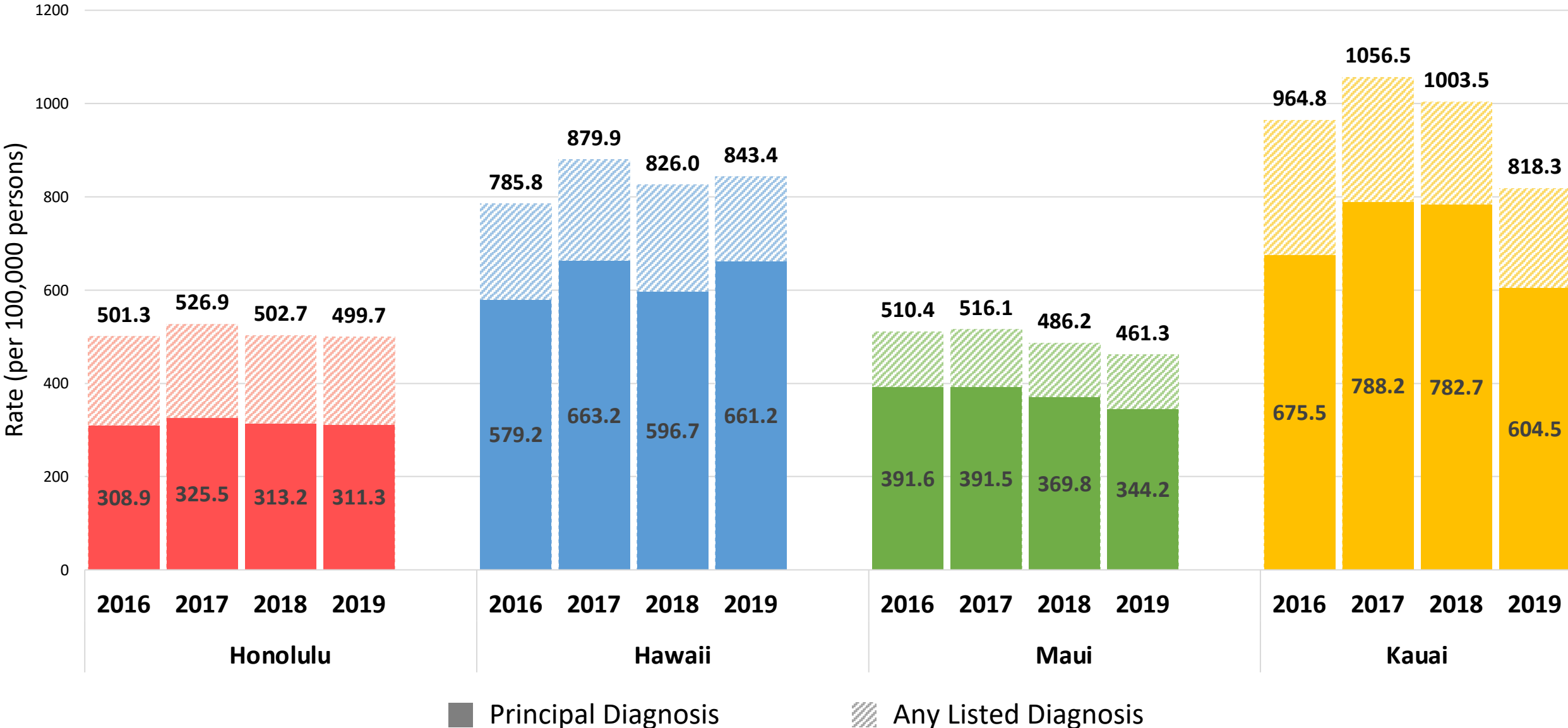
# ER Visits with a Dental-Related Diagnosis by County of Residence: Hawaii 2016-2020



# ER Visits with a Dental-Related Diagnosis by County of Residence: Hawaii 2016-2020

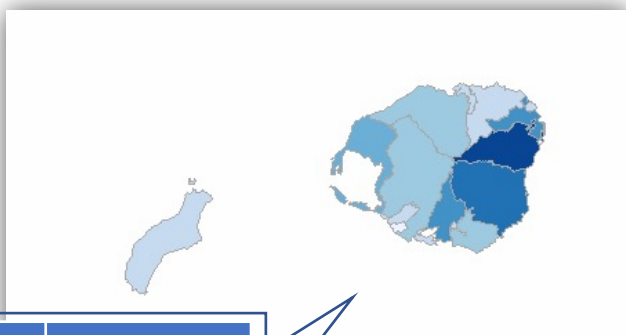
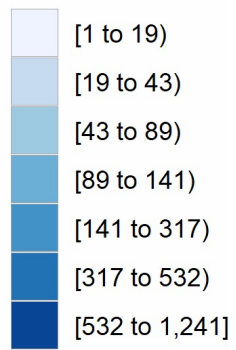


# Rates of ER Visits with a Dental-Related Diagnosis by County of Residence: Hawaii 2016-2019

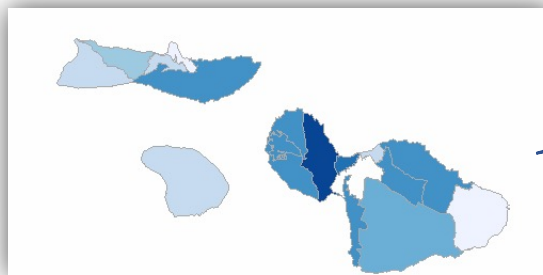


# ER Visits with a Principal Dental-Related Diagnosis by Zip Code (map) and Community Area (table): Hawaii 2016-2020

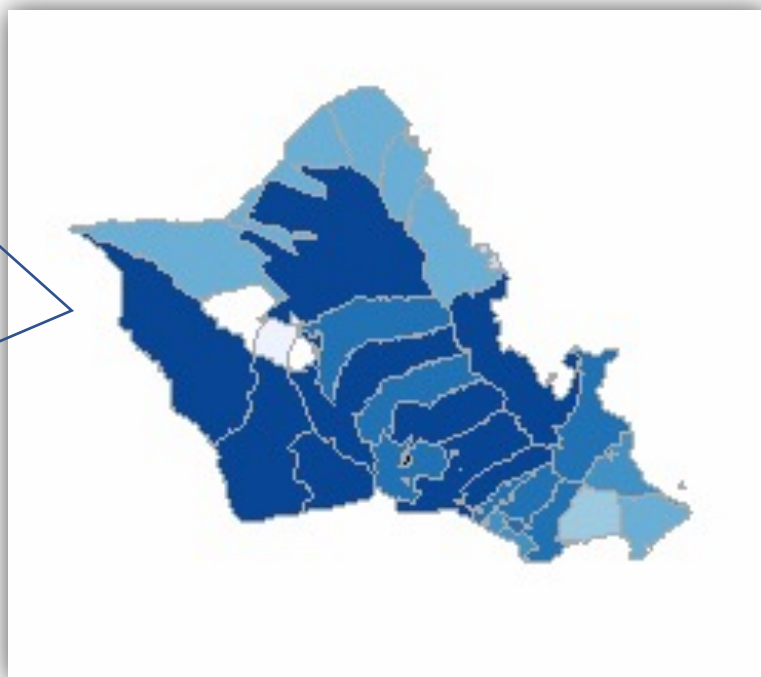
ER visits



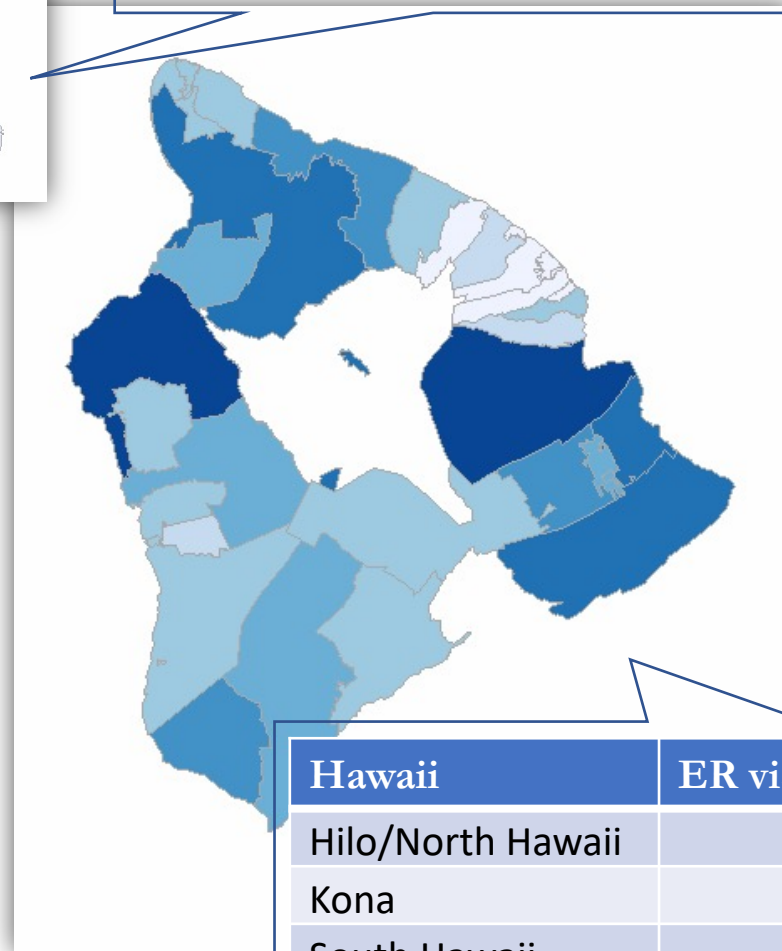
Kauai	ER visits
East Kauai	1125
North/West Kauai	685



Maui	ER visits
West/Central Maui	1477
Molokai/Lanai/East Maui	771



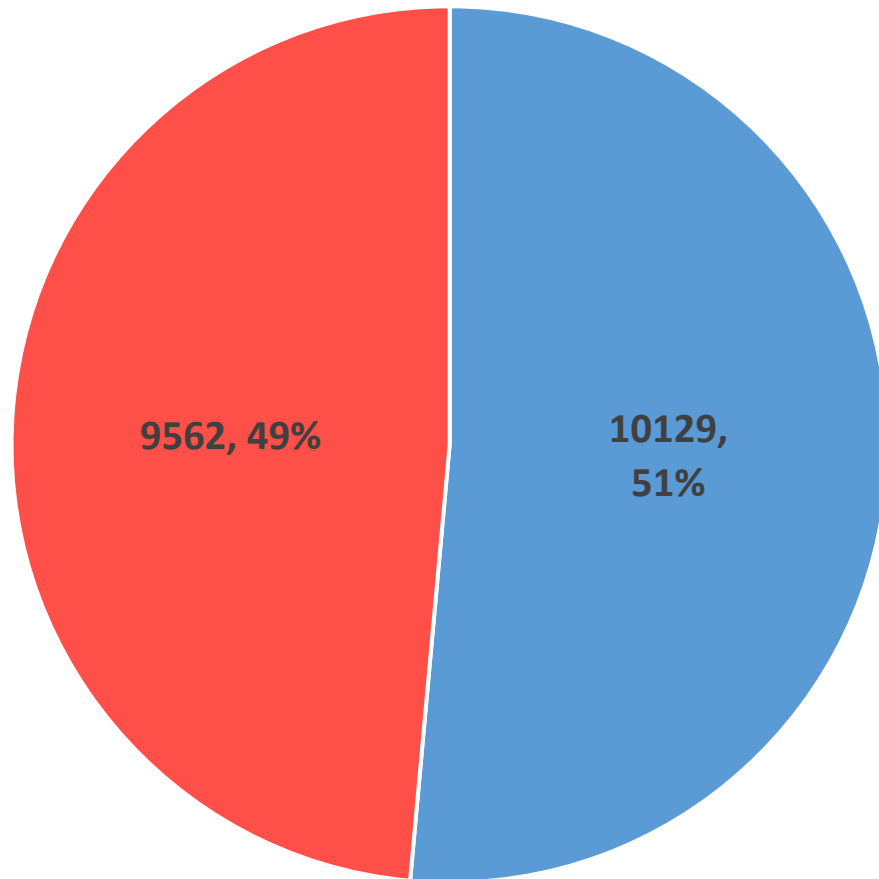
Honolulu	ER visits
Ewa	2272
West Honolulu	1816
Central Honolulu	1763
North Shore	1417
Pearl City/Aiea	1351
Kaneohe/Kailua	1264
Waianae	704
East Honolulu	531



Hawaii	ER visits
Hilo/North Hawaii	2009
Kona	1360
South Hawaii	1146

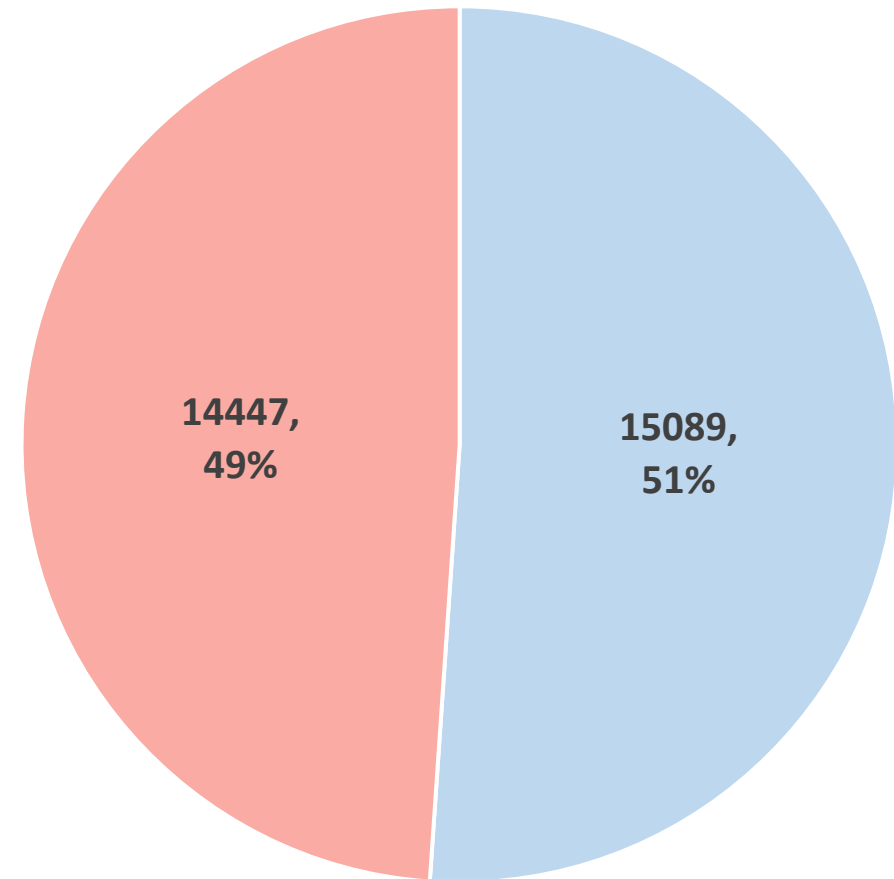
# ER Visits with a Dental-Related Diagnosis by Sex: Hawaii 2016-2020

Principal Diagnosis (n=19,691)



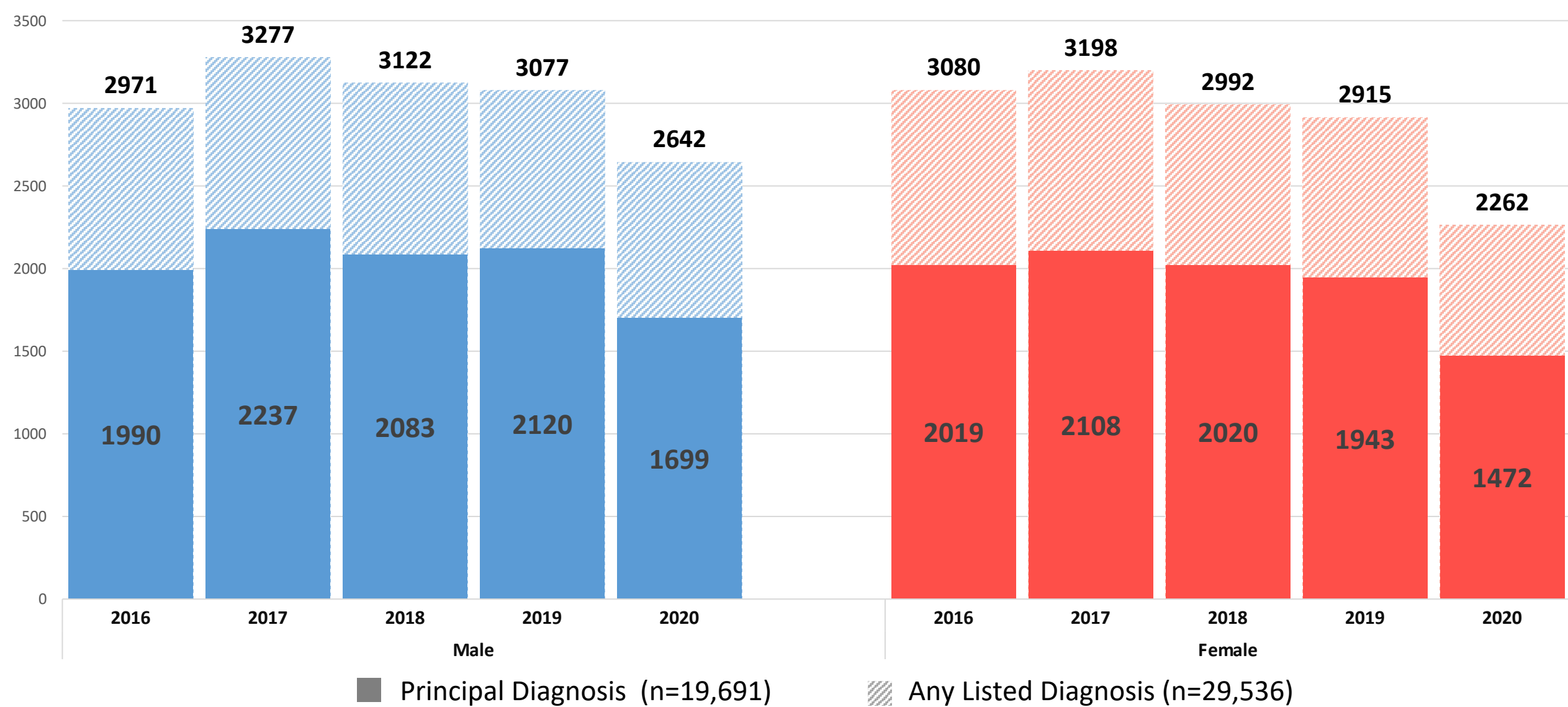
■ Male ■ Female

Any Listed Diagnosis (n=29,536)

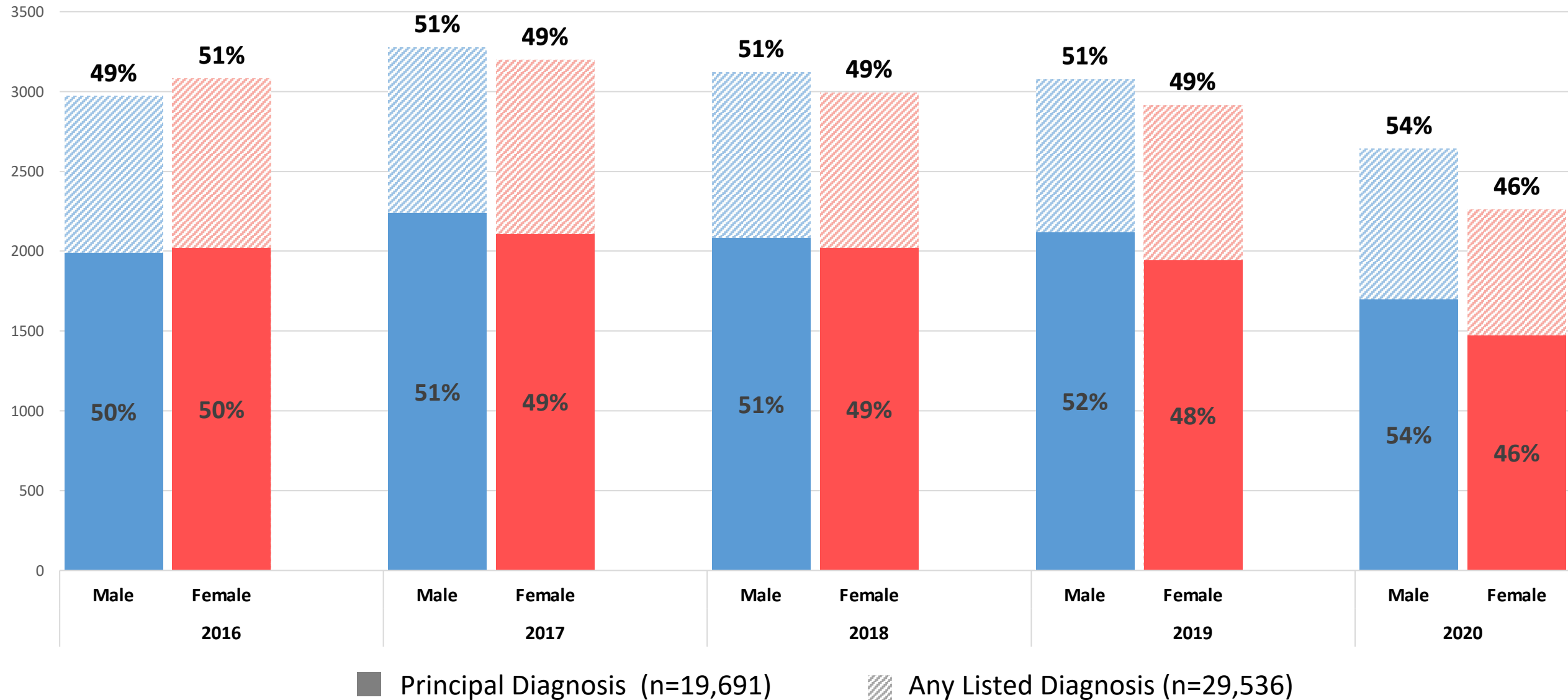


■ Male ■ Female

# ER Visits with a Dental-Related Diagnosis by Sex: Hawaii 2016-2020

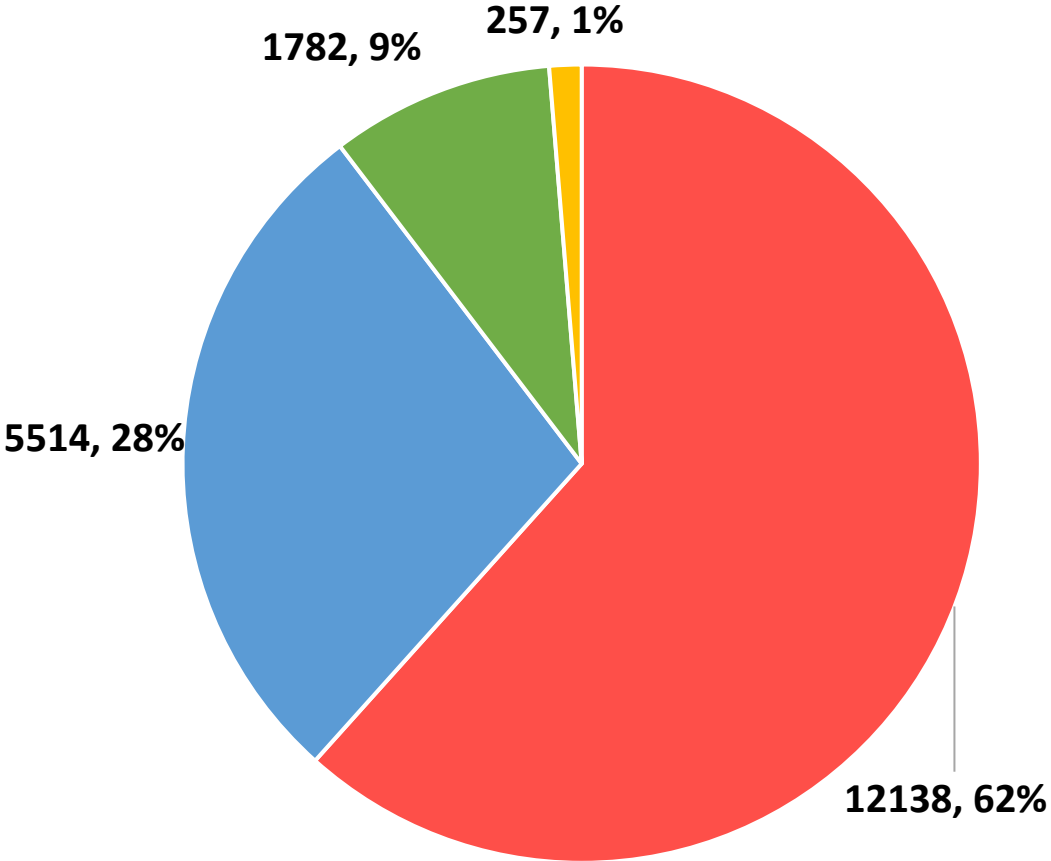


# ER Visits with a Dental-Related Diagnosis by Sex: Hawaii 2016-2020



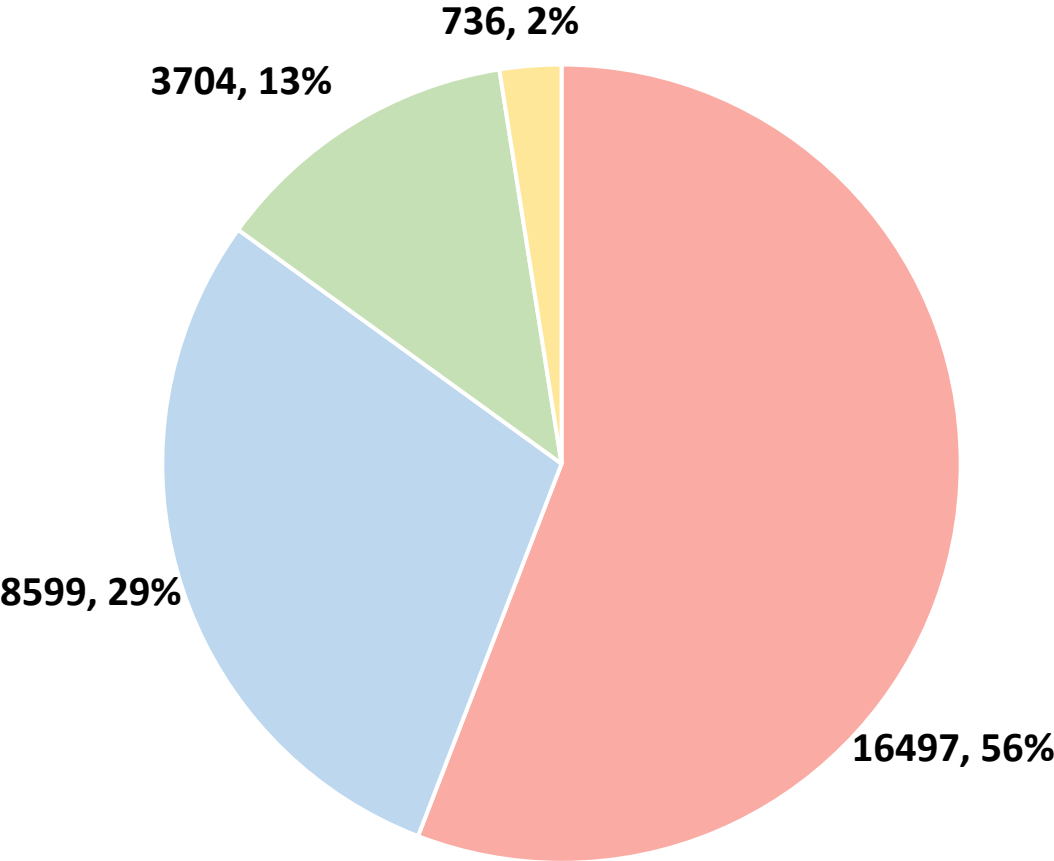
# ER Visits with a Dental-Related Diagnosis by Age Group: Hawaii 2016-2020

Principal Diagnosis (n=19,691)



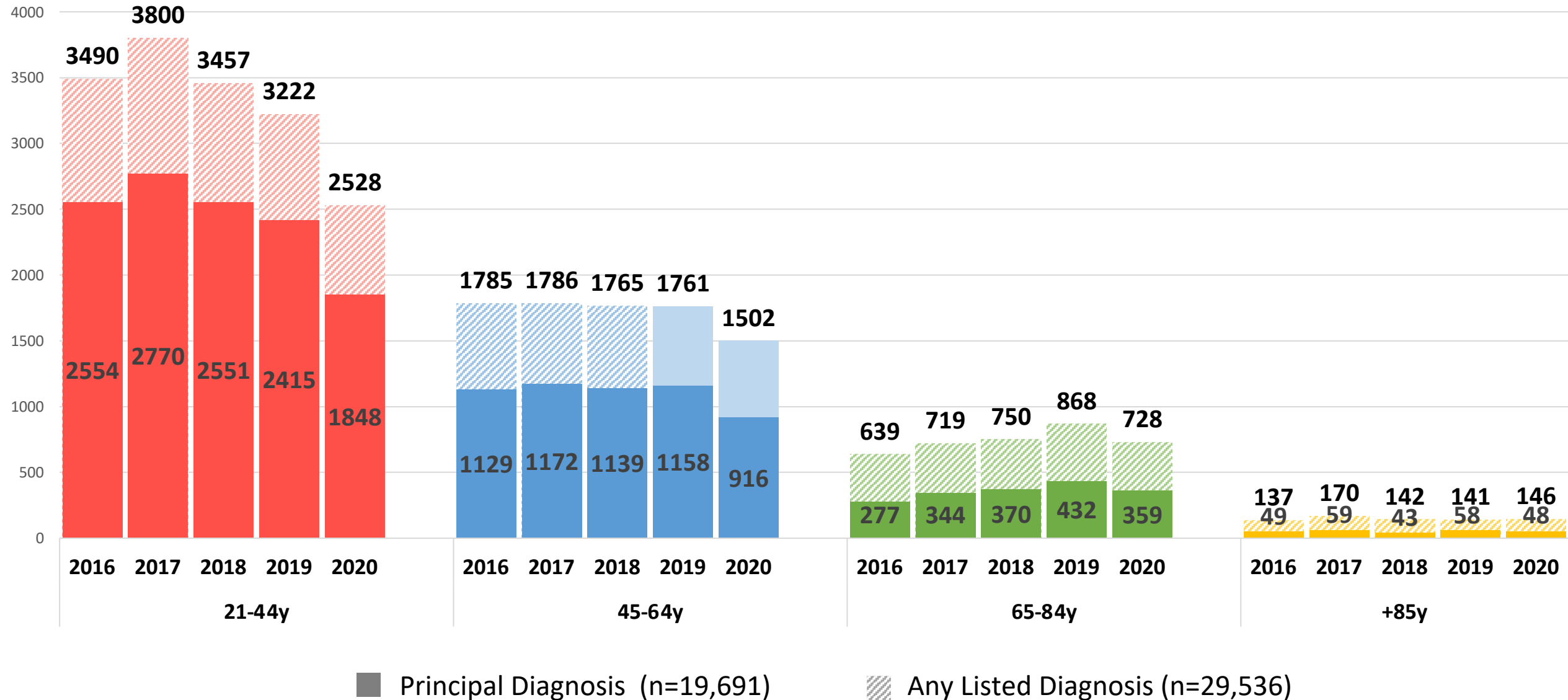
21-44y 45-64y 65-84y +85y

Any Listed Diagnosis (n=29,536)

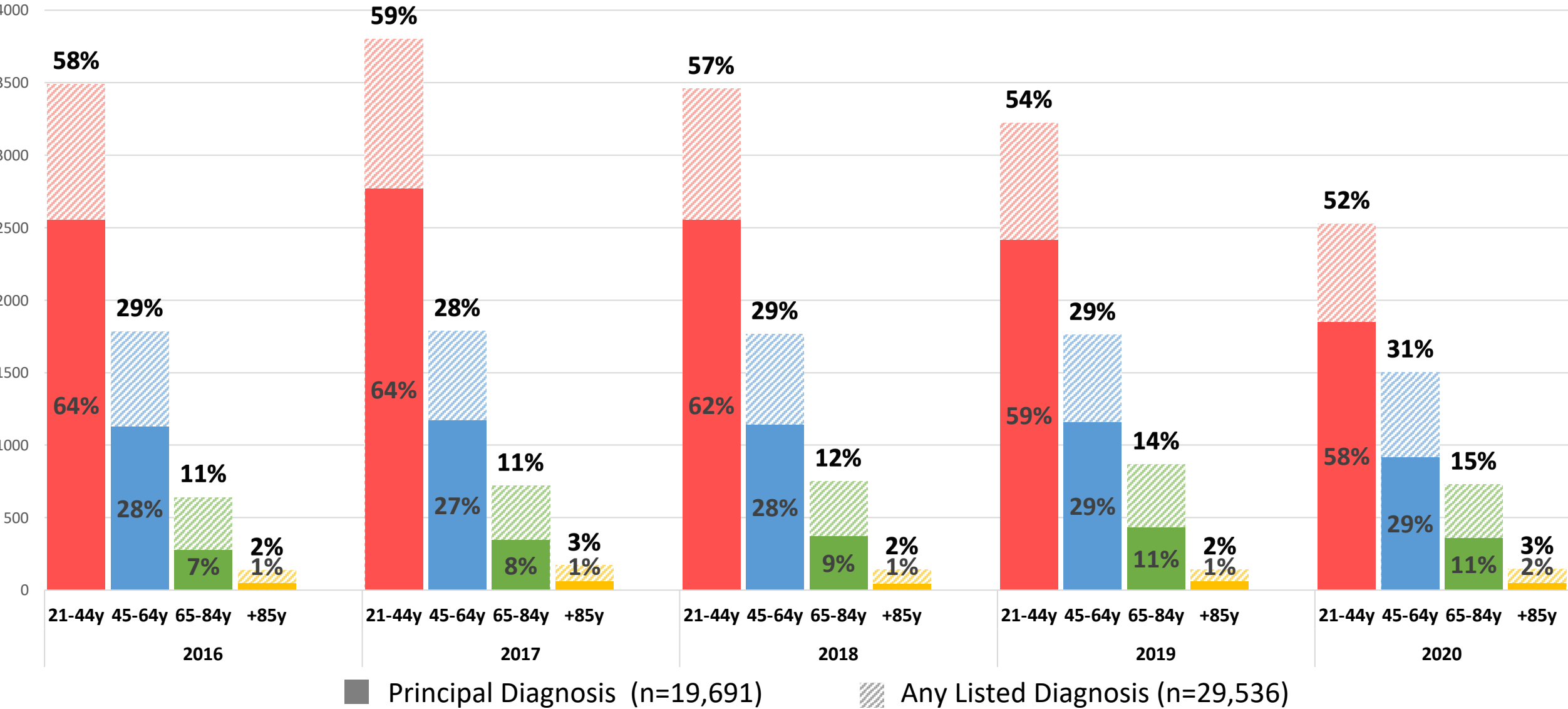


21-44y 45-64y 65-84y +85y

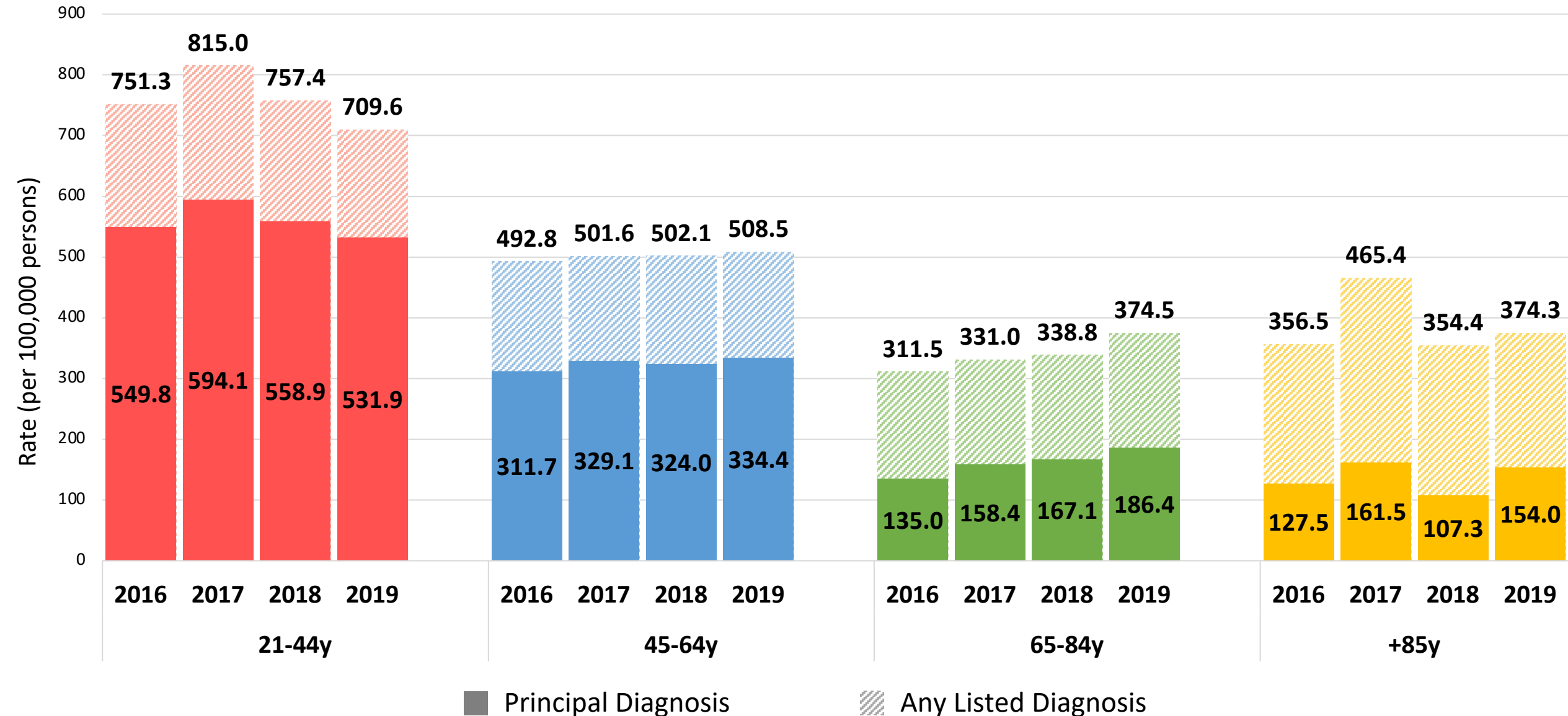
# ER Visits with a Dental-Related Diagnosis by Age Group: Hawaii 2016-2020



# ER Visits with a Dental-Related Diagnosis by Age Group: Hawaii 2016-2020

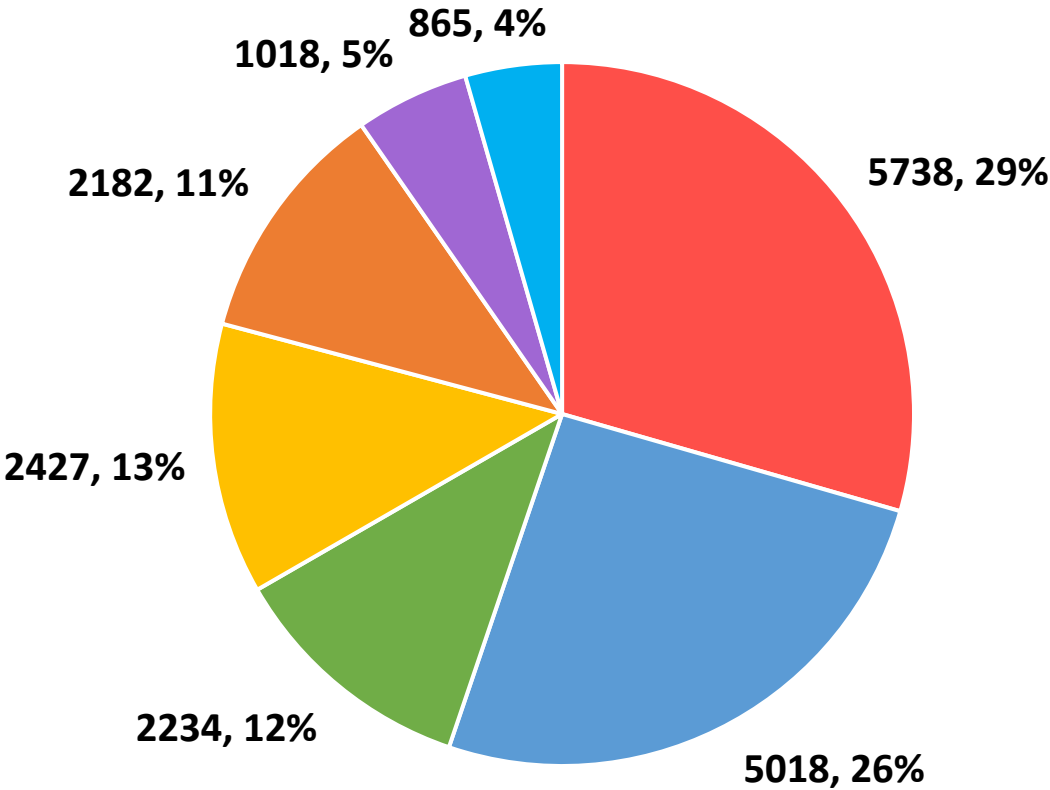


# Rates of ER Visits with a Dental-Related Diagnosis by Age Group: Hawaii 2016-2019

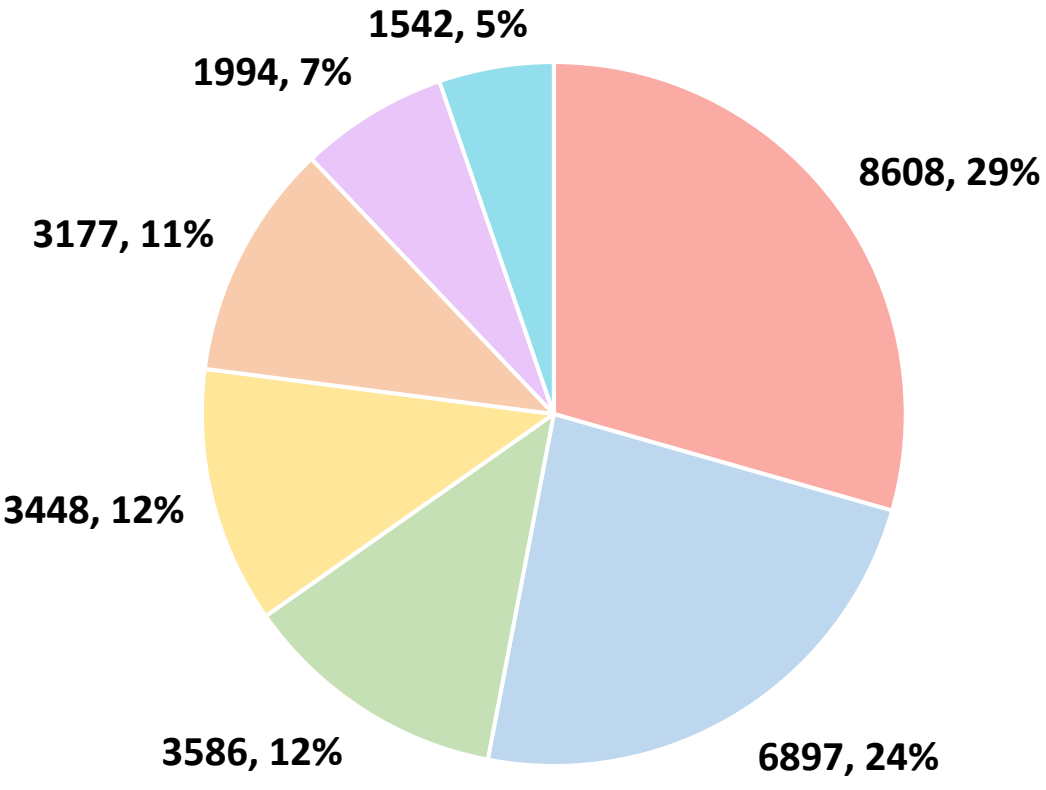


# ER Visits with a Dental-Related Diagnosis by Race/Ethnicity: Hawaii 2016-2020

**Principal Diagnosis (n=19,482)**



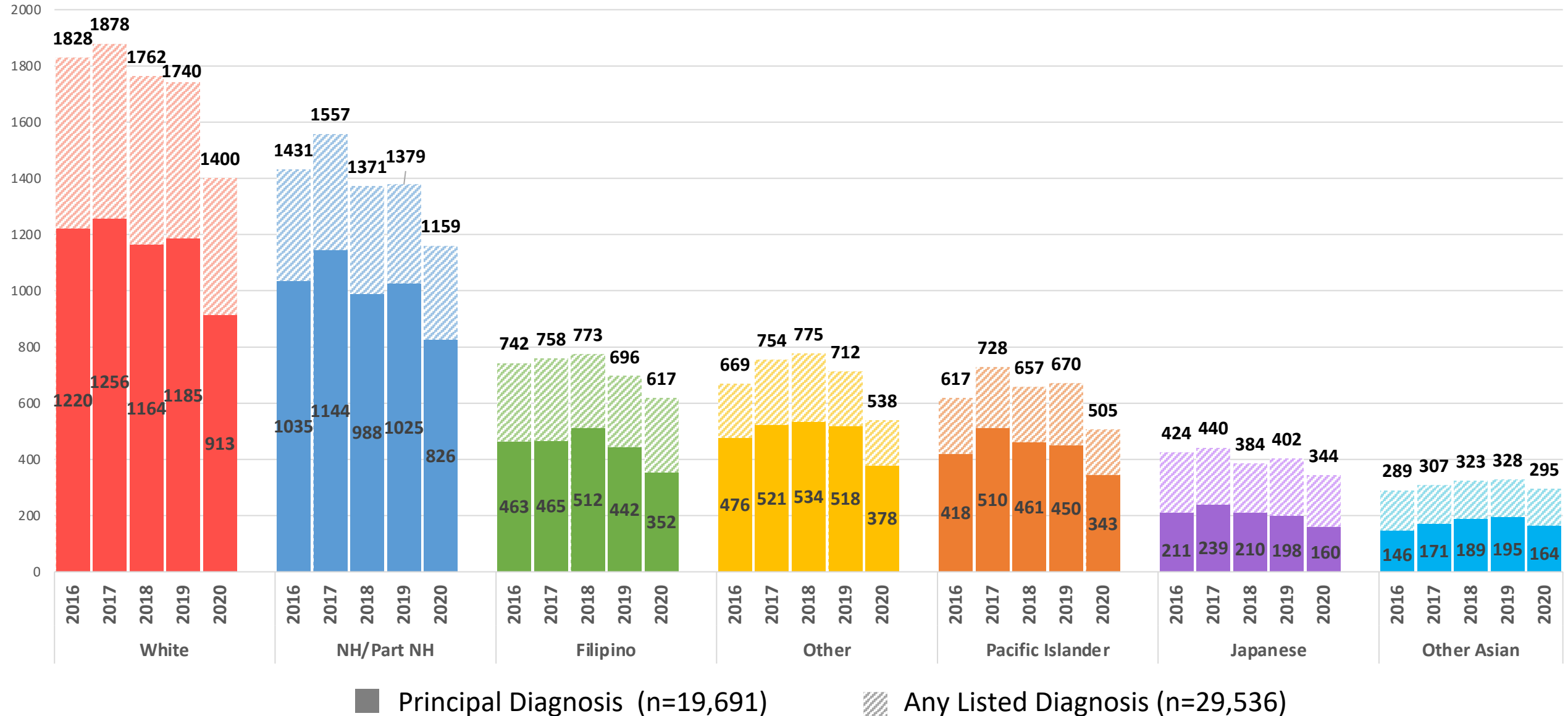
**Any Listed Diagnosis (n=29,252)**



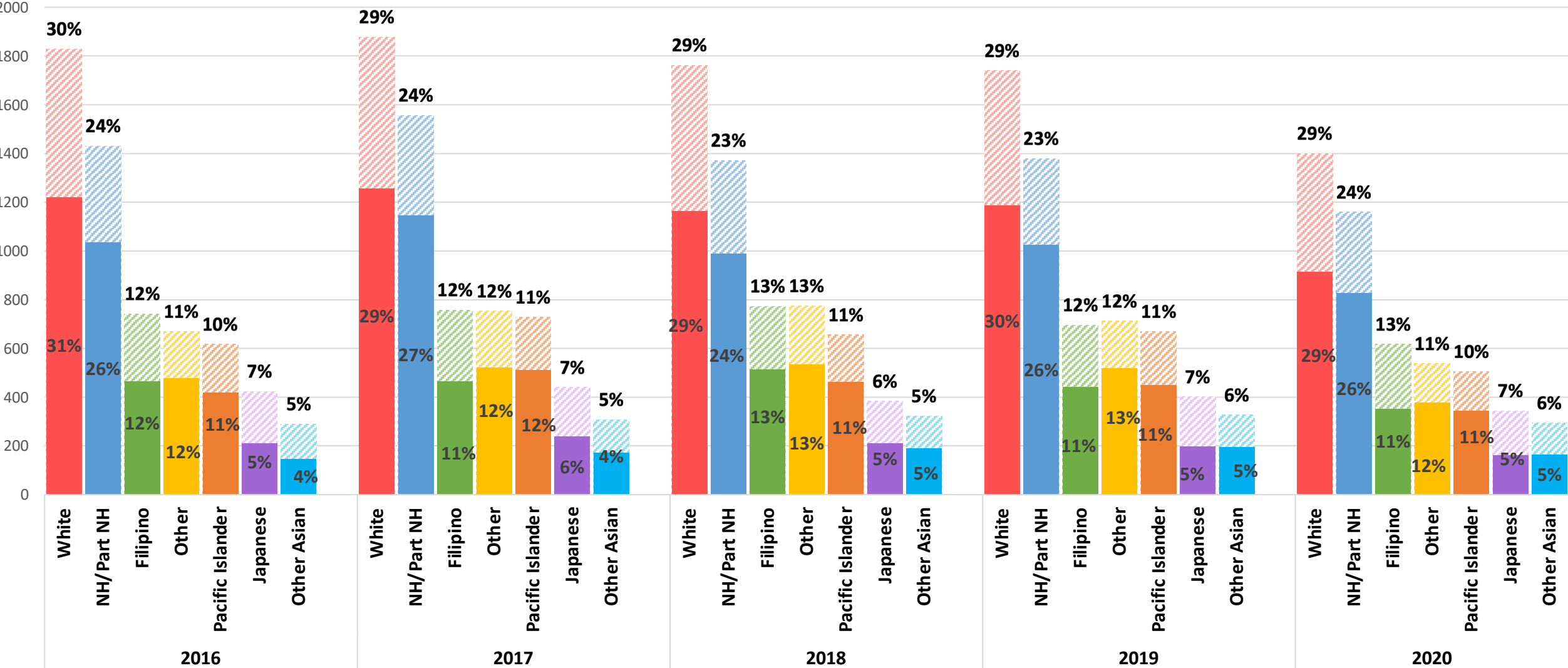
- White
- NH/Part NH
- Filipino
- Other
- Pacific Islander
- Japanese
- Other Asian

- White
- NH/Part NH
- Filipino
- Other
- Pacific Islander
- Japanese
- Other Asian

# ER Visits with a Dental-Related Diagnosis by Race/Ethnicity: Hawaii 2016-2020

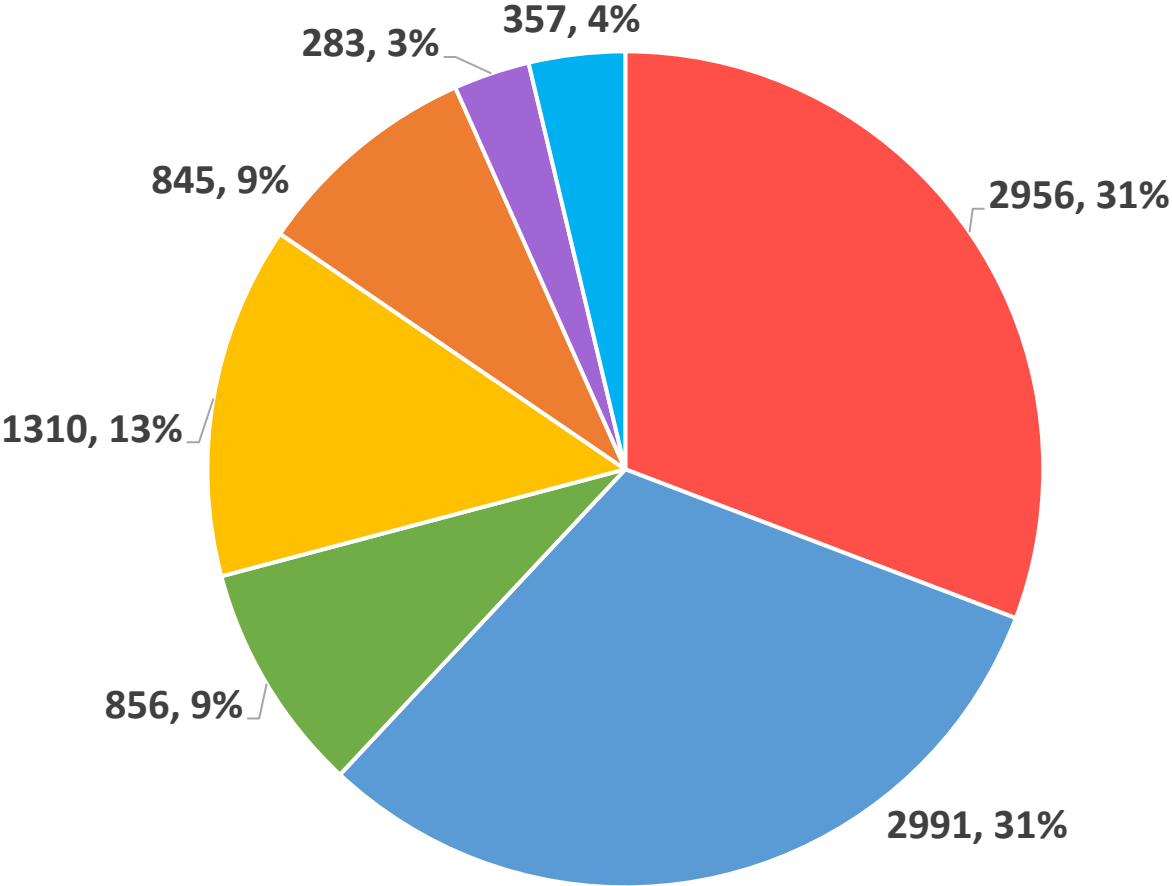


# ER Visits with a Dental-Related Diagnosis by Race/Ethnicity: Hawaii 2016-2020



Principal Diagnosis (n=19,691)
  Any Listed Diagnosis (n=29,536)

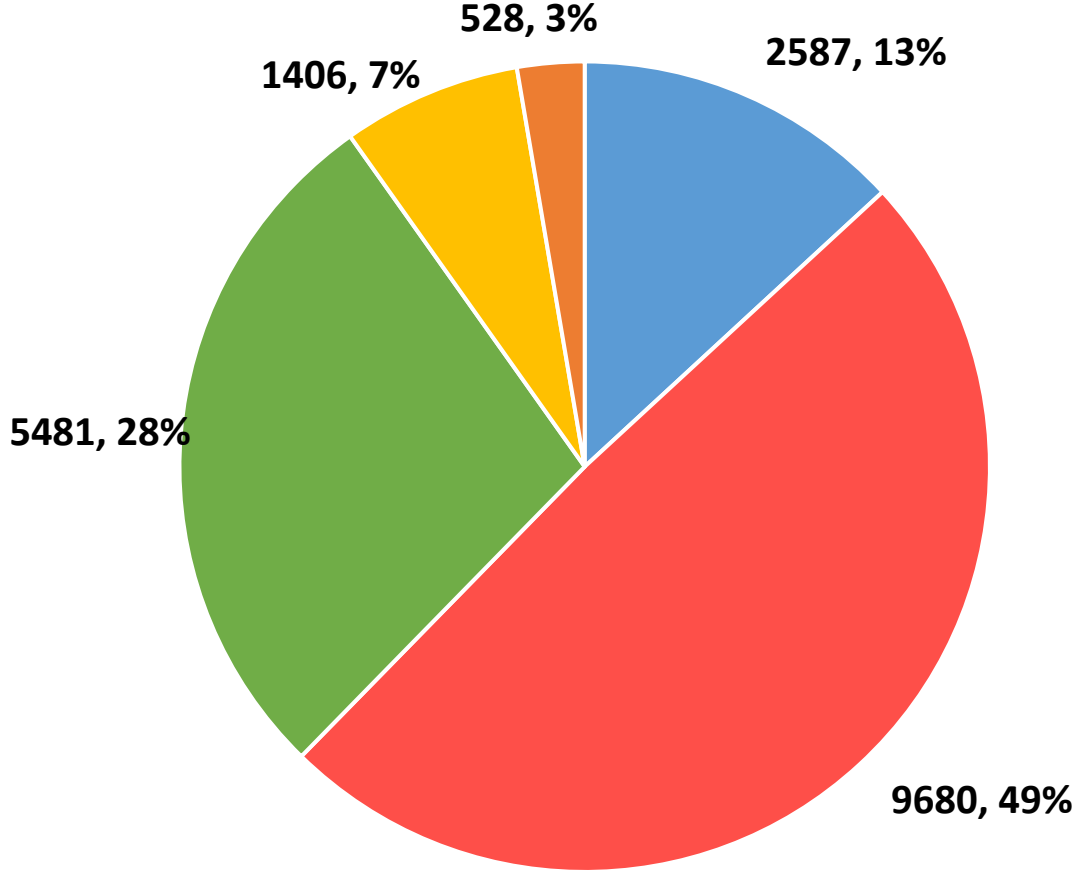
# Medicaid Recipients' ER Visits with a Dental-Related Diagnosis by Race/Ethnicity: Hawaii 2016-2020



■ White ■ NH/Part NH ■ Filipino ■ Other ■ Pacific Islander ■ Japanese ■ Other Asian

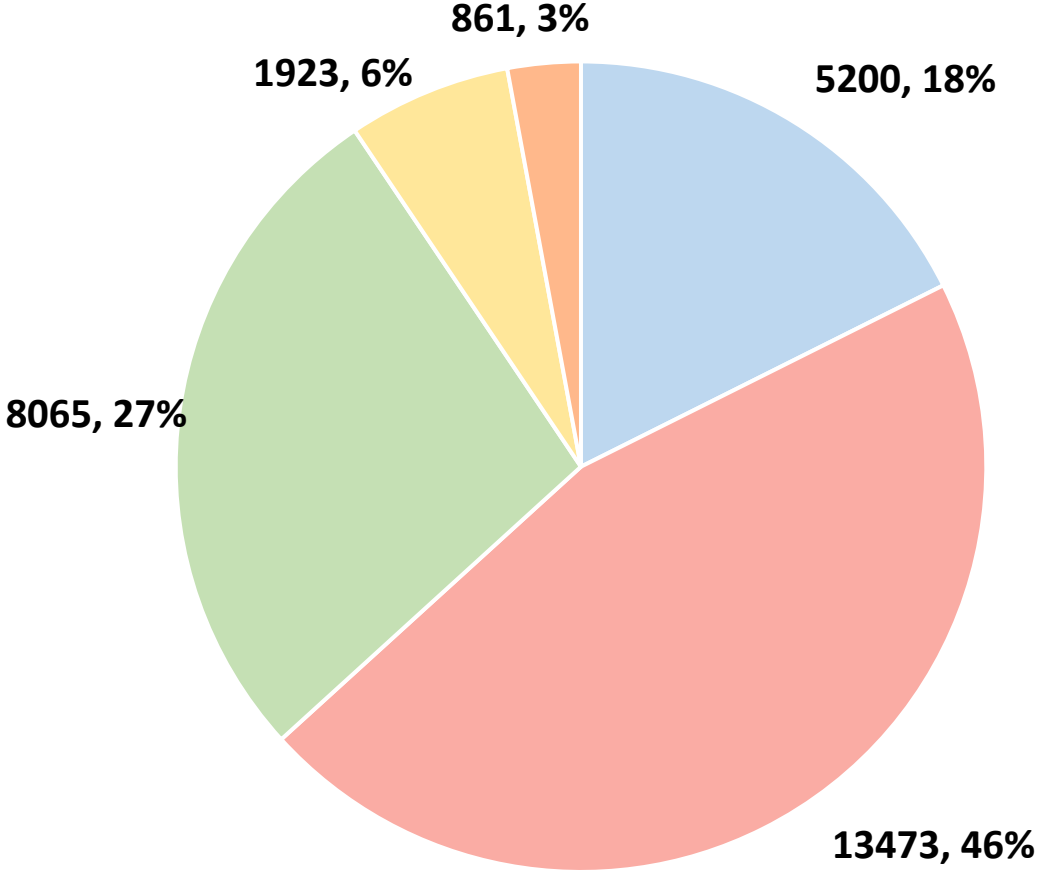
# ER Visits with a Dental-Related Diagnosis by Primary Source of Payment: Hawaii 2016-2020

### Principal Diagnosis (n=19,682)



■ Medicare ■ Medicaid ■ Private ■ Self-Pay ■ Other

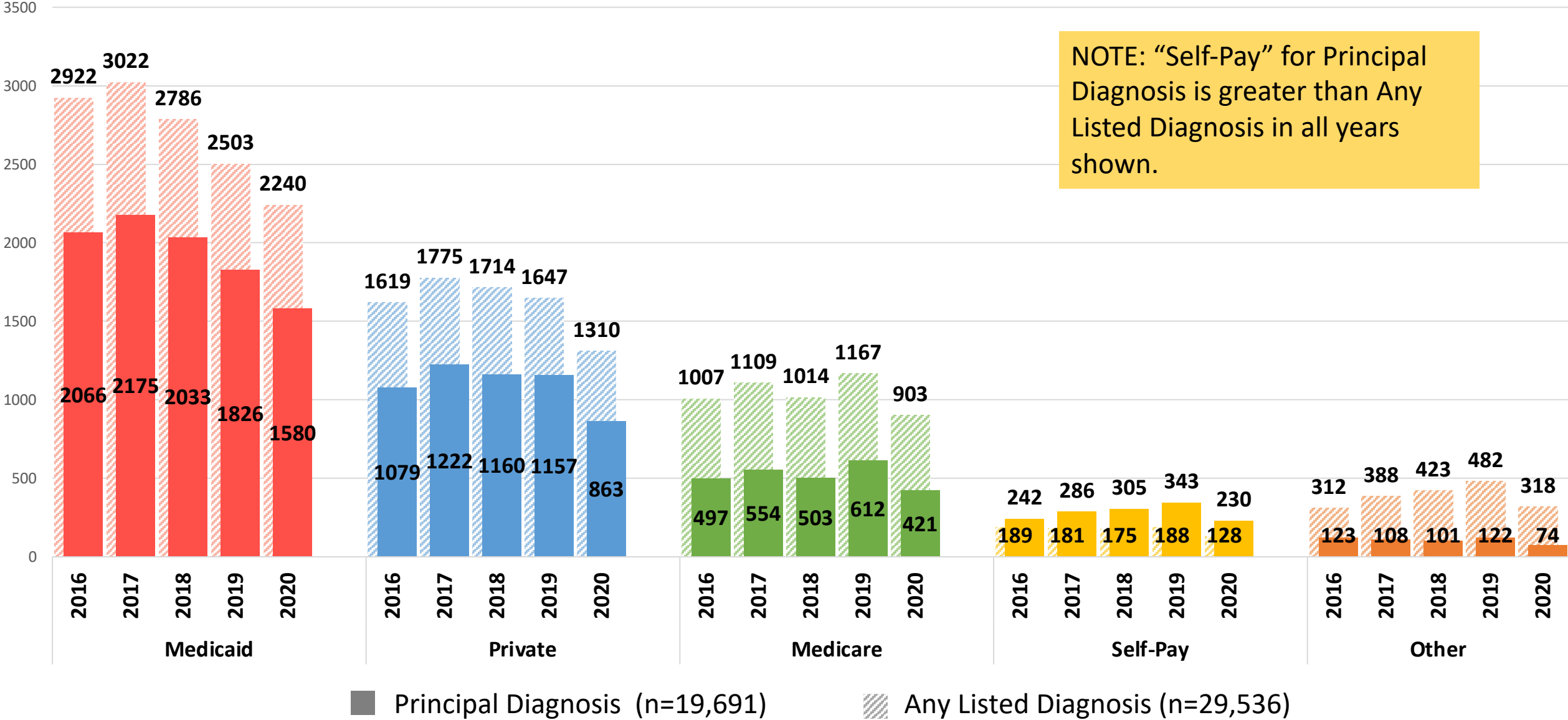
### Any Listed Diagnosis (n=29,522)



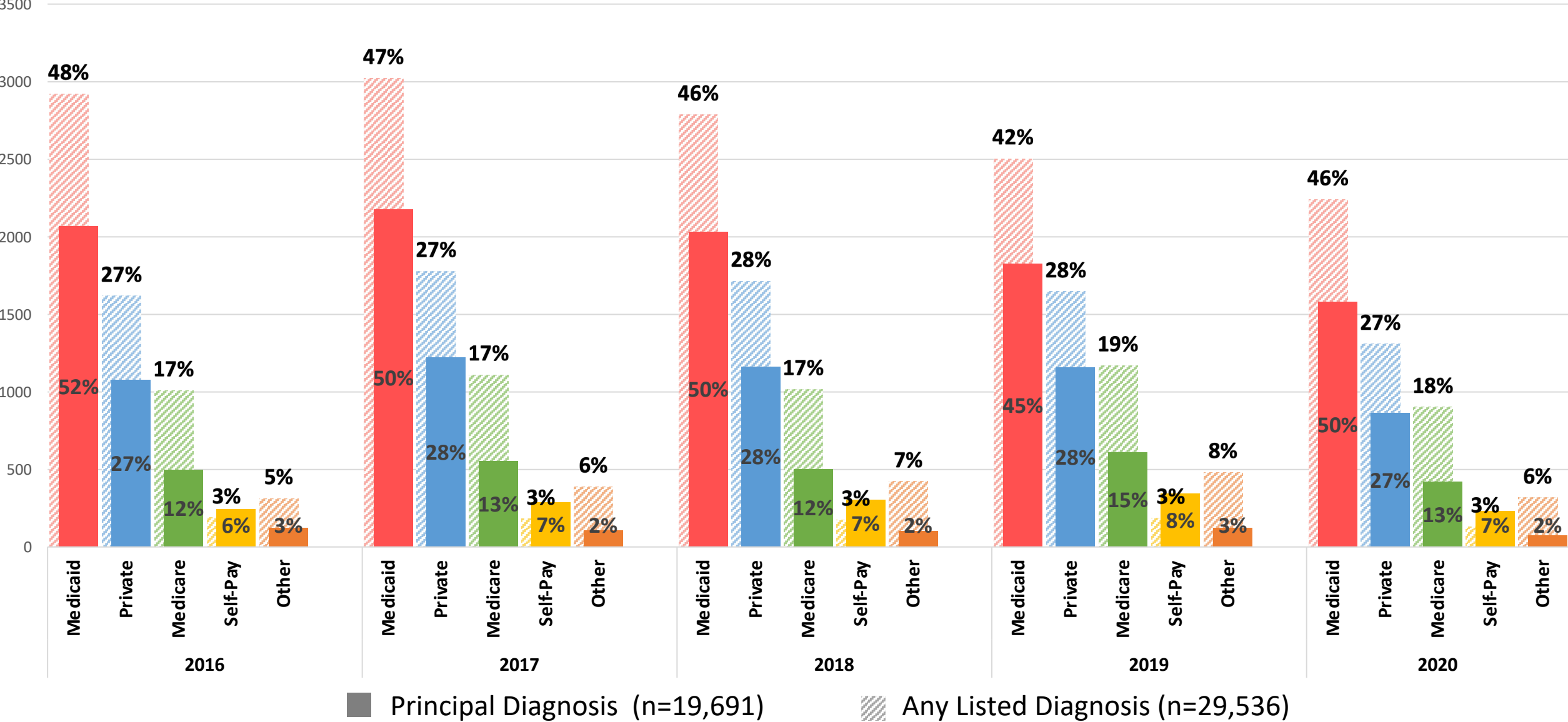
■ Medicare ■ Medicaid ■ Private ■ Self-Pay ■ Other

# ER Visits with a Dental-Related Diagnosis by Primary Source of Payment: Hawaii 2016-2020

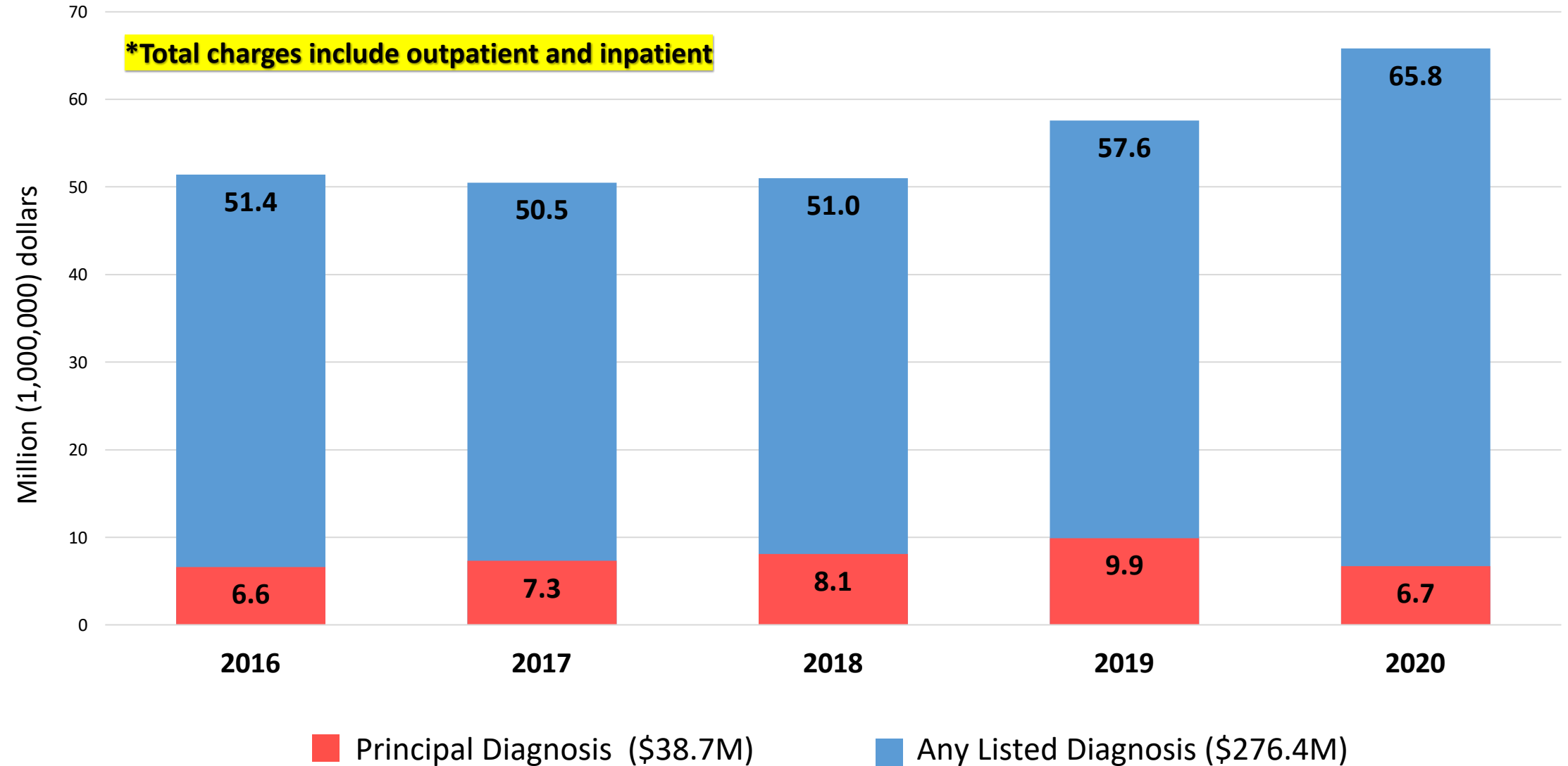
NOTE: "Self-Pay" for Principal Diagnosis is greater than Any Listed Diagnosis in all years shown.



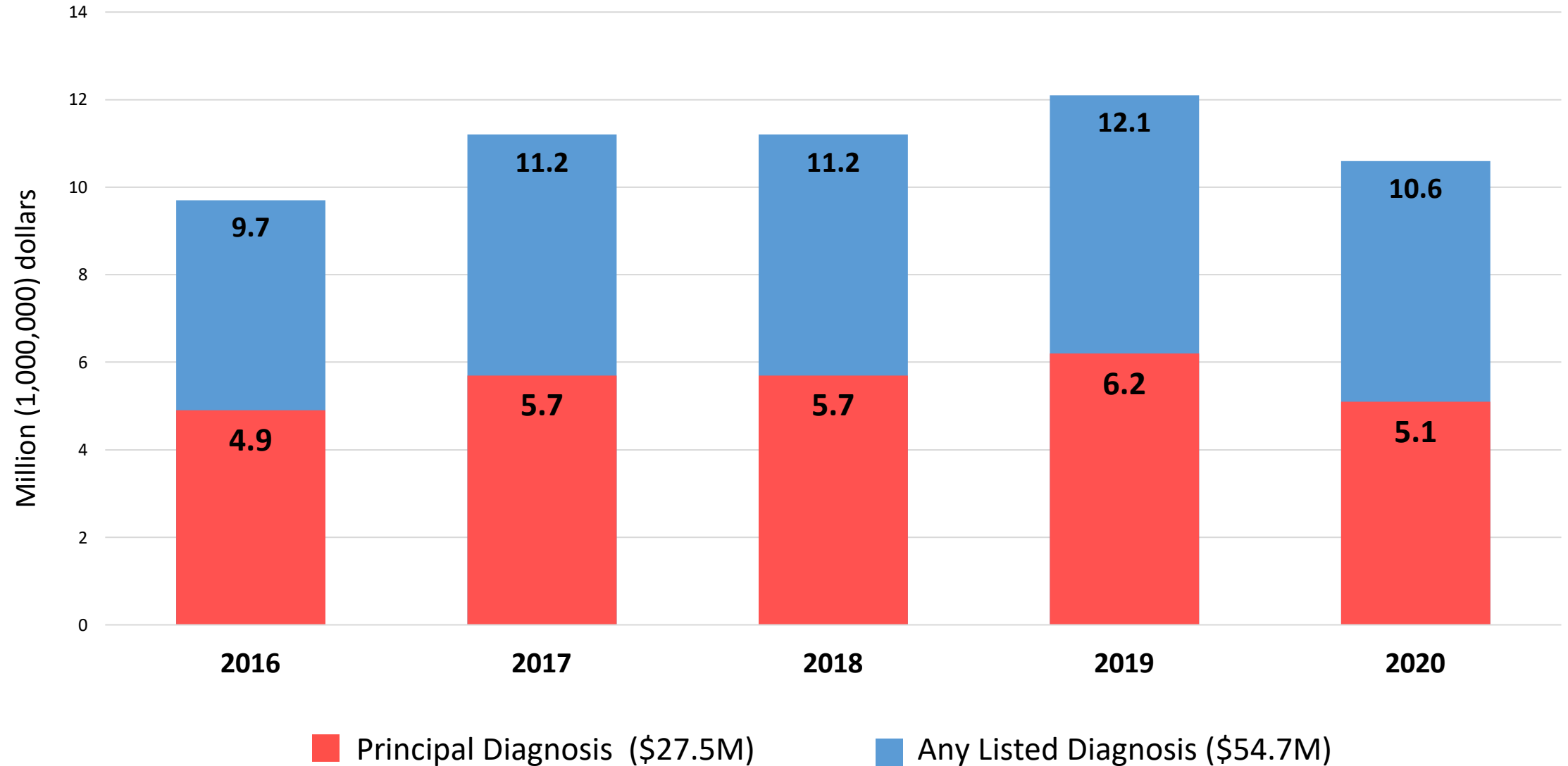
# ER Visits with a Dental-Related Diagnosis by Primary Source of Payment: Hawaii 2016-2020



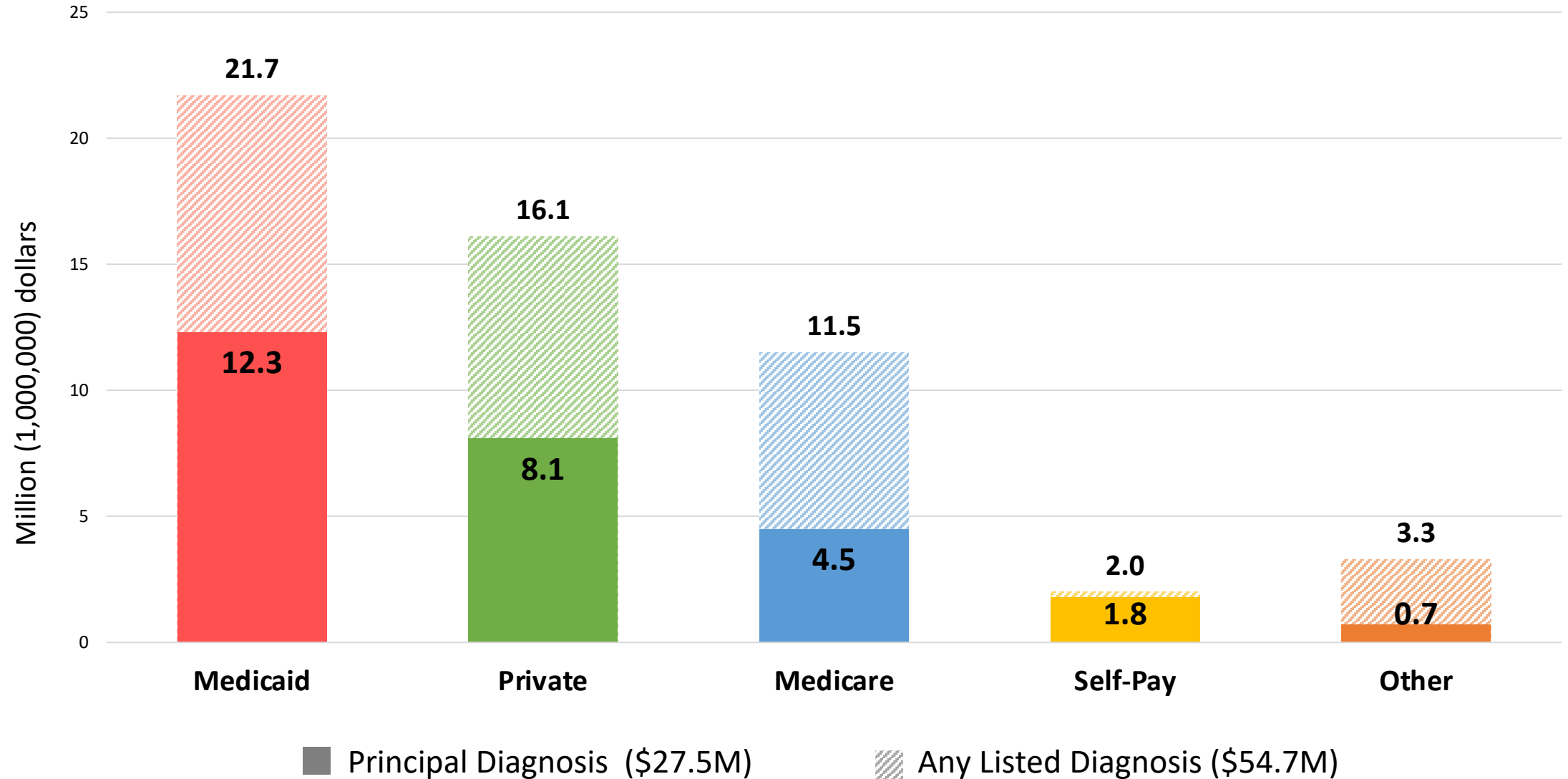
# Cumulative Total Charges for ER Visits with a Dental-Related Diagnosis: Hawaii 2016-2020



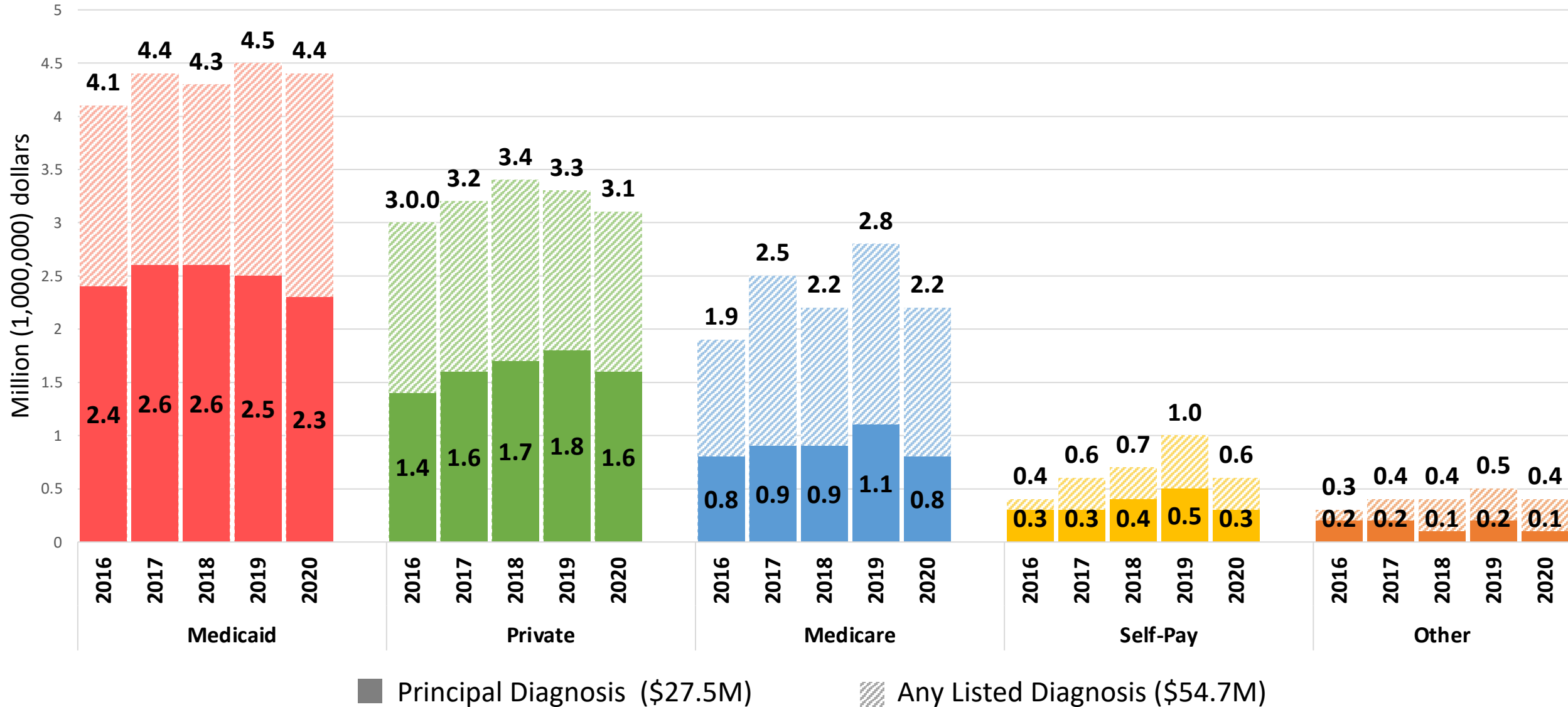
# Cumulative Total Charges for Outpatient ER Visits with a Dental-Related Diagnosis: Hawaii 2016-2020



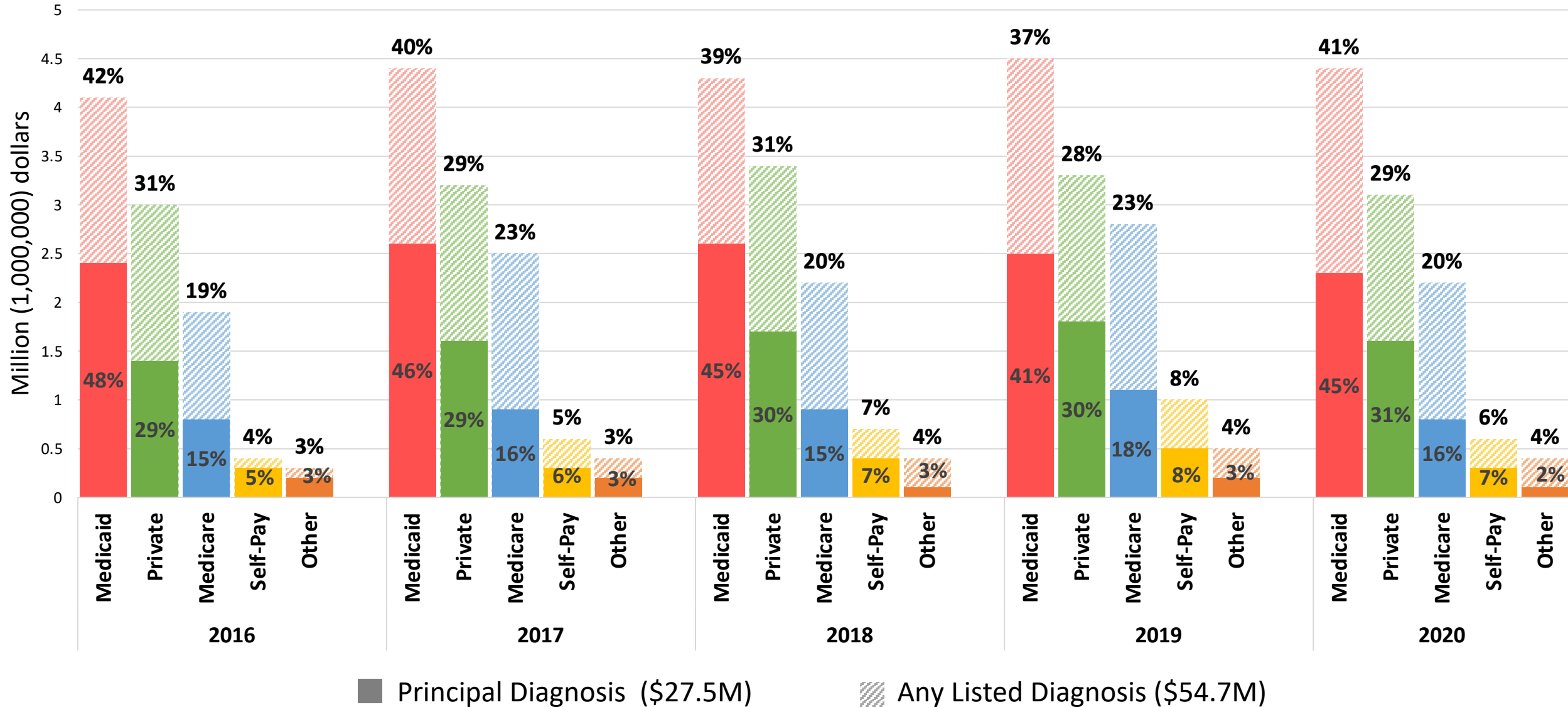
# Cumulative Total Charges for Outpatient ER Visits with a Dental-Related Diagnosis by Primary Source of Payment: Hawaii 2016-2020



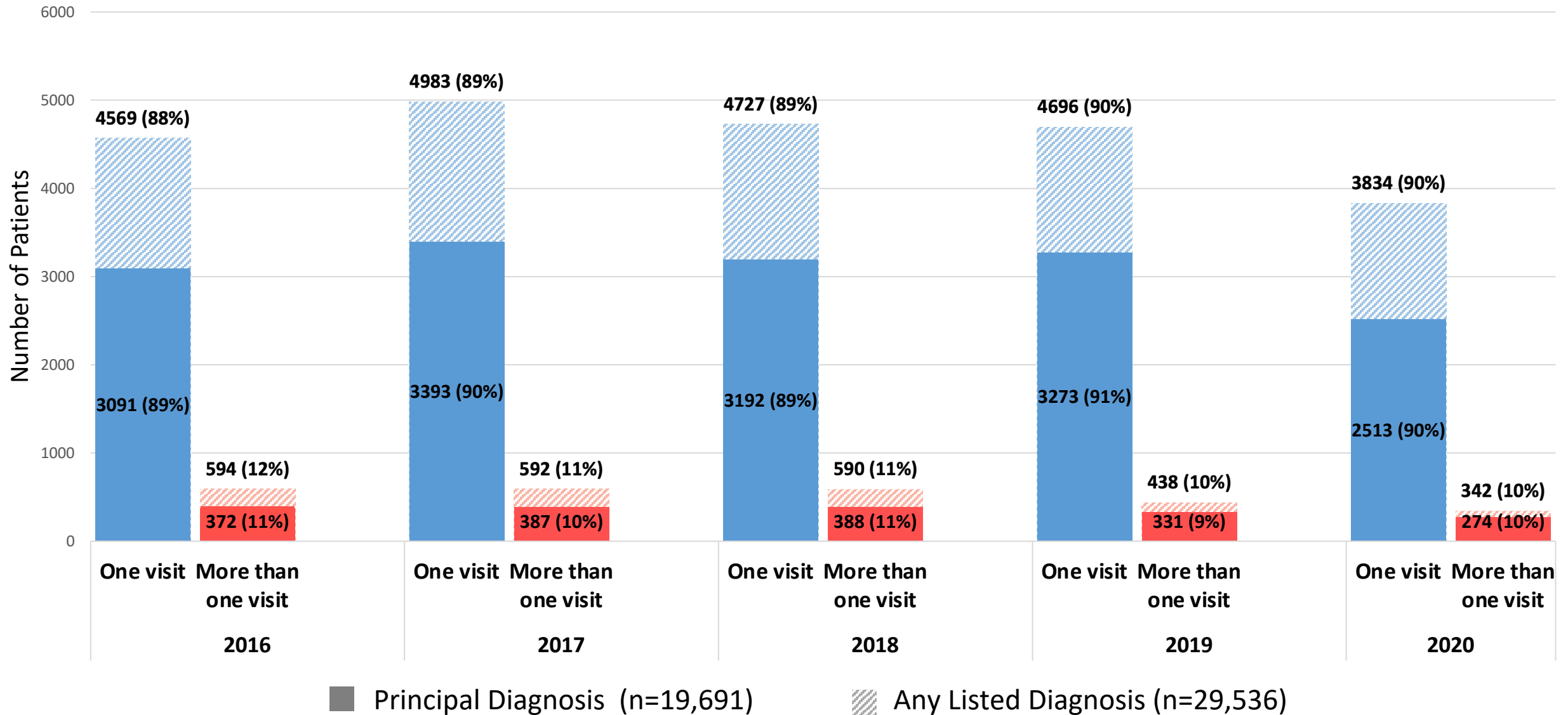
# Cumulative Total Charges for Outpatient ER Visits with a Dental-Related Diagnosis by Primary Source of Payment: Hawaii 2016-2020



# Cumulative Total Charges for Outpatient ER Visits with a Dental-Related Diagnosis by Primary Source of Payment: Hawaii 2016-2020



# Number of Patients with a Dental-Related Diagnosis by Frequency: Hawaii 2016-2020



# Summary of Findings for Adult ER visits with a dental-related diagnosis: Hawaii 2016-2020

1. There was a total of 29,536 ER visits with a dental related diagnosis by adults aged 21 years and older
2. 67% (19,691) of the adult visits had a principal dental diagnosis that they visited the ER for treatment
3. A significant proportion of the ER visits with a principal dental-related diagnosis were treated:
  - in Honolulu County (56%, 11,118)
  - for those aged 21-44 years old (62%, 12,138)
  - for Medicaid recipients (49%, 9,680)
  - for Native Hawaiian/Part Native Hawaiian (24%, 5,018) patients
4. Medicaid claims constituted 45% of the cumulative total charges for the ER visits with a principal dental-related diagnosis (12.3M/27.5M)
5. An average of 11% of patients who visited ER for dental-related conditions revisited the ER at least once in the same year
6. Higher rates of ER visits with a dental-related diagnosis were found for Hawaii County, Kauai County, and in 21-44 year old patients.

# Study References

- Manz MC. 2021. Recommended guidelines for surveillance of non-traumatic dental care in emergency department (updated April 2021). <https://www.astdd.org/docs/ed-dental-care-protocols-w-appendices.pdf>.
- Owens PL (AHRQ), Manski RJ (AHRQ), Weiss AJ (IBM Watson Health). Emergency Department Visits Involving Dental Conditions, 2018. HCUP Statistical Brief #280. August 2021. Agency for Healthcare Research and Quality, Rockville, MD. [www.hcup-us.ahrq.gov/reports/statbriefs/sb280-Dental-ED-Visits-2018.pdf](http://www.hcup-us.ahrq.gov/reports/statbriefs/sb280-Dental-ED-Visits-2018.pdf).
- Sorensen AC, Wood B, Prince WE. 2003. Developing a common language for public health surveillance in Hawaii. California J Health Promotion. 1: Special Issue: Hawaii, 91-104.



HAWAI'I ORAL HEALTH COALITION

## Questions or Comments?

For further information on this study, please contact:  
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