

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)

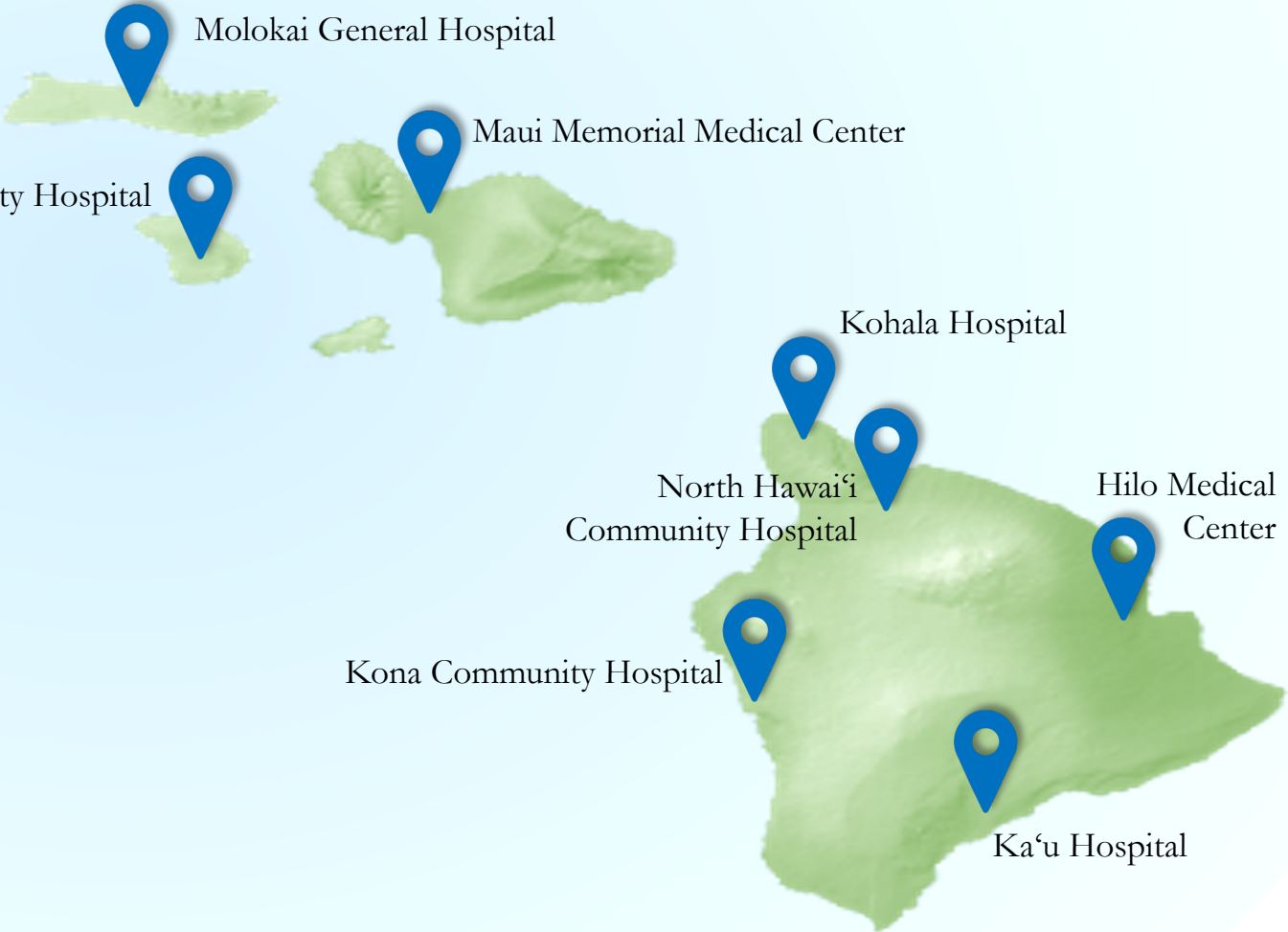
Study Limitations

- 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



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/27.5M)
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 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 (≥ 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

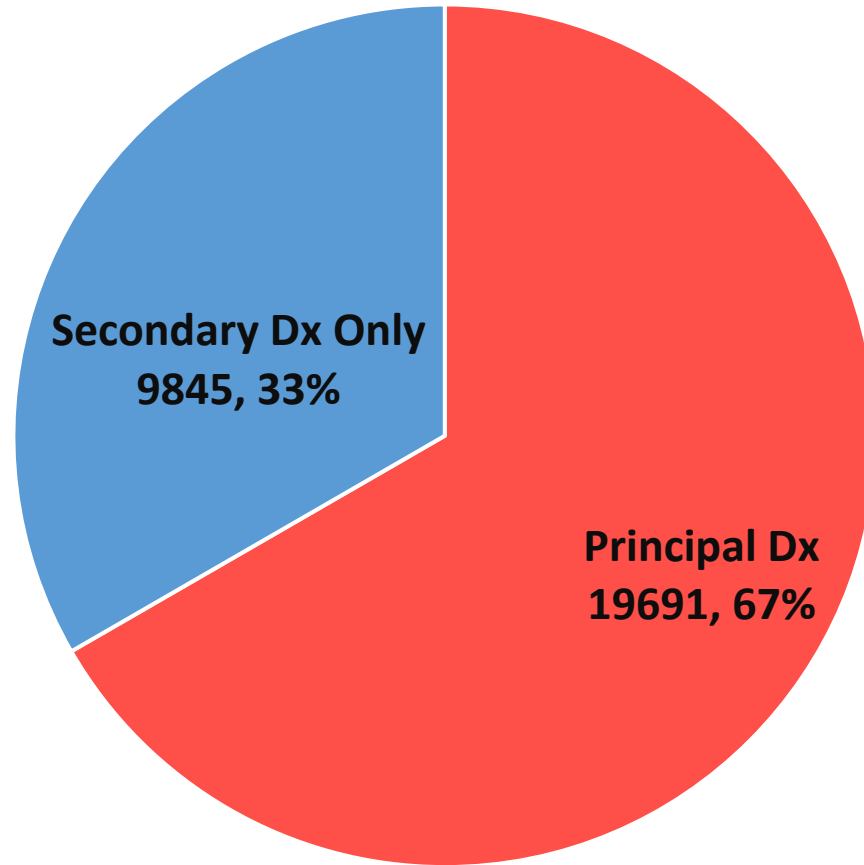
- Frequency (%) of ER visits with a principal dental-related diagnosis and with any listed dental-related diagnosis
 - Identified by the ICD-10 codes for non-traumatic dental conditions (ASTDD)
 - Principal diagnosis: a first-listed diagnosis
 - Any listed diagnosis: a first-listed and/or a secondary 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 |

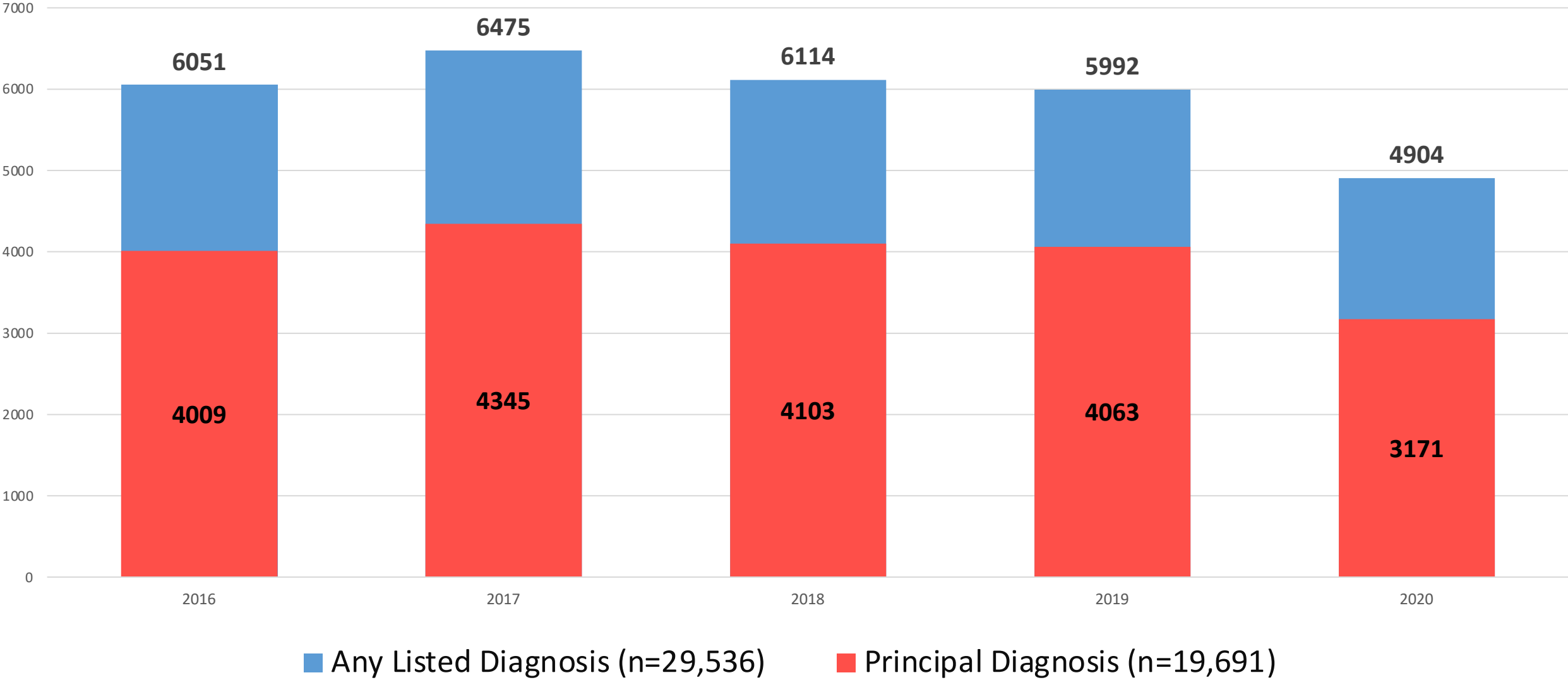
Study Results

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

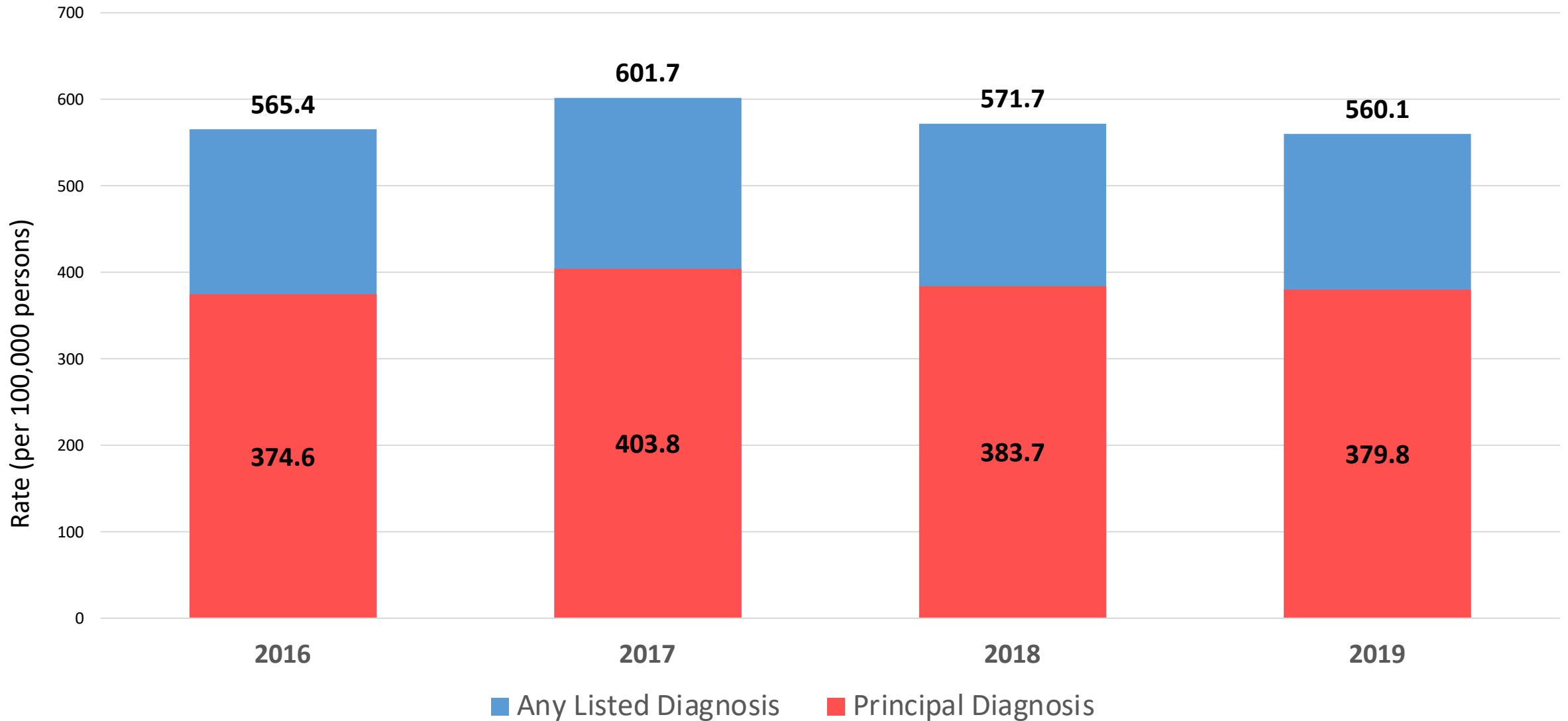


■ Principal Dx ■ Secondary Dx Only

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

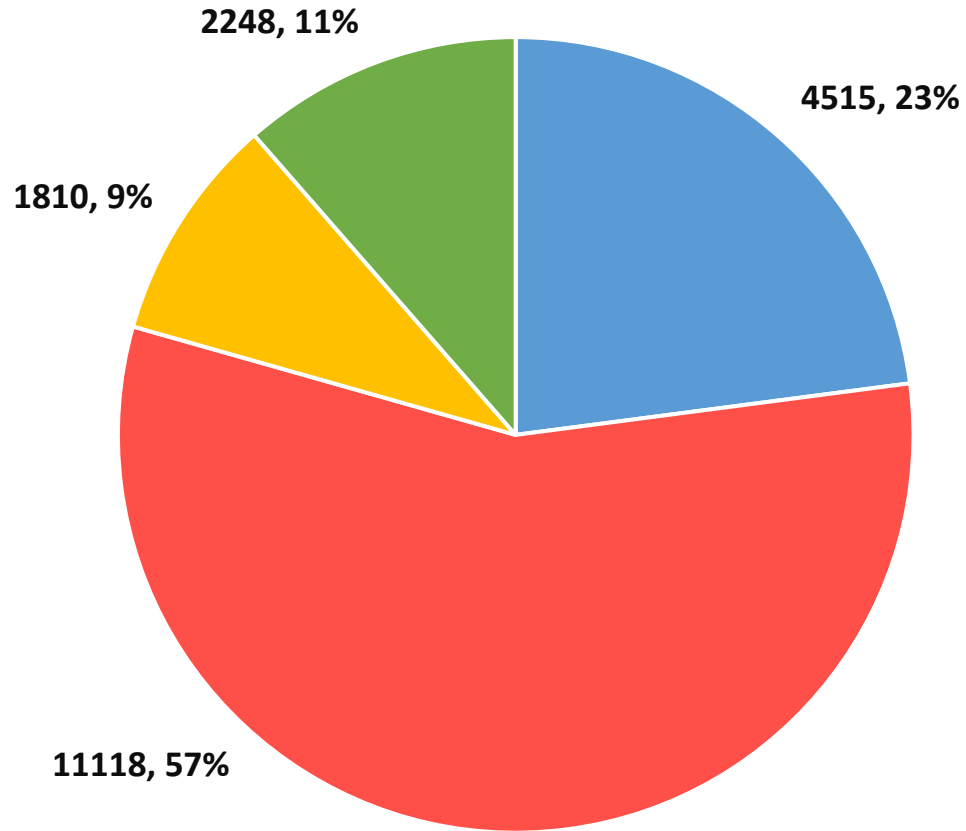


Rates of ER Visits with a Dental-Related Diagnosis: Hawaii 2016-2019



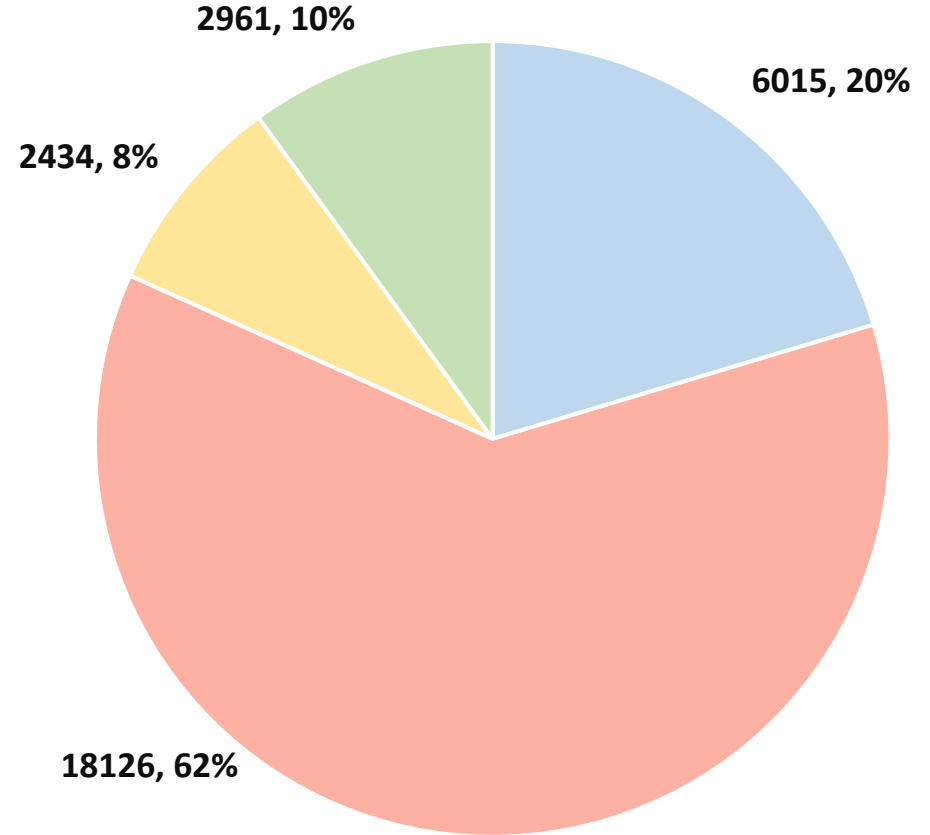
ER Visits with a Dental-Related Diagnosis by County of Residence: Hawaii 2016-2020

Principal Diagnosis (n=19,691)



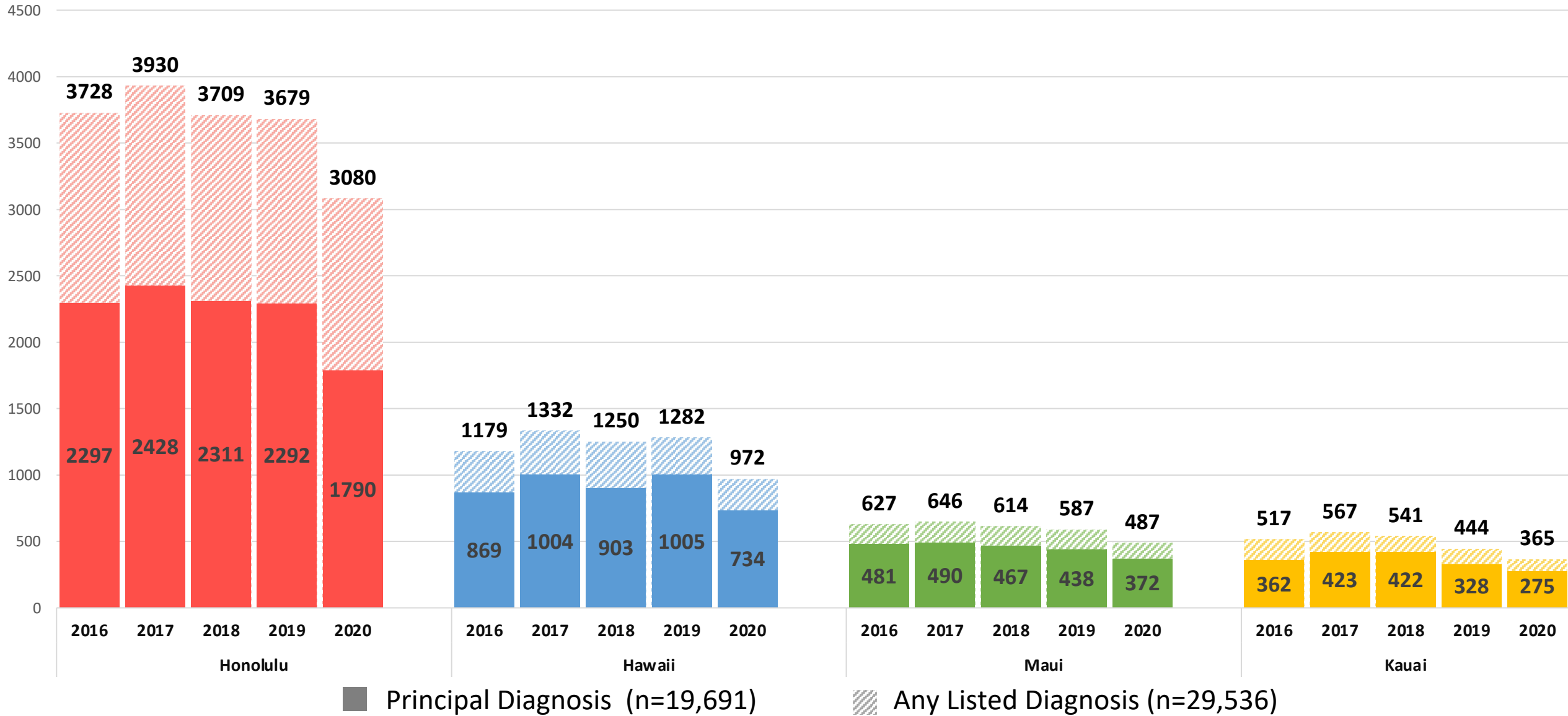
■ Hawaii ■ Honolulu ■ Kauai ■ Maui

Any Listed Diagnosis (n=29,536)

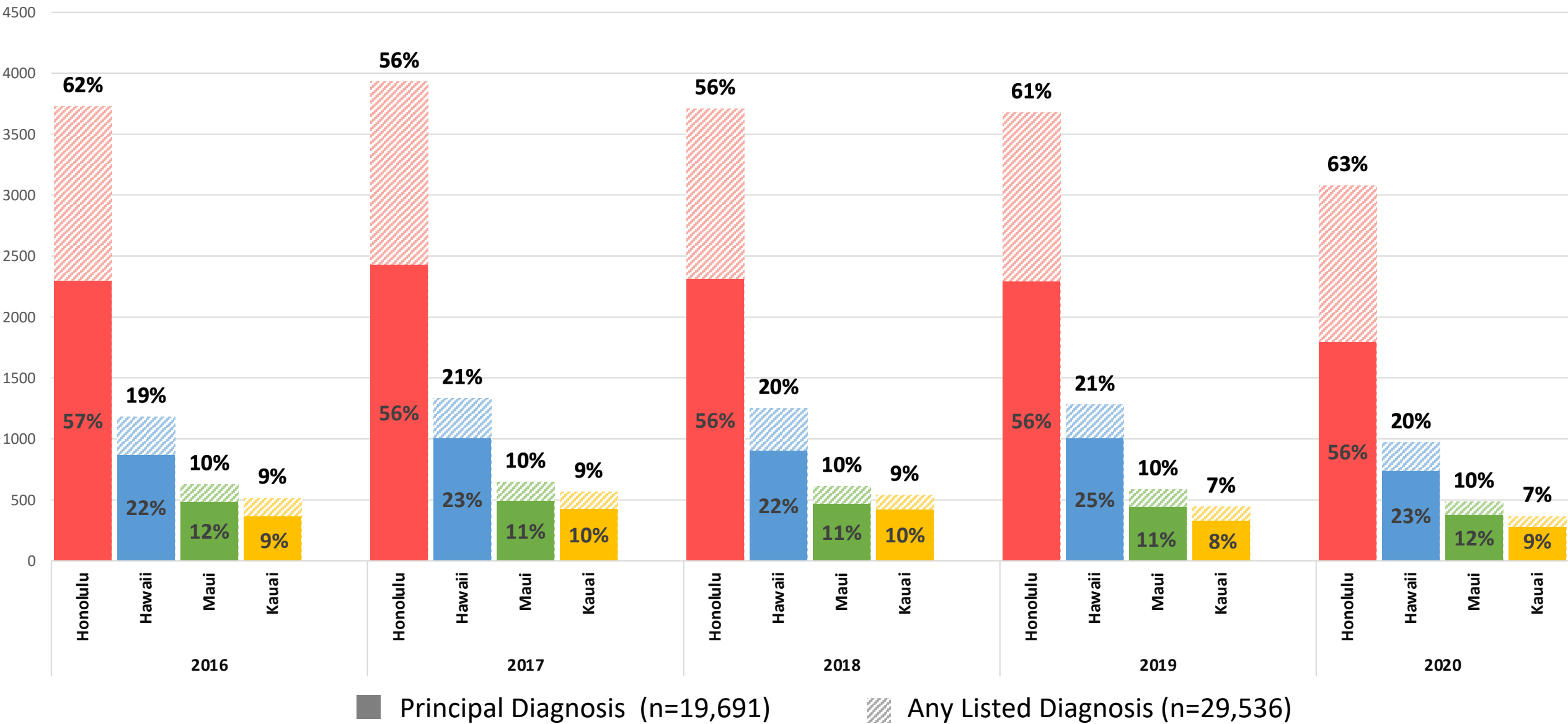


■ Hawaii ■ Honolulu ■ Kauai ■ Maui

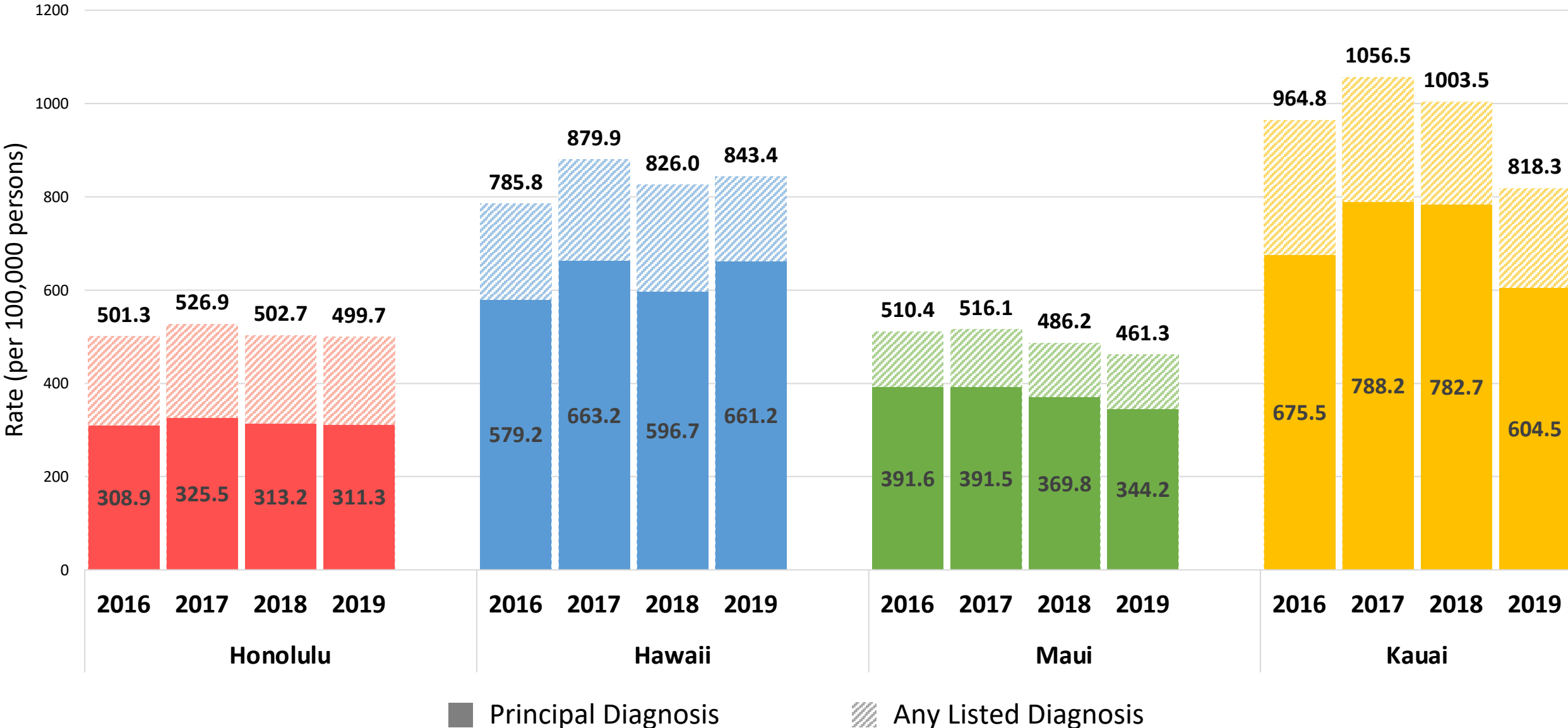
ER Visits with a Dental-Related Diagnosis by County of Residence: Hawaii 2016-2020



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

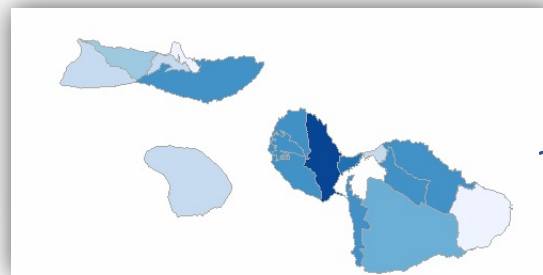
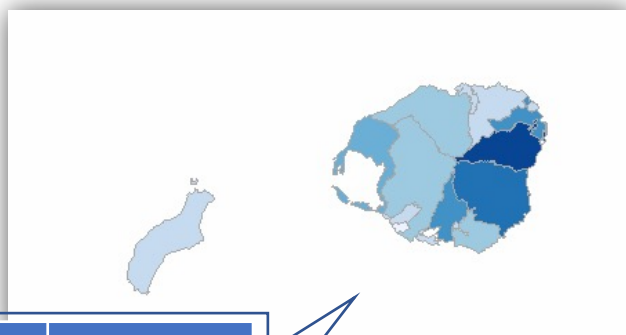
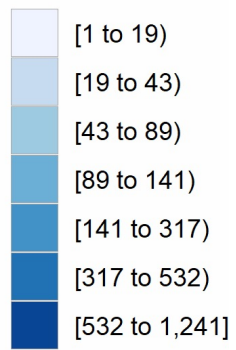


Rates of ER Visits with a Dental-Related Diagnosis by County of Residence: Hawaii 2016-2019



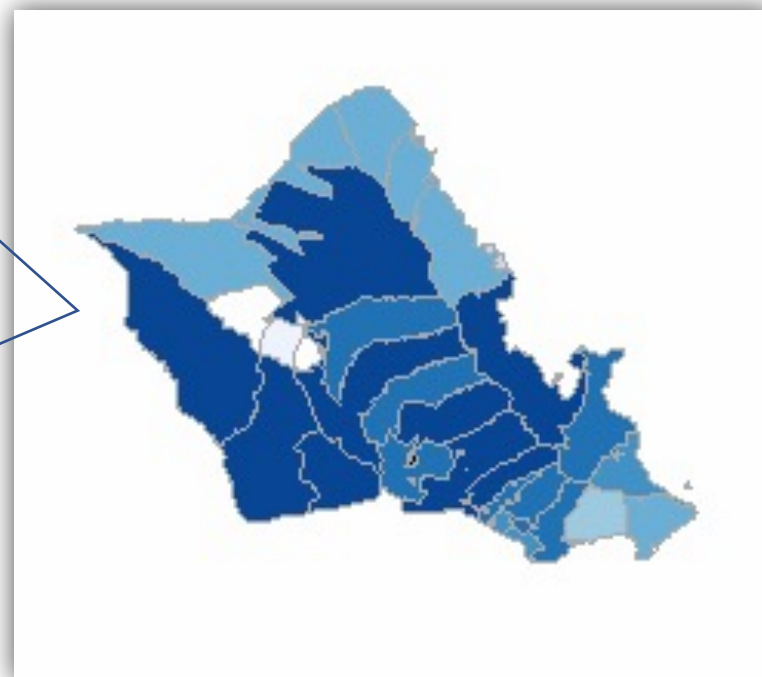
ER Visits with a Principal Dental-Related Diagnosis by Zip Code (map) and Community Area (table): Hawaii 2016-2020

ER visits

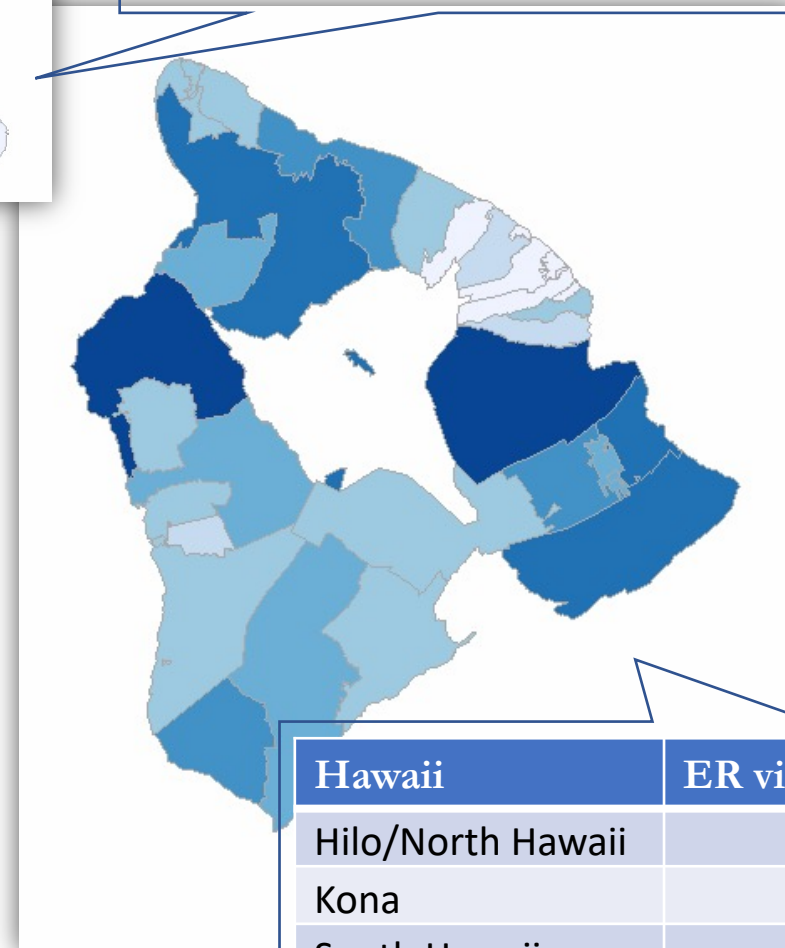


| Maui | ER visits |
|-------------------------|-----------|
| West/Central Maui | 1477 |
| Molokai/Lanai/East Maui | 771 |

| Kauai | ER visits |
|------------------|-----------|
| East Kauai | 1125 |
| North/West Kauai | 685 |



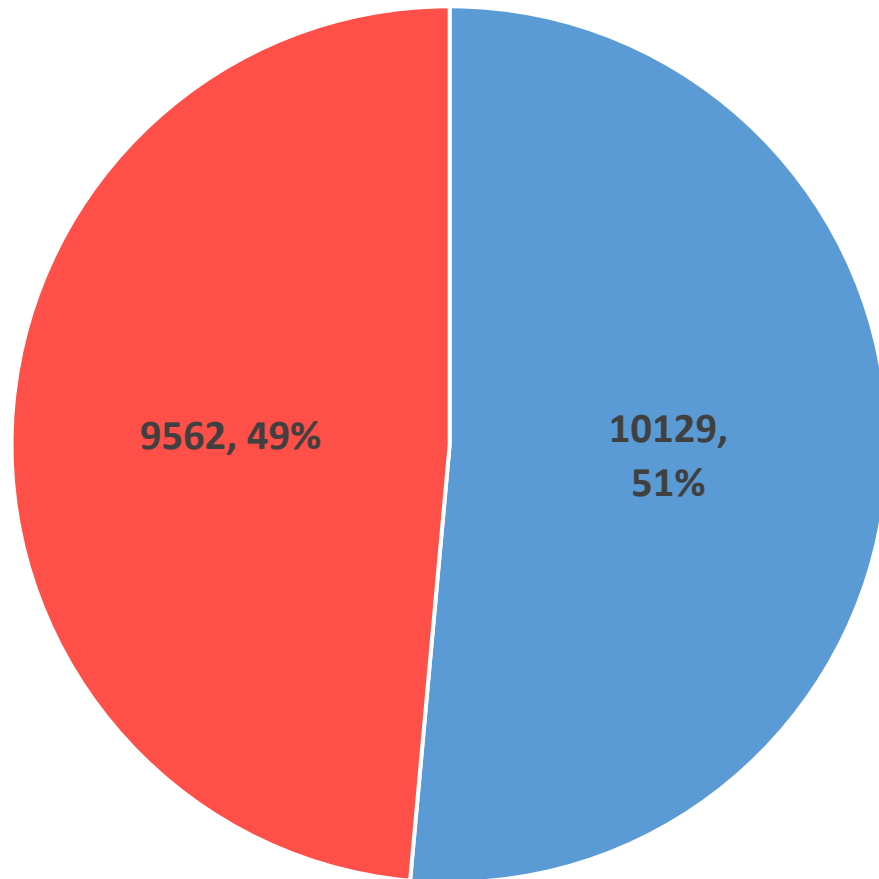
| Honolulu | ER visits |
|------------------|-----------|
| Ewa | 2272 |
| West Honolulu | 1816 |
| Central Honolulu | 1763 |
| North Shore | 1417 |
| Pearl City/Aiea | 1351 |
| Kaneohe/Kailua | 1264 |
| Waianae | 704 |
| East Honolulu | 531 |



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

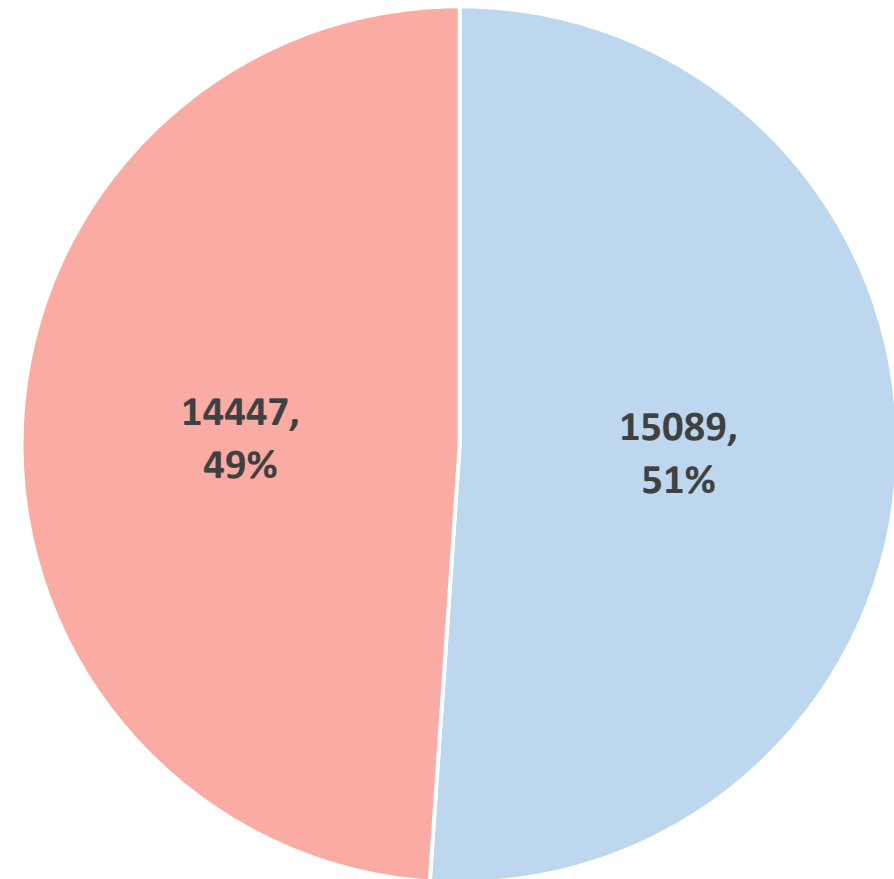
ER Visits with a Dental-Related Diagnosis by Sex: Hawaii 2016-2020

Principal Diagnosis (n=19,691)



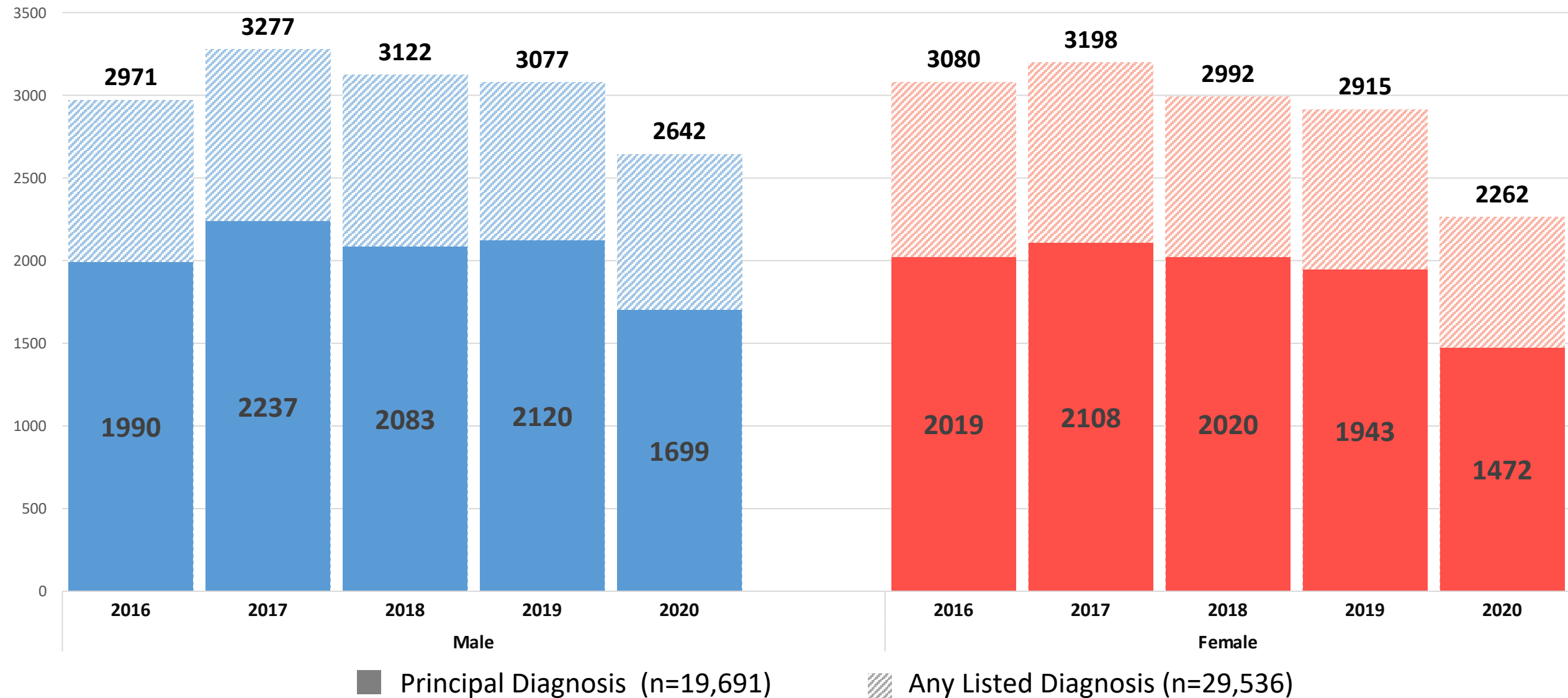
■ Male ■ Female

Any Listed Diagnosis (n=29,536)

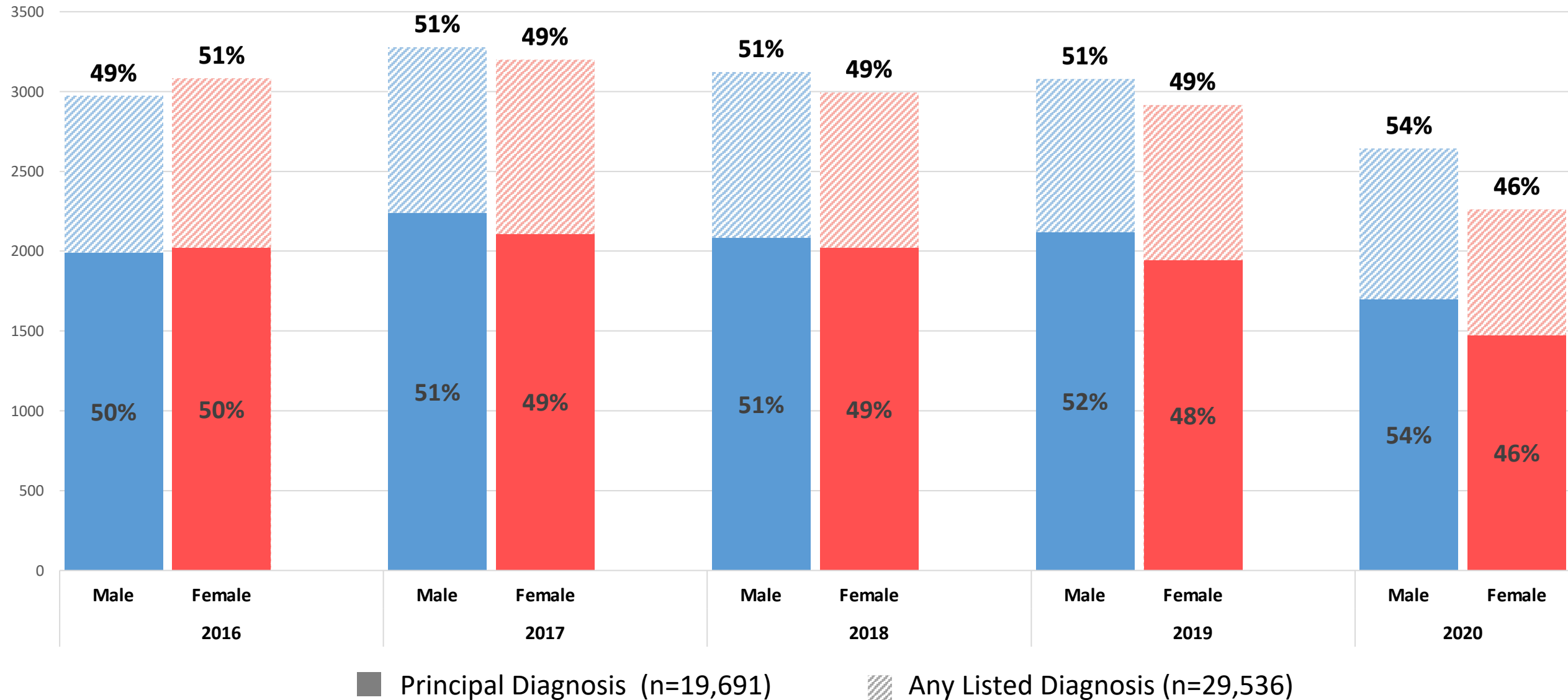


■ Male ■ Female

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

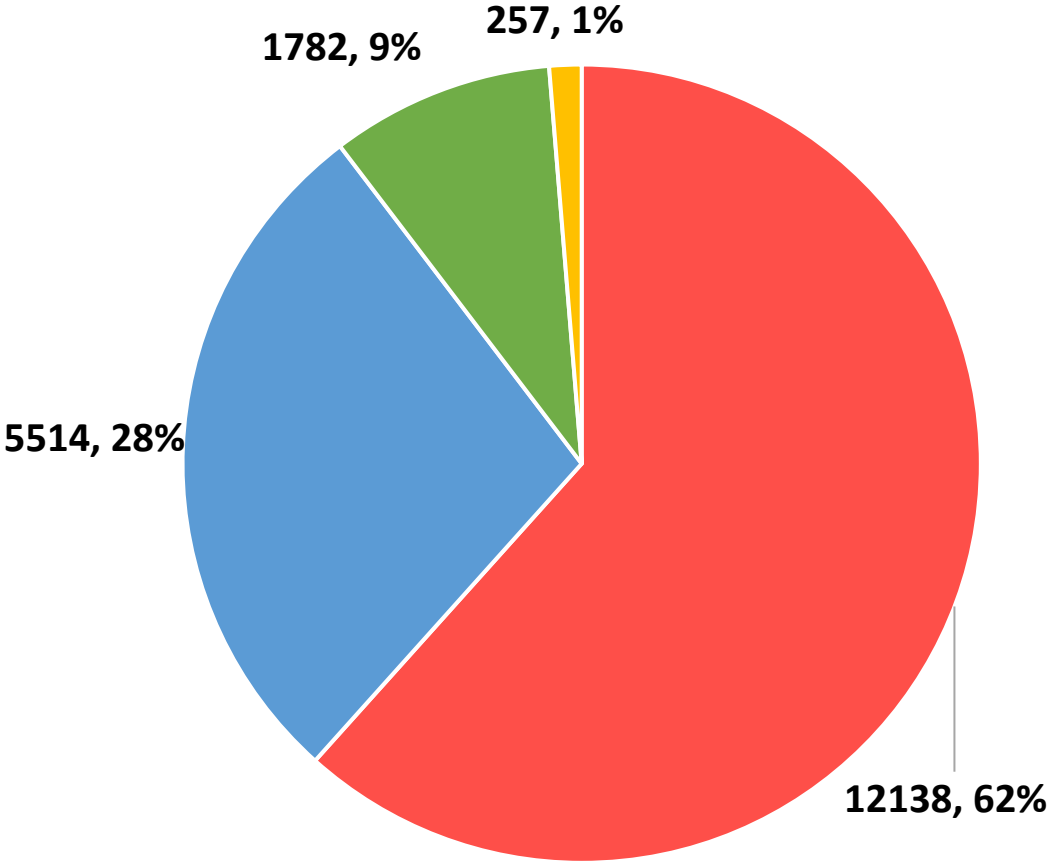


ER Visits with a Dental-Related Diagnosis by Sex: Hawaii 2016-2020



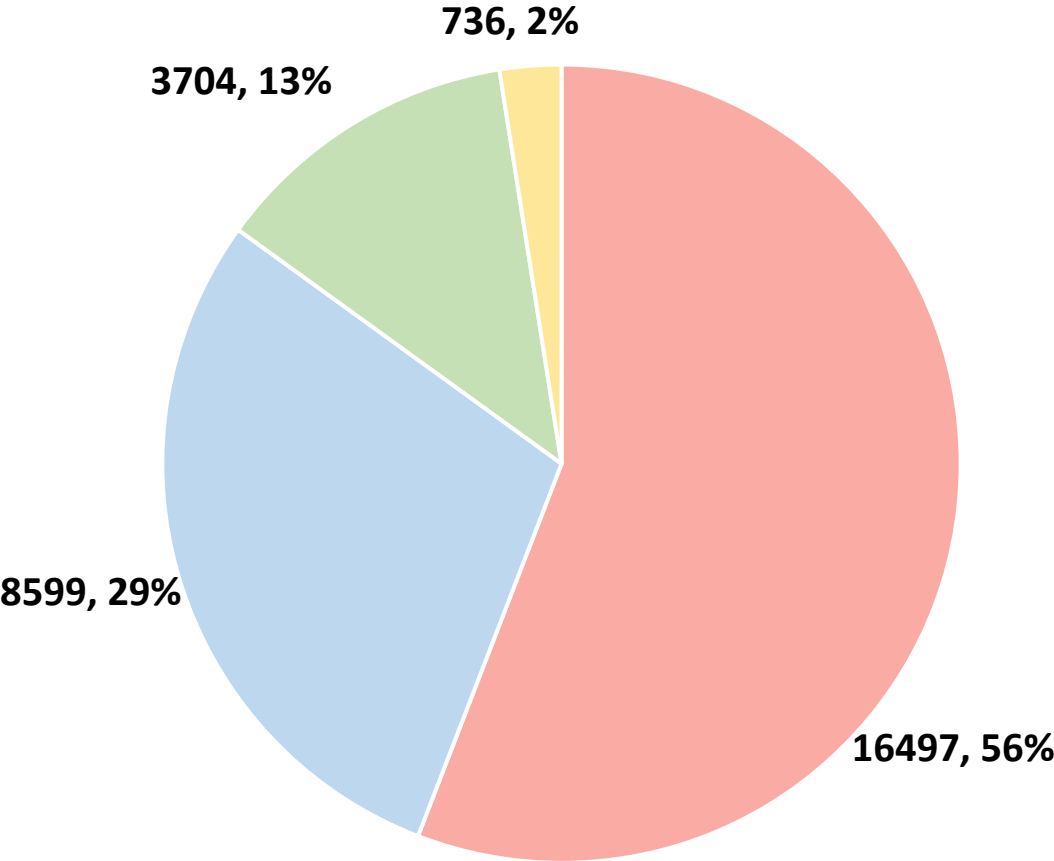
ER Visits with a Dental-Related Diagnosis by Age Group: Hawaii 2016-2020

Principal Diagnosis (n=19,691)



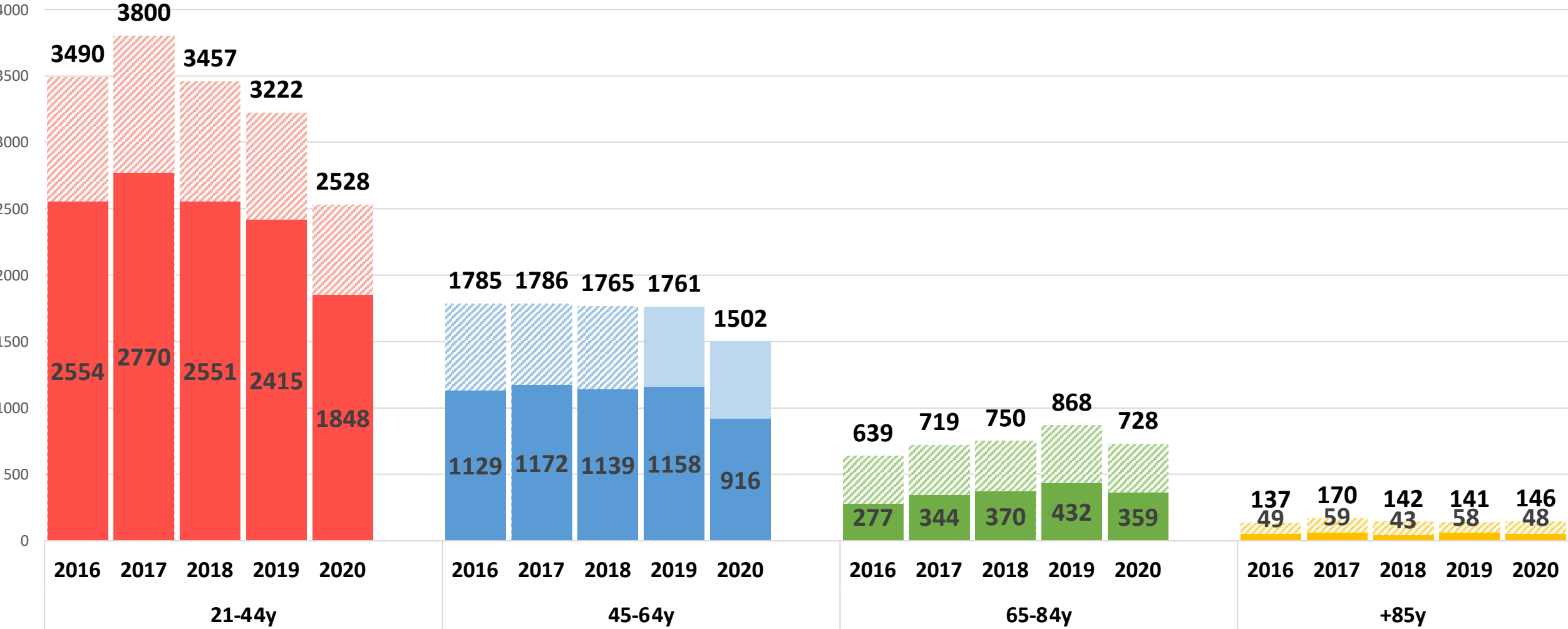
21-44y 45-64y 65-84y +85y

Any Listed Diagnosis (n=29,536)



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

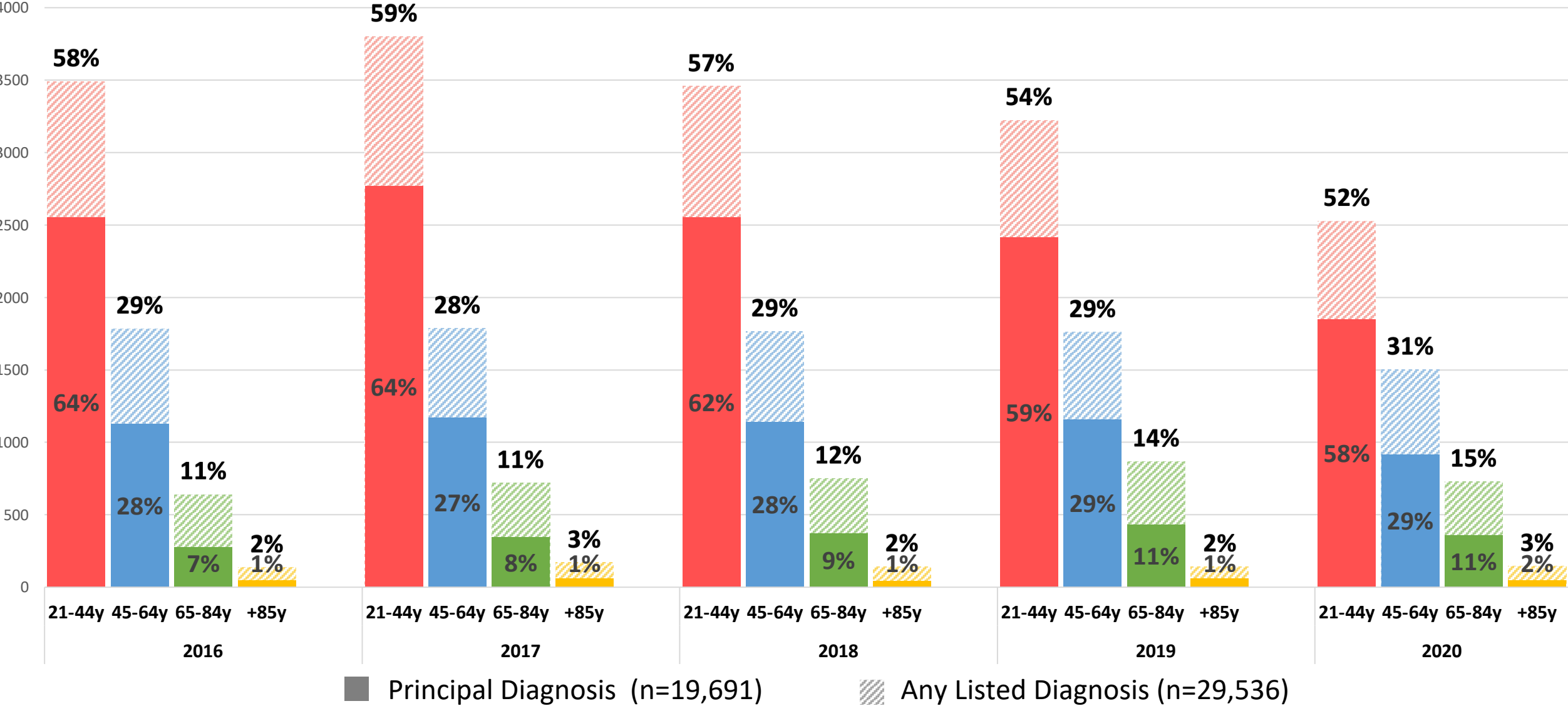
ER Visits with a Dental-Related Diagnosis by Age Group: Hawaii 2016-2020



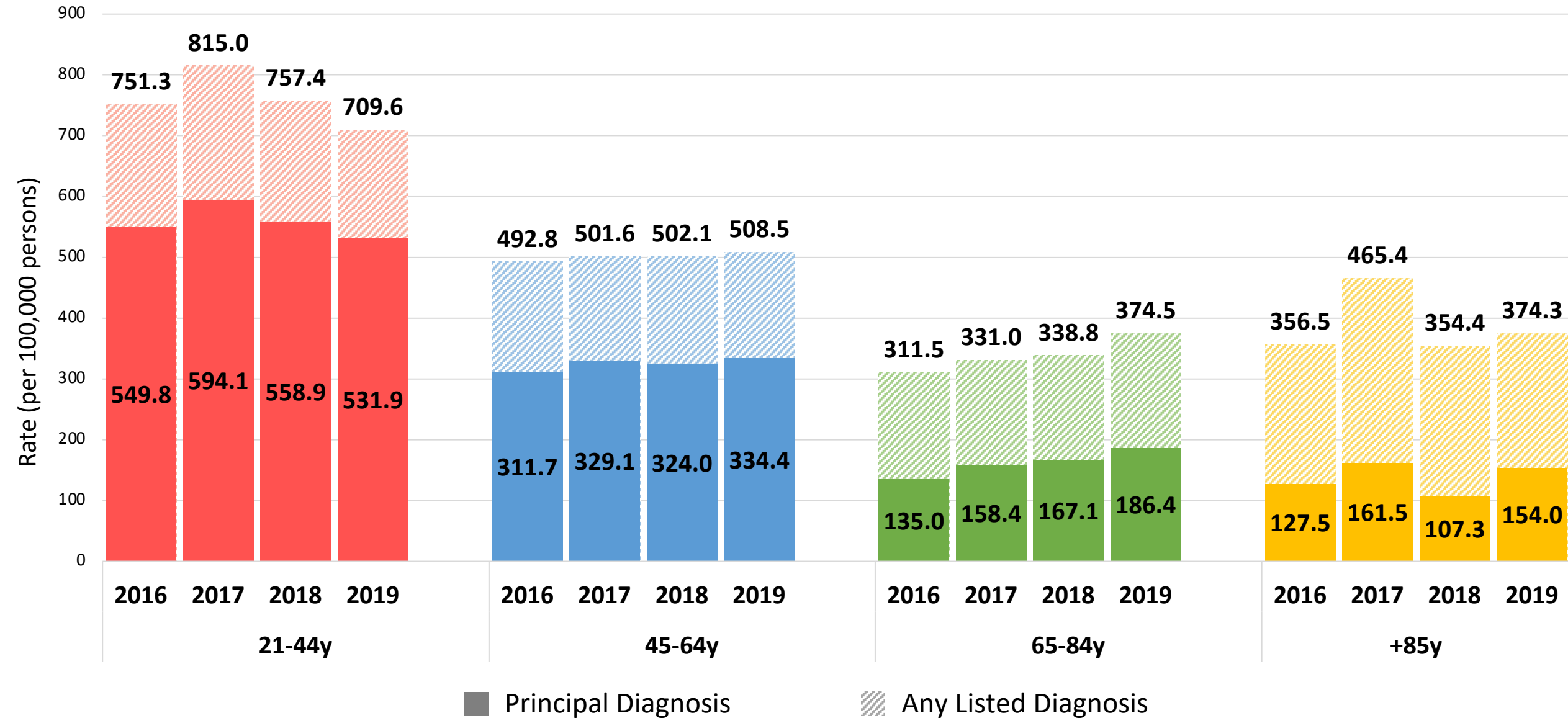
■ Principal Diagnosis (n=19,691)

▨ Any Listed Diagnosis (n=29,536)

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

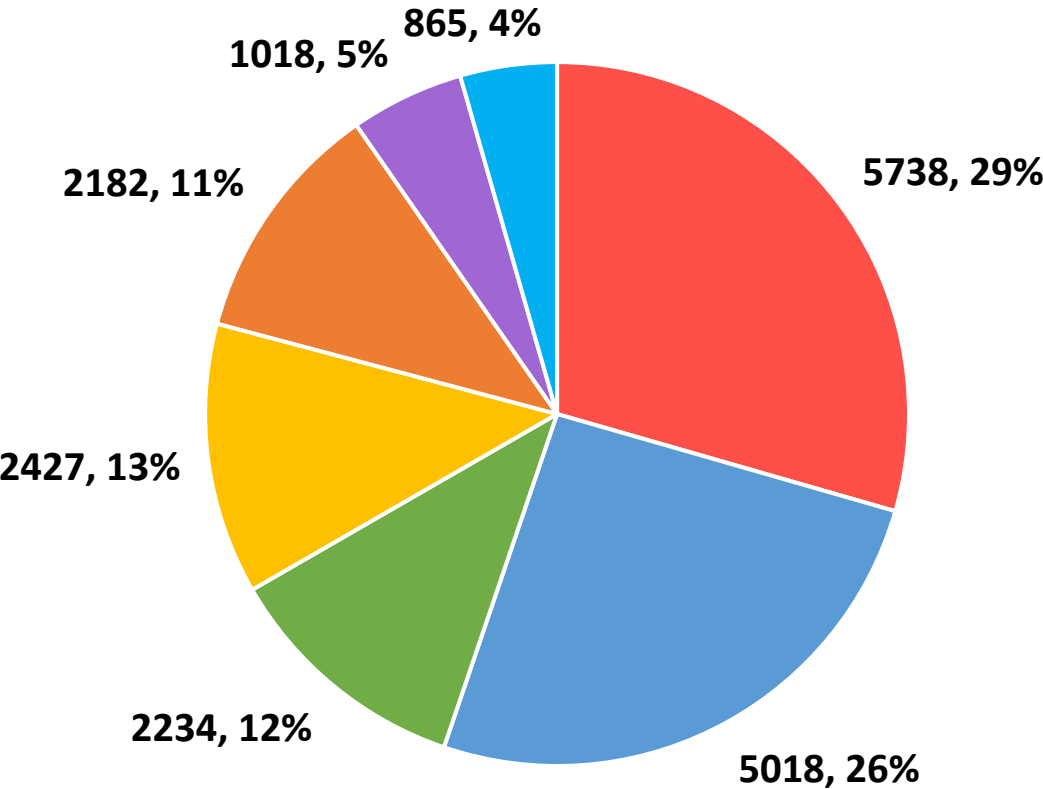


Rates of ER Visits with a Dental-Related Diagnosis by Age Group: Hawaii 2016-2019

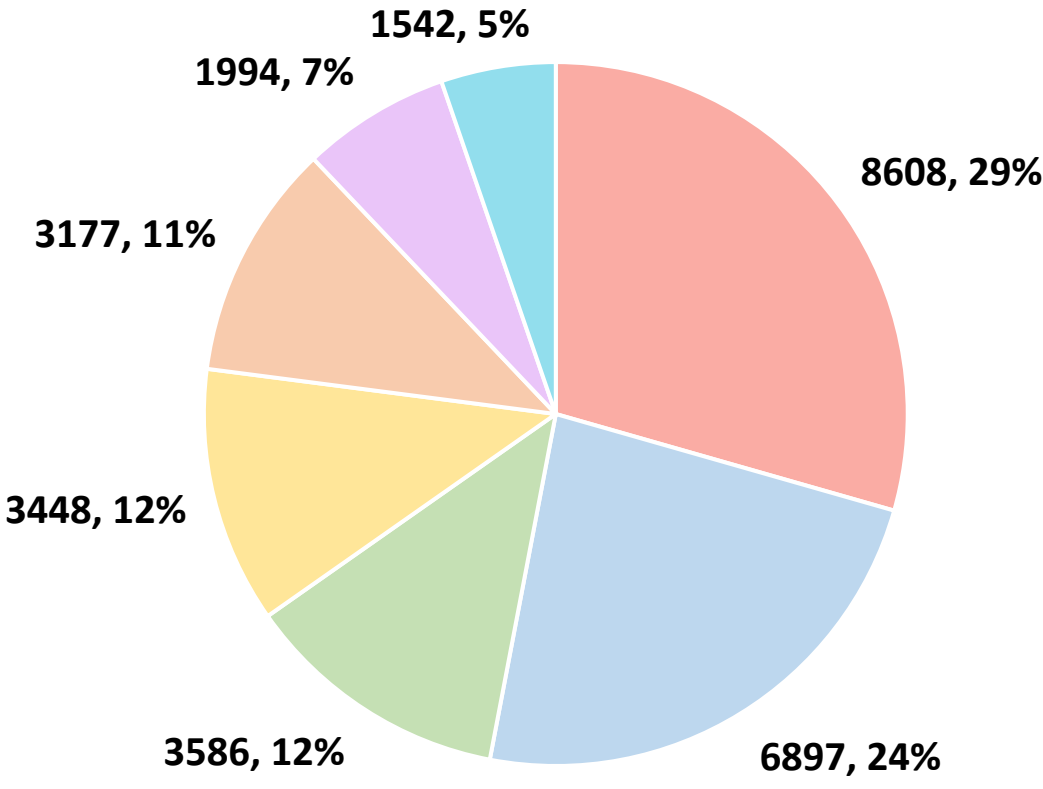


ER Visits with a Dental-Related Diagnosis by Race/Ethnicity: Hawaii 2016-2020

Principal Diagnosis (n=19,482)



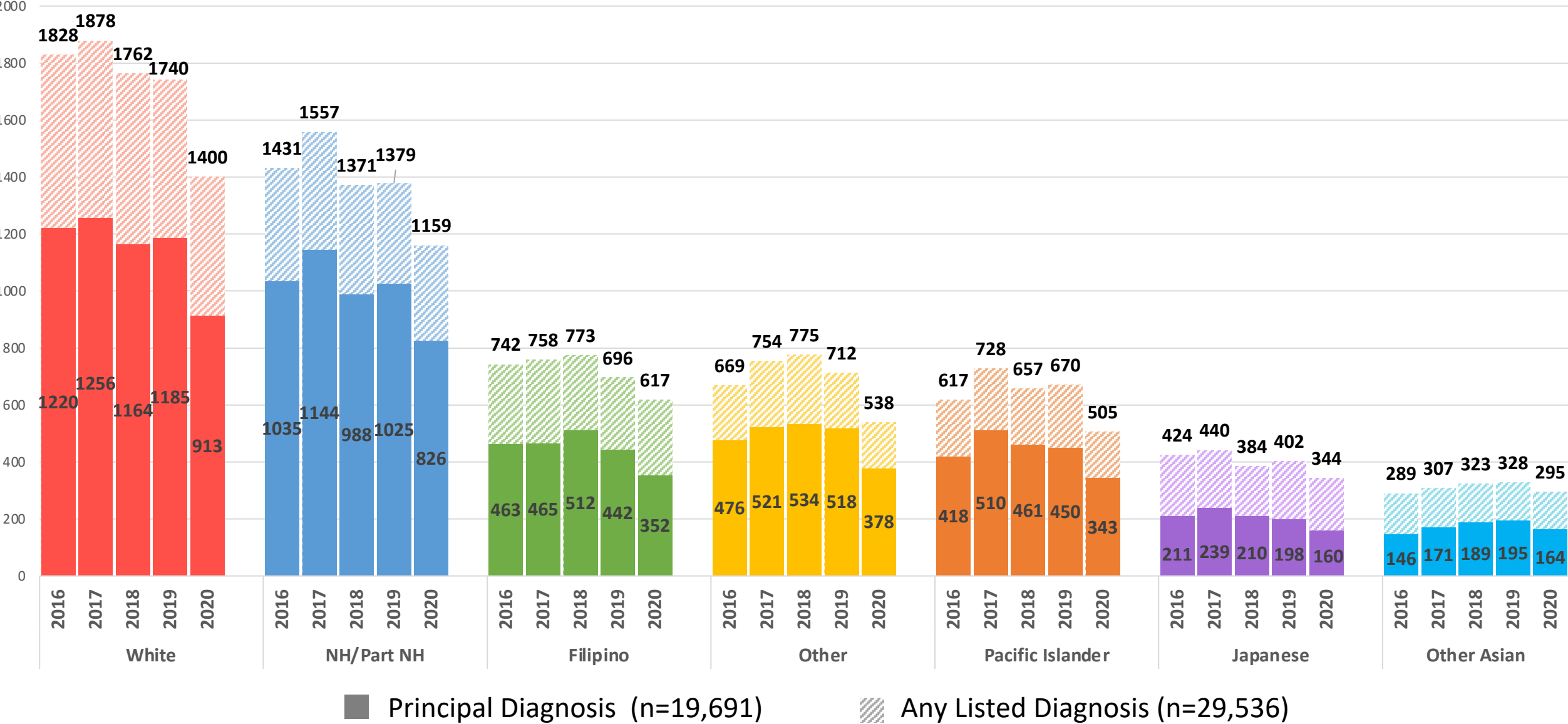
Any Listed Diagnosis (n=29,252)



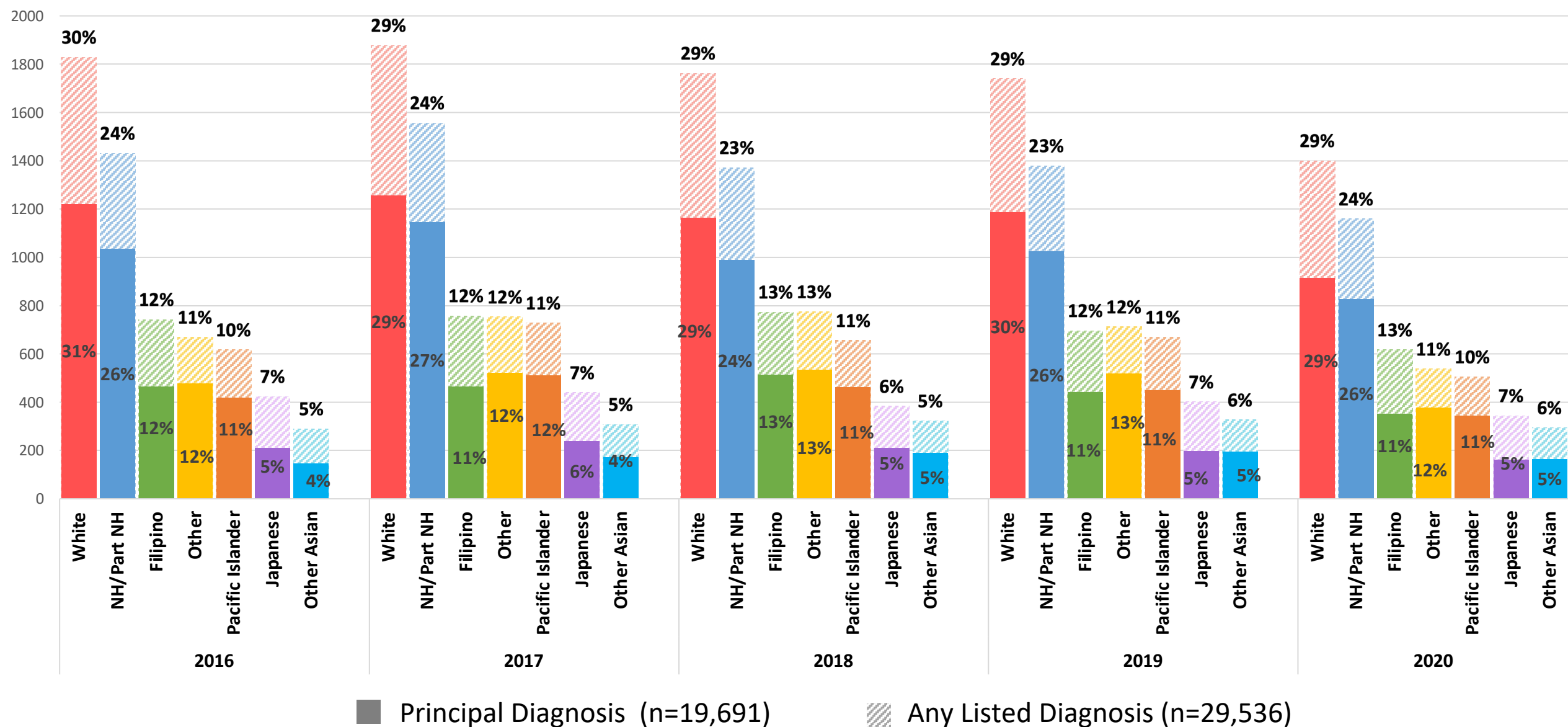
- White
- NH/Part NH
- Filipino
- Other
- Pacific Islander
- Japanese
- Other Asian

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

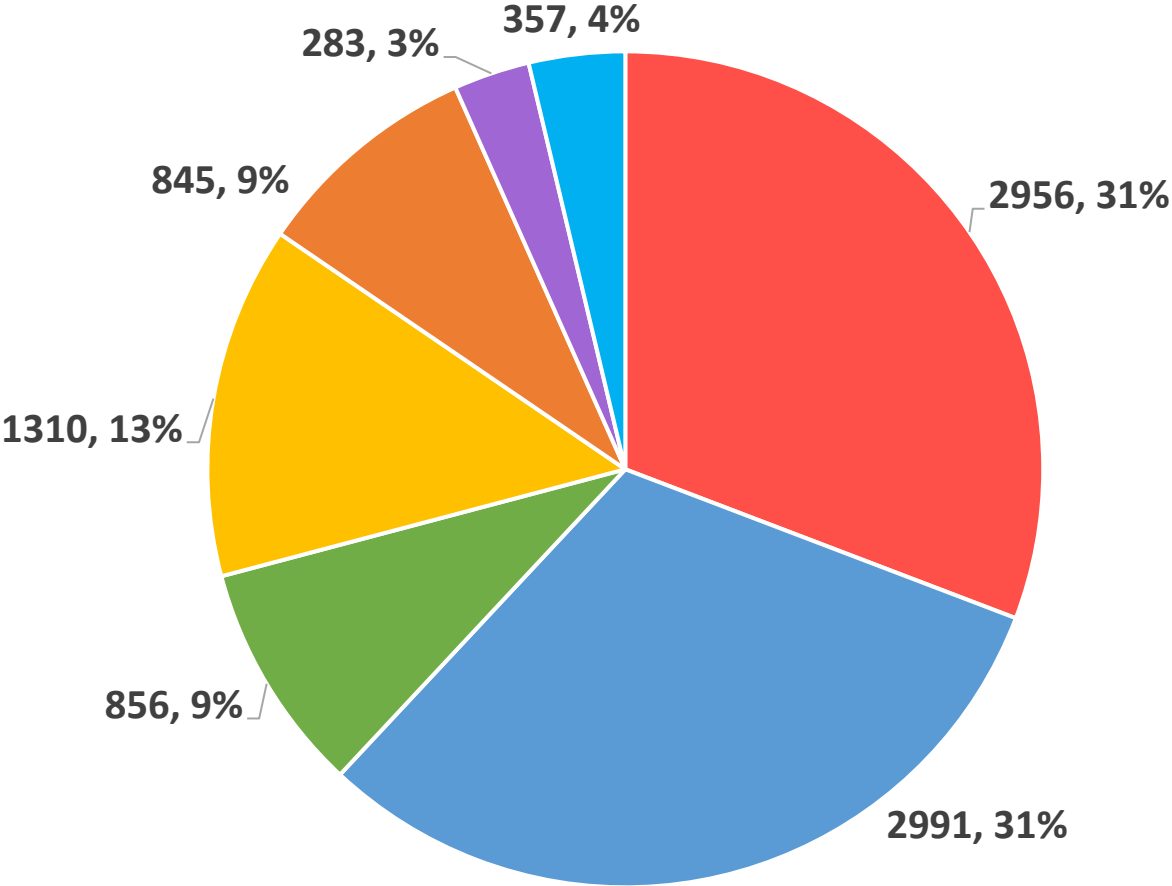
ER Visits with a Dental-Related Diagnosis by Race/Ethnicity: Hawaii 2016-2020



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



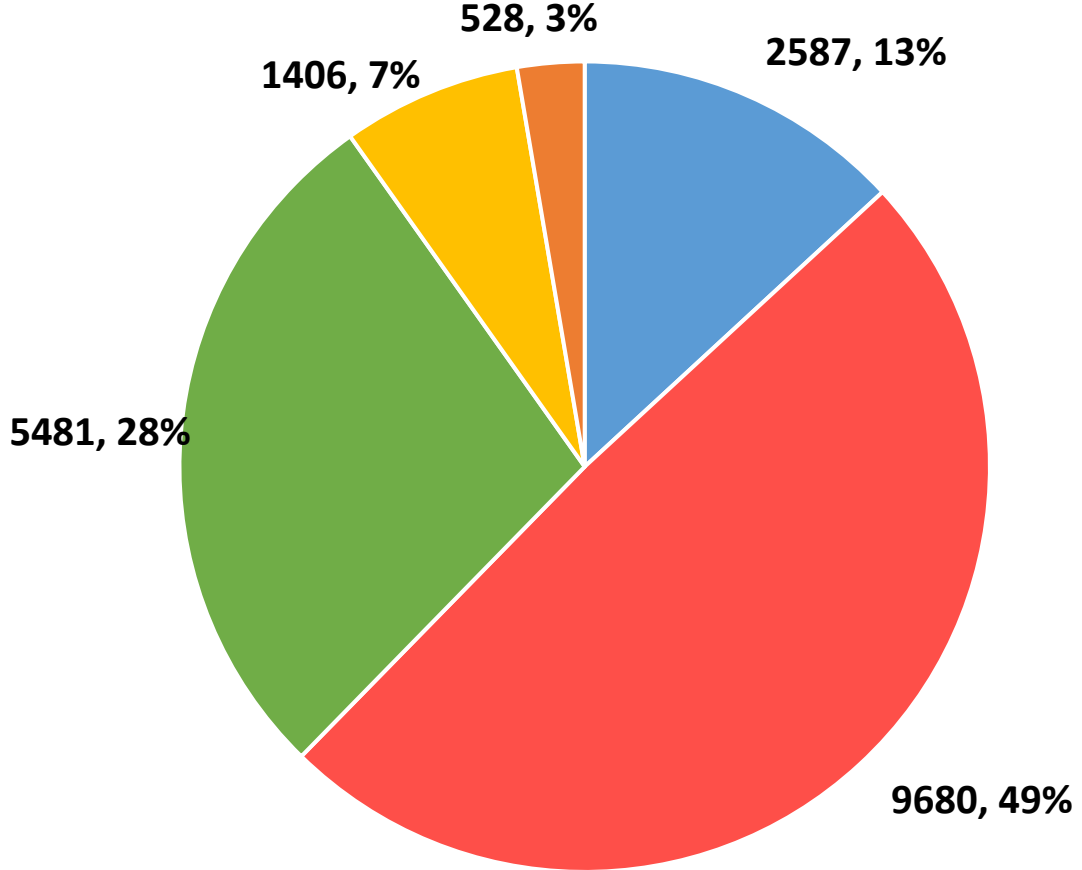
Medicaid Recipients' ER Visits with a Dental-Related Diagnosis by Race/Ethnicity: Hawaii 2016-2020



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

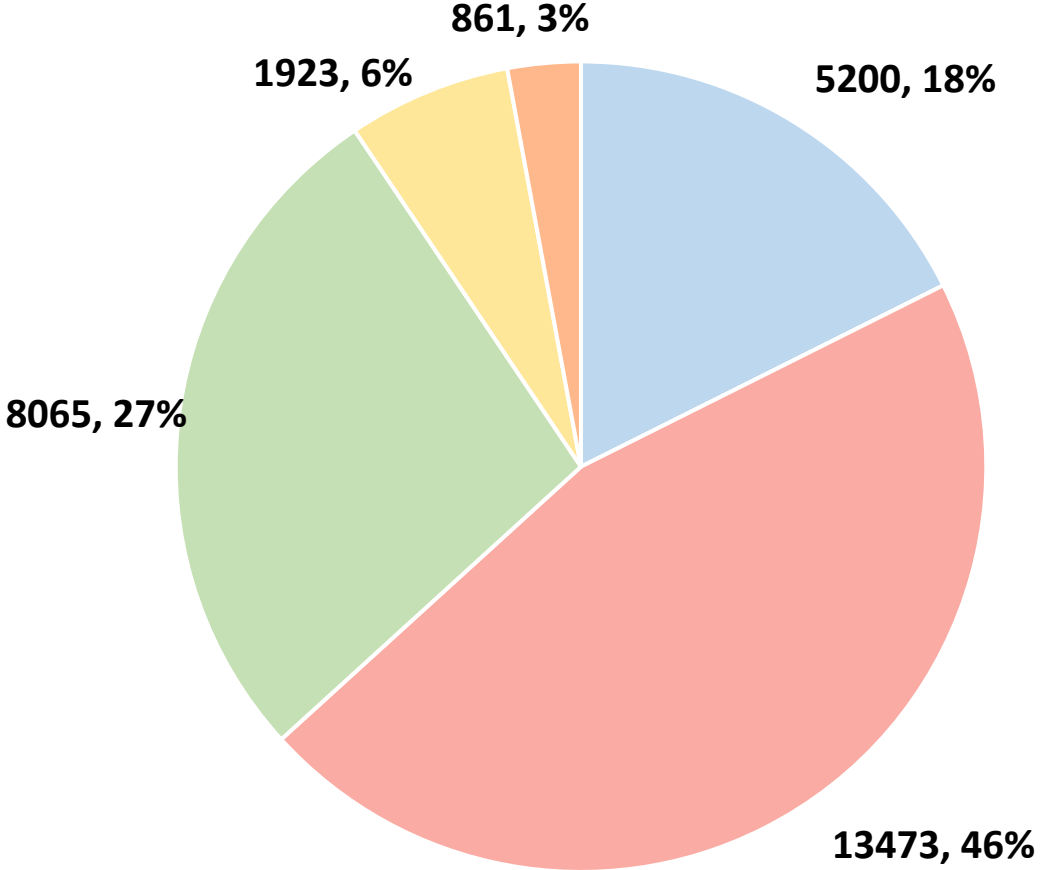
ER Visits with a Dental-Related Diagnosis by Primary Source of Payment: Hawaii 2016-2020

Principal Diagnosis (n=19,682)



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

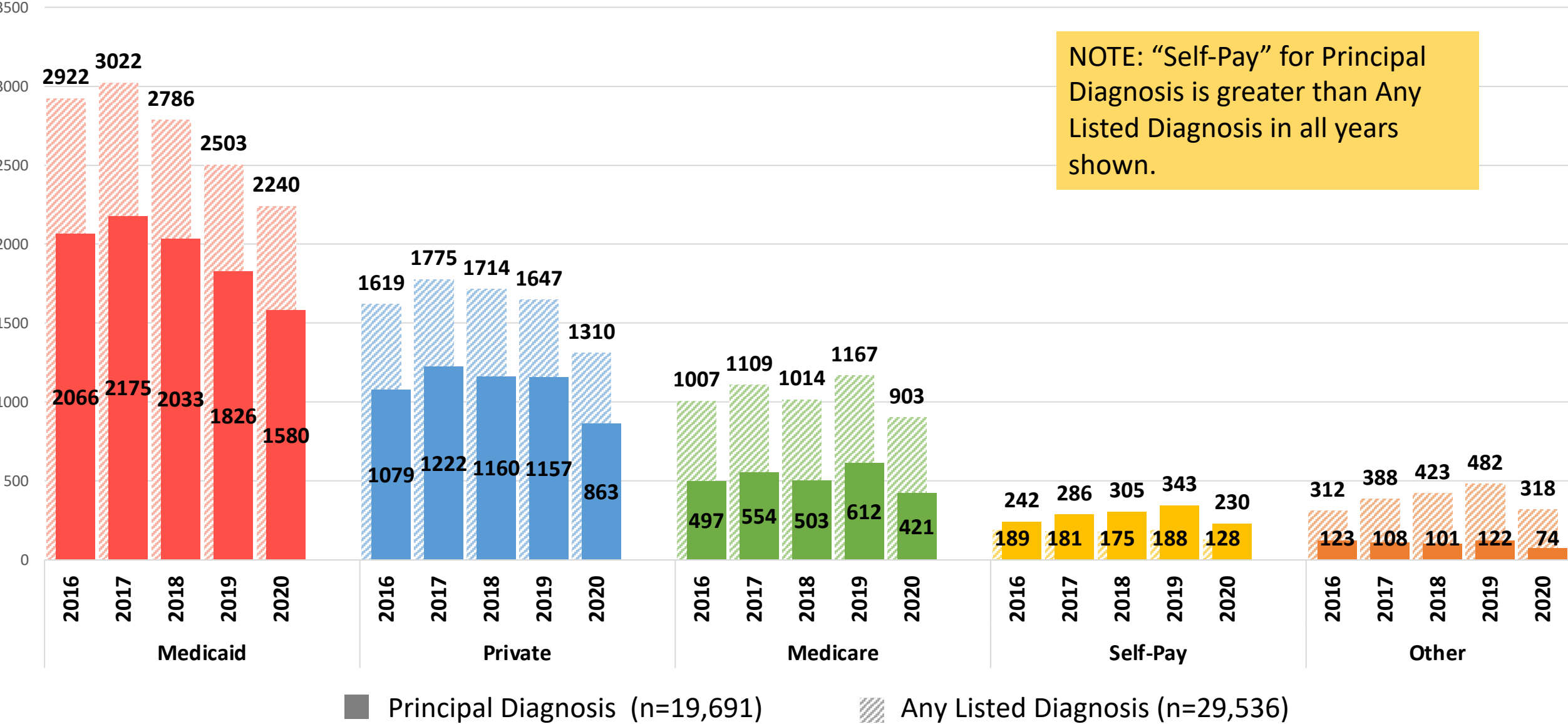
Any Listed Diagnosis (n=29,522)



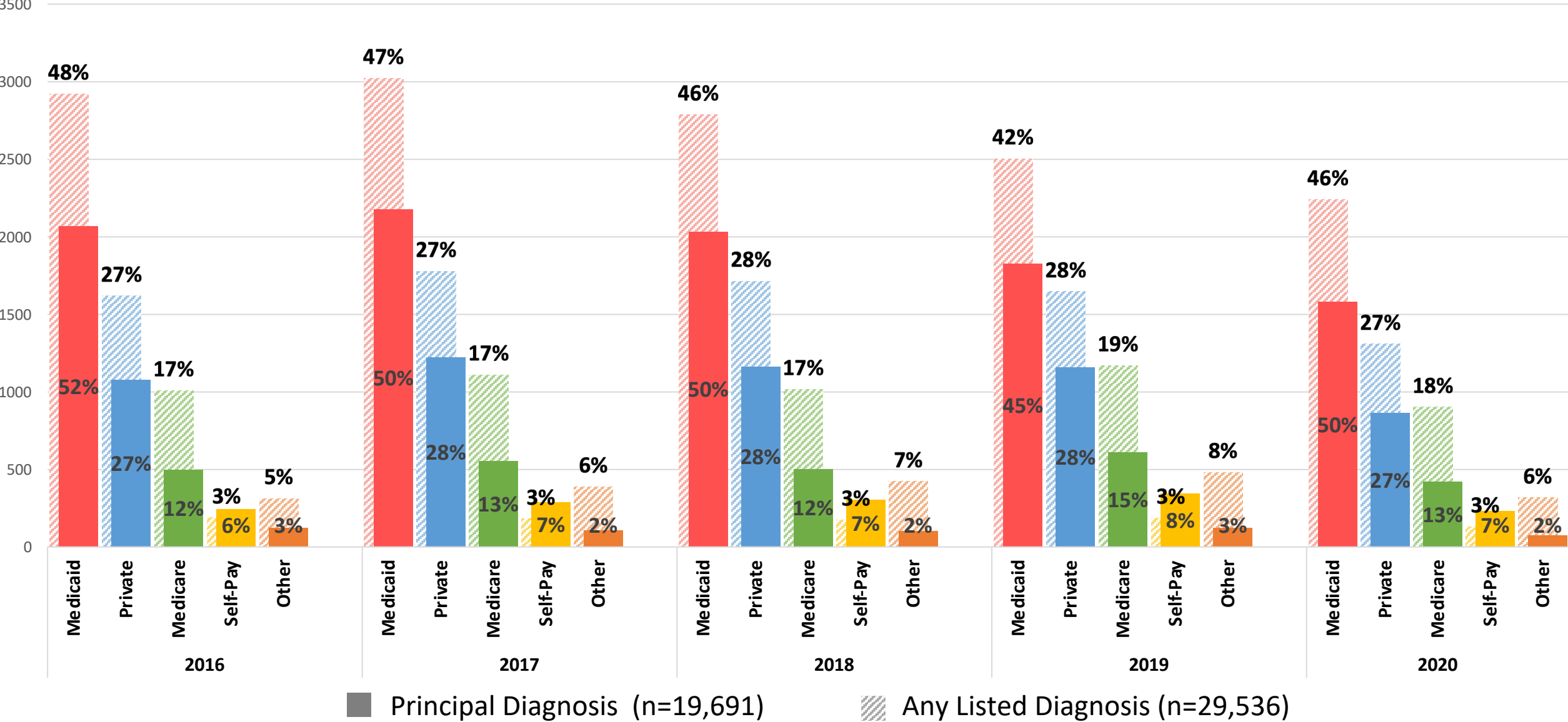
■ Medicare ■ Medicaid ■ Private ■ Self-Pay ■ Other

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

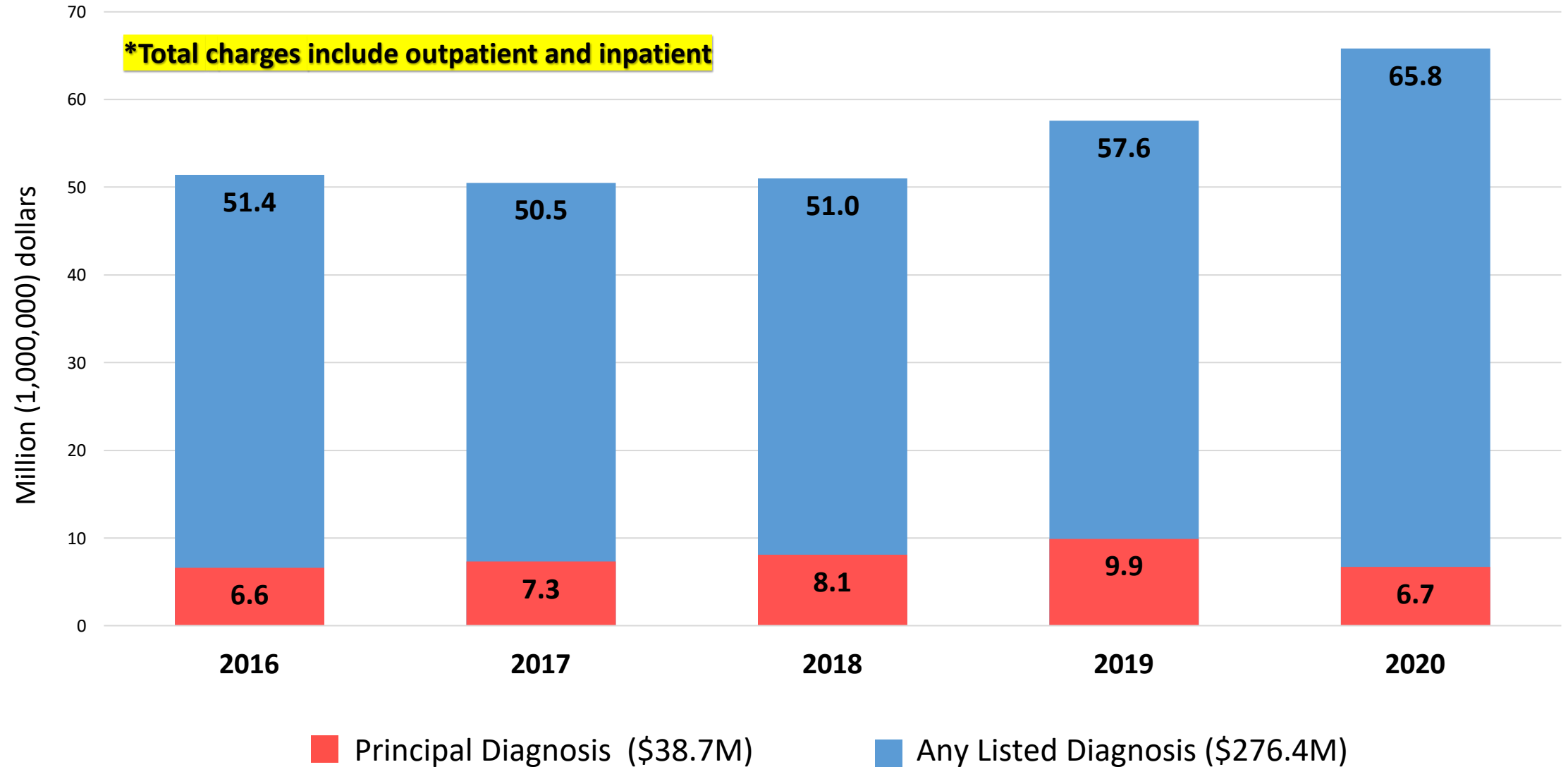
NOTE: "Self-Pay" for Principal Diagnosis is greater than Any Listed Diagnosis in all years shown.



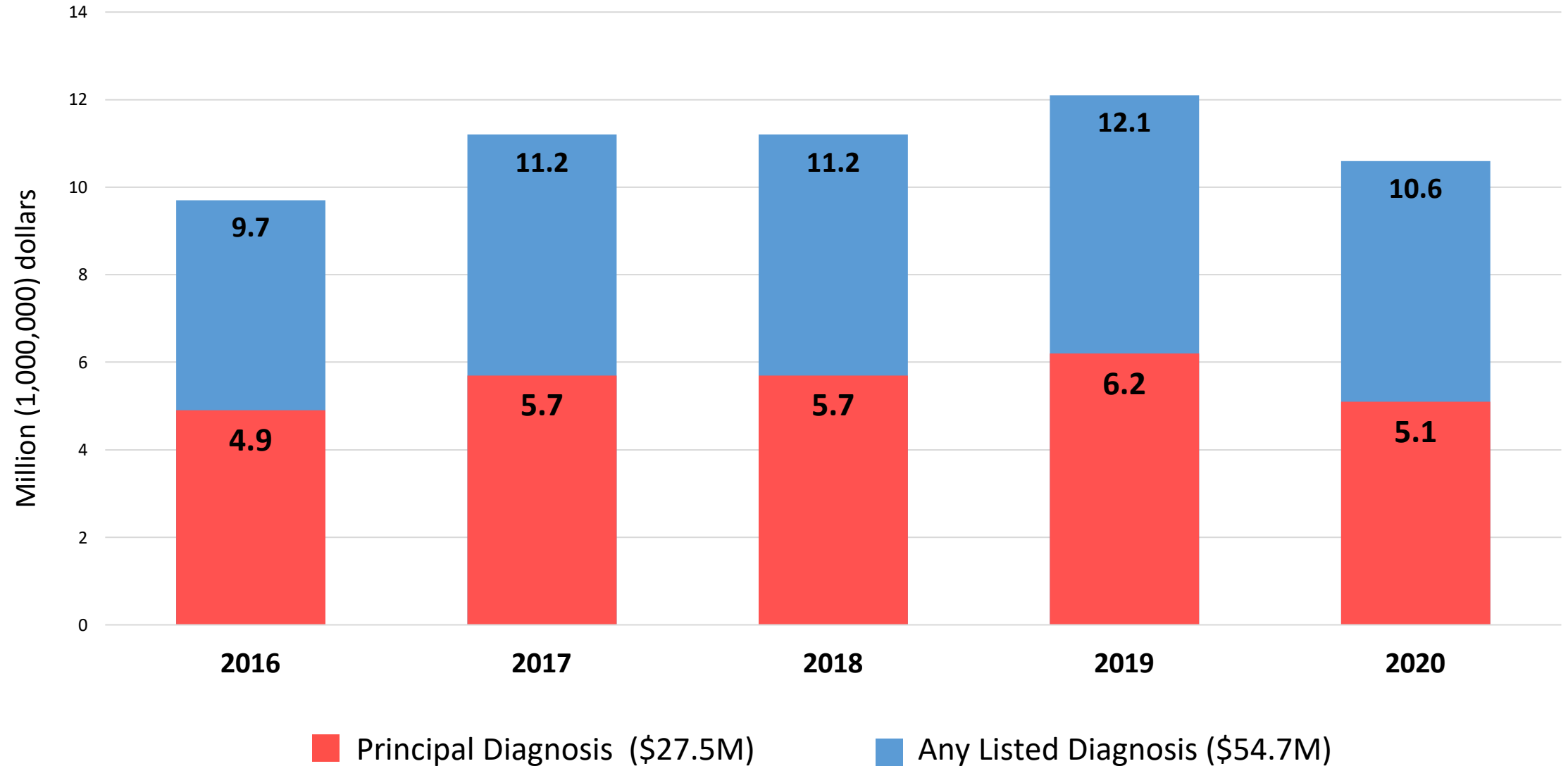
ER Visits with a Dental-Related Diagnosis by Primary Source of Payment: Hawaii 2016-2020



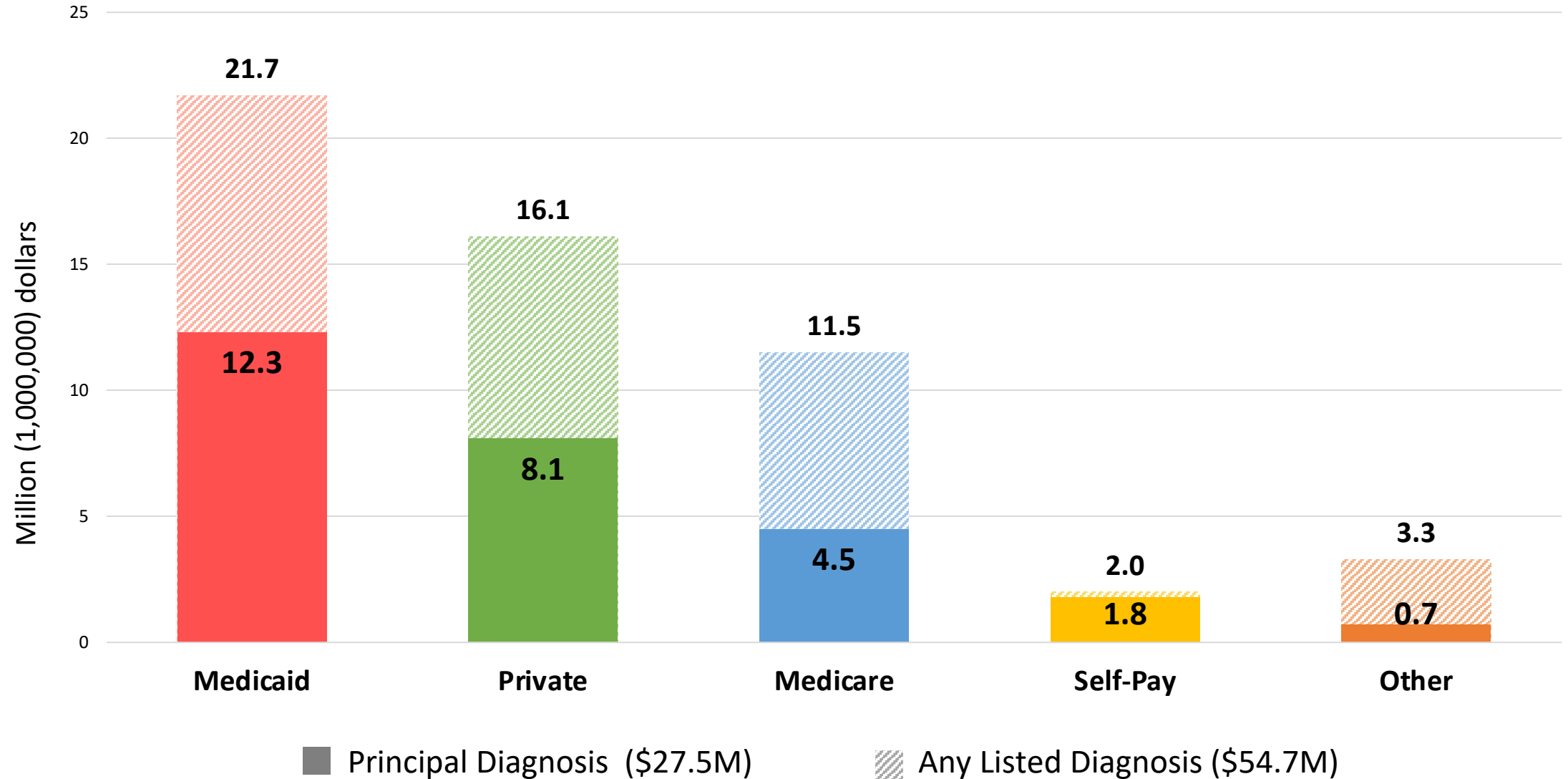
Cumulative Total Charges for ER Visits with a Dental-Related Diagnosis: Hawaii 2016-2020



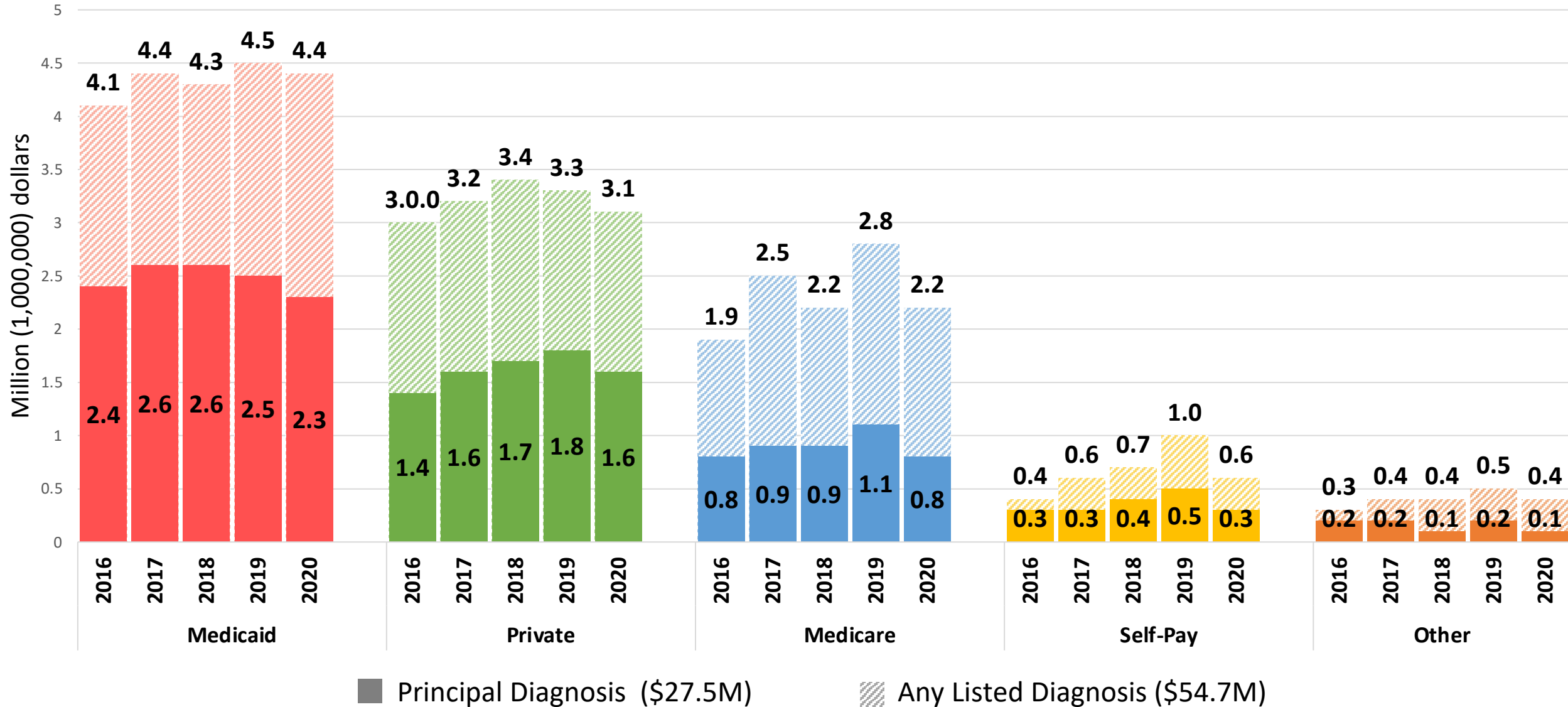
Cumulative Total Charges for Outpatient ER Visits with a Dental-Related Diagnosis: Hawaii 2016-2020



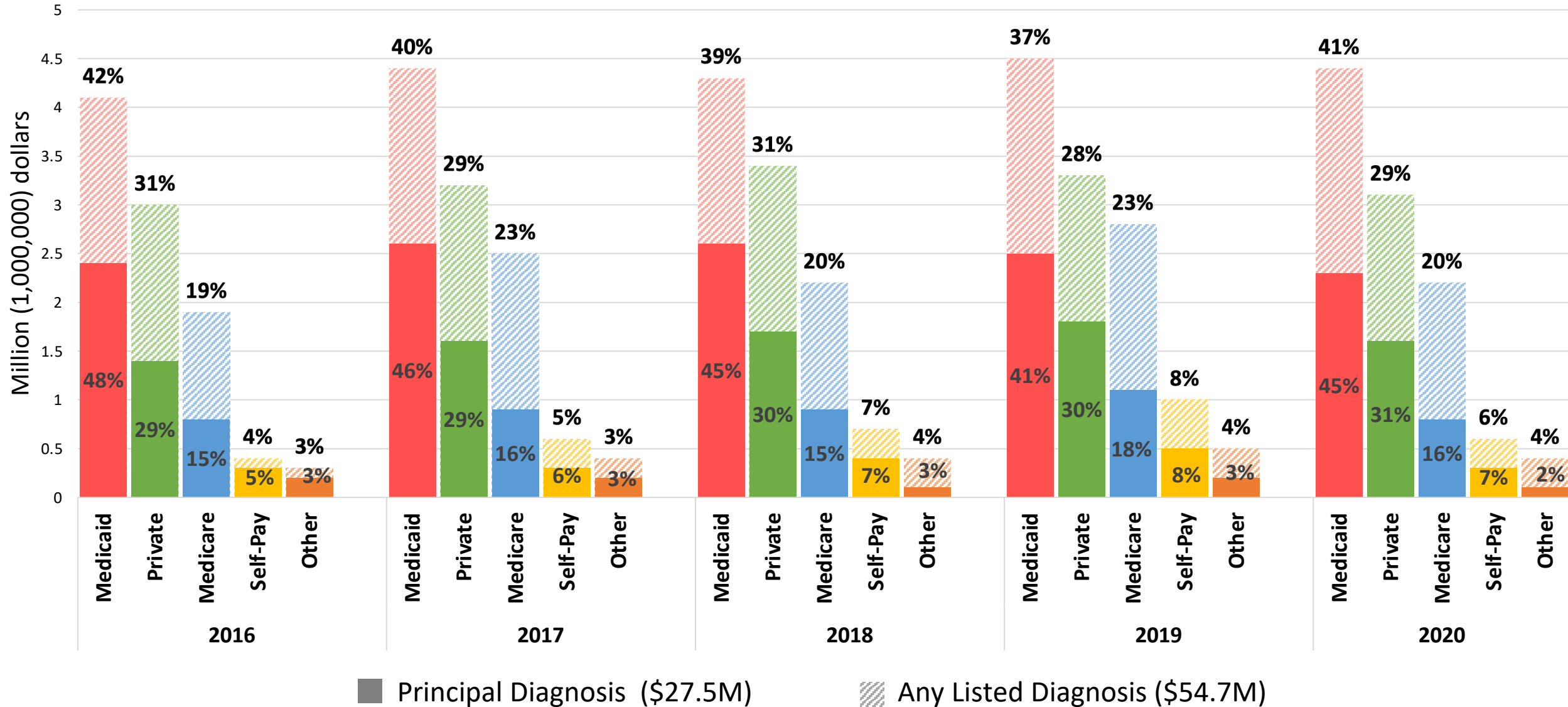
Cumulative Total Charges for Outpatient ER Visits with a Dental-Related Diagnosis by Primary Source of Payment: Hawaii 2016-2020



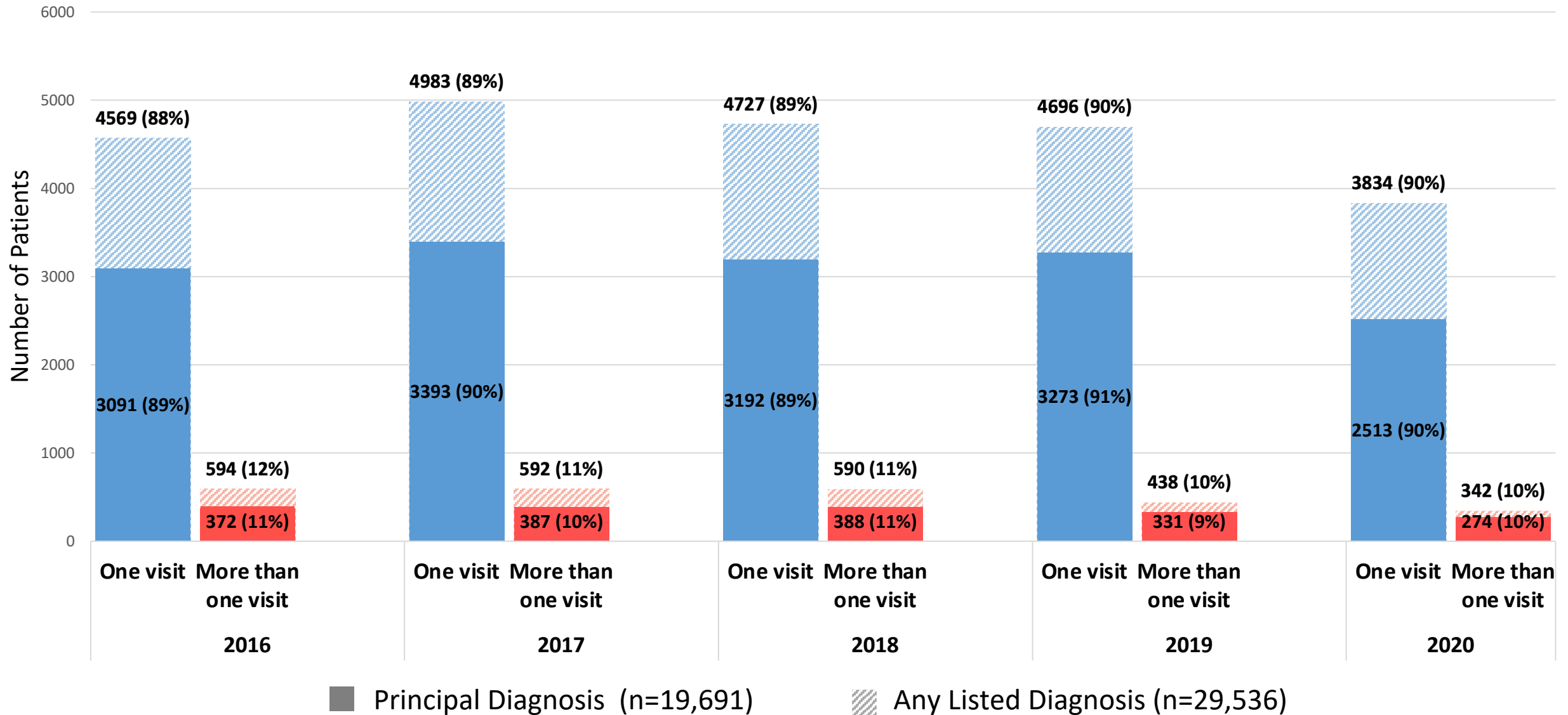
Cumulative Total Charges for Outpatient ER Visits with a Dental-Related Diagnosis by Primary Source of Payment: Hawaii 2016-2020



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)
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 - 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>.
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- 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.



Questions or Comments?

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