

STATE OF HAWAII PRIMARY CARE NEEDS ASSESSMENT DATA BOOK 2012



FAMILY HEALTH SERVICES DIVISION
HAWAII DEPARTMENT OF HEALTH
July 2012

PCNA FEEDBACK SURVEY

Family Health Services Division
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The Family Health Services Division is committed to making the *Primary Care Needs Assessment Data Book* as useful and user-friendly as possible. Please complete this questionnaire and mail or fax it to us. The form could also be completed online at <http://hawaii.gov/health/doc/eval>. Mahalo for your assistance.

Organizational Identity (circle one)

1. Your organization or role is best described as a:

- | | |
|---------------------------------------|---------------------------------|
| (a) Community non-profit organization | (b) Government office |
| (c) Student/Educational institution | (d) For-profit medical provider |
| (e) Political representative | (f) Private citizen |
| (g) Other: _____ | |

Feedback on the Data Book (select all that apply)

2. The Data Book helps you accomplish:

- | | |
|---|-----------------------------------|
| (a) Planning | (b) Needs assessment |
| (c) Grant writing | (d) Facility or services planning |
| (e) Recruitment or retention of providers | (f) Other: _____ |

3. Please describe how you use the information shared in this book (knowing specific examples would be helpful).

4. Which health indicators/information did you use most often in your work?

5. Which health indicators/information were less important in your work?

6. What other data/information would you like included in future Data Books?

FOREWORD

The Hawai'i Department of Health is pleased to present this edition of the *Primary Care Needs Assessment Data Book* (Data Book). This version has been substantially revised based on input from community stakeholders to better characterize the scope of primary care in Hawai'i. In particular, I would like to thank the community health centers and the Hawai'i Primary Care Association for their guidance and suggestions for improvement.

The Data Book is intended to serve as a source of comparative health statistics on primary care service areas in the State of Hawai'i. By presenting information on small areas, the document shows the variation among communities in terms of selected risk and resource indicators. This enables communities not only to examine their specific needs, but also to have a sense of the big picture as they assess their own health care needs and problems over time.

It is my hope that this document will be a useful source of quantitative information to health policy makers, planners and all of us in the community who share a common desire to improve access to primary care, especially for the underserved and vulnerable populations of Hawai'i.

Your feedback on the information in the Data Book is important to us. Please take a moment and tell us how you used the information in your work.



Loretta J. Fuddy, A.C.S.W., M.P.H.
Director of Health

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SUMMARY

OVERVIEW

This document provides information for over 50 health and socio-economic indicators spanning the life course by geographic communities in Hawai'i. There are significant differences between these communities and it is important to share this data to better understand why these differences exist. Some of these differences are pronounced and lend themselves to developing interventions to eliminate disparities and help decrease the overall burden of disease. However, it is important to realize that all of these issues are complex and require multiple strategies to effectively make a difference. This report serves to bring awareness to disparities to help frame future activities to characterize why they exist and what can be done to eliminate them.

Common recommendations include:

1. The need for further analysis looking at relationships between indicators, particularly with variation due to distributions of poverty and other indicators of socio-economic determinants of health;
2. Improved access and availability of services;
3. Promotion of utilization of primary care services; and
4. Development of effective culturally appropriate interventions through collaborations with community partners.

ORGANIZATION OF DATA BOOK

This section provides summary tables for all the indicators used in this Data Book. The reader is encouraged to review the remainder of the Data Book to gather specific details how the primary care service areas and the various indicators were defined, prevalence estimates were mapped on primary care service areas, and the detailed tables which includes the number impacted and the confidence intervals around the estimates when appropriate.

The first chapter defines the primary care service areas, introduces the concept of risk indicators, and identifies key limitations inherent with the data available and their impact on interpretation of the data. The second chapter highlights the Family Health Services Division's Primary Care Office and its role in working with community providers to ensure those most at need have access to services. The third chapter summarizes population and socio-economic status indicators for each of the primary care service areas. Chapters four through eight focus on maternal and infant health risk, adult morbidity, the leading causes of death, adult oral health, and mental health. Chapters three through eight highlight specific indicators presented in detailed tables and maps.

Summary Table 1: Population Characteristics, 2006-2010

	Under 18 Years of Age (%)	65 Years of Age and Over (%)	Foreign Born (%)	Households with Linguistic Isolation (%)	Average Per Capita Income (\$)
State of Hawai'i	22.6	14.0	17.7	6.2	28,900
Honolulu County	22.3	14.2	19.5	7.6	29,500
East Honolulu	15.6	19.0	22.6	10.3	36,900
Hawai'i Kai - Kaimuki	18.9	20.1	14.1	3.9	46,800
Waikiki - Pālolo	14.6	19.7	25.7	12.2	31,200
McCully - Makiki	14.8	17.2	21.8	9.5	35,100
Ala Moana - Nu'uuanu	13.7	19.0	29.4	14.4	32,700
West Honolulu	22.2	16.7	34.2	14.0	23,500
Downtown - Kalihi	19.8	18.6	41.8	21.1	22,500
Airport - Moanalua	24.6	14.7	26.3	6.2	24,600
'Ewa	25.1	11.2	18.7	5.2	28,300
Hickam - Pearl City	21.0	15.3	14.0	5.4	29,700
Waipahu	24.5	11.9	29.0	8.7	24,400
'Ewa - Kalaeloa	26.3	9.2	12.5	1.5	33,400
Kapolei - Makakilo	28.0	8.1	19.2	6.4	28,000
Mililani	29.9	7.7	17.7	3.7	26,400
Wahiawā	27.2	10.6	13.3	6.2	20,800
Wai'anae	32.7	8.9	7.1	2.9	17,300
Waialua	24.2	11.0	13.6	4.4	27,200
Ko'olauloa	28.0	9.2	16.5	2.7	22,800
Ko'olaupoko	22.3	13.9	7.3	1.5	32,500
Hawai'i County	23.0	14.0	11.2	2.9	26,200
Hilo	20.9	17.3	9.1	3.7	24,500
Puna	26.1	11.3	10.8	2.8	19,300
Ka'ū	26.6	13.1	10.2	2.2	25,700
South Kona	21.9	14.9	10.1	1.9	28,900
North Kona	20.6	13.9	14.1	2.5	30,800
South Kohala	25.5	10.2	13.8	2.3	36,400
North Kohala	27.9	12.0	7.8	2.0	24,800
Hāmakuā	25.2	13.9	12.7	2.8	23,400
Maui County	23.3	12.1	15.8	3.5	29,200
Hāna	30.1	16.6	8.4	0.3	23,200
Makawao	21.8	11.3	8.5	0.9	34,000
Wailuku	24.5	12.1	18.9	4.5	26,200
Lāhainā	19.3	11.9	20.9	5.5	34,100
Lāna'i	30.6	15.5	32.0	10.3	21,200
Moloka'i	26.4	13.6	7.8	2.1	23,500
Kaua'i County	23.1	14.5	13.7	2.7	26,500
Hanalei	23.6	12.7	10.7	1.7	32,300
Kapa'a	20.9	13.9	12.0	3.1	25,900
Līhu'e	24.5	17.1	18.4	1.8	23,700
Kōloa	24.5	14.1	11.7	3.4	28,600
Waimea	22.9	13.4	15.6	2.7	24,600

Source: U.S. Department of Commerce, U.S. Census Bureau, American Community Survey

Summary Table 2: Socio-economic Characteristics, 2006-2010

	<100% of Federal Poverty Level (%)	Children in Households Receiving Assistance (%)	Households Receiving SNAP (%)	Uninsured (%)	Civilian Labor Force Unemployed (%)	Adults with No High School Diploma (%)
State of Hawai'i	9.6	17.2	8.4	7.1	4.6	10.2
Honolulu County	8.8	16.0	7.6	6.1	4.0	10.1
East Honolulu	9.2	9.9	4.8	4.9	3.5	7.3
Hawai'i Kai - Kaimuki	3.6	4.2	1.5	3.5	2.3	3.9
Waikiki - Pālolo	11.6	14.6	5.1	7.4	4.7	9.1
McCully - Makiki	9.6	7.6	4.2	3.8	3.1	6.6
Ala Moana - Nu'uuanu	12.6	16.4	7.5	6.3	4.2	10.0
West Honolulu	12.3	20.6	12.8	6.8	3.6	19.4
Downtown - Kalihi	15.6	30.4	18.6	7.3	4.0	24.6
Airport - Moanalua	8.8	12.4	6.5	6.2	3.1	13.5
'Ewa	5.7	12.4	6.1	5.9	3.6	9.3
Hickam - Pearl City	5.2	8.6	4.4	5.9	3.4	8.2
Waipahu	9.0	17.9	10.3	7.1	4.3	15.3
'Ewa - Kalaeloa	2.3	6.2	2.9	6.6	2.3	5.0
Kapolei - Makakilo	4.3	13.2	6.9	5.1	3.0	7.5
Mililani	6.9	6.2	7.3	4.7	4.8	8.4
Wahiawā	12.4	13.2	13.0	5.8	7.5	13.3
Wai'anae	18.7	49.2	28.9	13.3	8.9	14.8
Waialua	9.9	13.3	6.8	5.6	7.9	11.3
Ko'olauloa	10.9	18.2	8.8	7.9	4.3	7.5
Ko'olaupoko	7.3	12.0	5.8	5.6	4.0	6.2
Hawai'i County	14.4	26.5	12.6	10.1	6.3	9.5
Hilo	16.7	29.4	14.7	7.1	6.2	10.5
Puna	23.4	43.0	19.9	13.7	8.3	10.8
Ka'ū	21.8	23.7	14.4	14.8	9.7	11.1
South Kona	12.3	17.4	12.2	15.7	5.6	9.4
North Kona	8.5	19.4	7.1	8.5	5.9	7.8
South Kohala	5.6	12.5	5.1	8.4	4.0	5.6
North Kohala	6.8	6.0	7.0	10.6	4.9	9.0
Hāmakuā	8.1	19.1	9.8	9.8	5.1	11.7
Maui County	8.9	13.8	7.5	8.8	5.8	11.3
Hāna	3.0	14.0	2.5	19.4	4.3	10.1
Makawao	10.6	8.1	5.0	11.2	5.2	7.5
Wailuku	8.1	16.9	8.6	6.7	5.9	12.4
Lāhainā	6.5	4.7	5.4	9.3	5.1	13.3
Lāna'i	2.9	15.3	11.8	7.4	3.5	18.4
Moloka'i	17.9	29.5	16.9	9.2	13.5	13.2
Kaua'i County	8.8	15.7	8.5	9.1	4.9	11.7
Hanalei	12.1	16.7	7.1	13.7	4.9	6.3
Kapa'a	8.8	16.1	7.9	10.4	6.2	9.5
Līhu'e	8.6	11.9	8.3	5.9	4.8	15.6
Kōloa	8.9	14.5	8.4	7.5	4.0	10.9
Waimea	6.6	23.2	11.6	10.2	3.4	16.6

Source: U.S. Department of Commerce, U.S. Census Bureau, American Community Survey;
State of Hawai'i, Department of Health, Behavioral Risk Factor Surveillance System (BRFSS)

Summary Table 3: Race Groups, 2010

	White (alone or in any combination) (%)	Hawaiian (alone or in any combination) (%)	Filipino (alone or in any combination) (%)	Japanese (alone or in any combination) (%)	Chinese (alone or in any combination) (%)
State of Hawai'i	41.5	21.3	25.1	23.0	14.6
Honolulu County	36.8	19.1	24.6	25.3	16.3
East Honolulu	36.6	12.2	8.9	35.2	19.7
Hawai'i Kai - Kaimuki	41.5	12.2	7.0	39.9	22.5
Waikiki - Pālolo	41.8	11.3	8.4	31.2	16.4
McCully - Makiki	33.3	12.1	9.8	38.2	18.8
Ala Moana - Nu'uuanu	30.8	13.0	10.4	30.8	20.1
West Honolulu	21.9	12.5	34.1	18.6	18.2
Downtown - Kalihi	14.2	13.7	36.3	17.3	23.7
Airport - Moanalua	29.9	11.3	31.9	20.1	12.4
'Ewa	33.0	17.6	37.0	25.6	13.6
Hickam - Pearl City	34.7	14.7	23.8	33.7	13.8
Waipahu	19.6	13.2	54.4	19.7	10.8
'Ewa - Kalaeloa	38.2	18.3	26.5	38.7	16.8
Kapolei - Makakilo	39.7	27.2	41.2	16.3	15.5
Mililani	37.6	19.4	43.3	14.2	12.3
Wahiawā	47.3	14.6	26.9	13.3	8.0
Wai'anae	38.3	58.5	28.3	11.1	18.6
Waialua	56.2	18.2	29.0	12.3	8.7
Ko'olauloa	53.9	31.3	12.2	8.4	13.3
Ko'olaupoko	55.6	29.3	13.0	25.4	17.8
Hawai'i County	54.8	29.7	22.1	19.2	12.2
Hilo	41.5	32.5	22.1	33.8	14.7
Puna	60.2	32.0	24.4	13.4	12.4
Ka'ū	55.3	28.5	24.3	8.9	9.5
South Kona	53.6	30.2	16.7	21.0	10.1
North Kona	62.7	23.3	16.3	12.3	9.1
South Kohala	60.7	29.1	18.6	13.4	11.5
North Kohala	56.1	36.1	32.8	16.4	16.3
Hāmakuā	57.3	25.9	38.7	15.6	13.4
Maui County	50.4	23.7	29.0	14.7	9.2
Hāna	53.4	57.4	12.1	7.6	16.8
Makawao	69.0	23.5	15.6	14.6	9.6
Wailuku	41.4	22.3	35.1	17.3	9.3
Lāhainā	53.4	14.2	29.0	8.5	5.0
Lāna'i	27.8	19.5	63.9	10.8	10.2
Moloka'i	39.8	61.8	31.0	11.7	17.1
Kaua'i County	50.9	24.0	31.9	18.8	9.2
Hanalei	77.9	11.7	12.0	6.2	4.4
Kapa'a	55.5	29.0	25.4	17.9	10.2
Lihu'e	35.6	20.5	45.6	22.9	9.8
Kōloa	54.8	19.9	31.5	21.0	8.6
Waimea	37.1	33.8	43.0	21.8	11.1

Source: U.S. Department of Commerce, U.S. Census Bureau, Population Estimates

Summary Table 4: Maternal Child Health Indicators, 2005-2010

	Crude Birth Rate (per 1,000)	Infant Mortality Rate* (per 1,000)	Less Than Adequate Prenatal Care Utilization (%)	Low Birth Weight (%)	Births Under 18 Years of Age (%)	Mothers with Pre-Existing Medical Conditions (%)
State of Hawai'i	13.9	6.0	29.1	8.2	2.4	44.9
Honolulu County	14.1	6.2	25.8	8.3	2.0	48.8
East Honolulu	9.4	5.4	24.7	8.3	1.0	50.4
Hawai'i Kai - Kaimuki	8.3	5.5	22.4	8.4	0.3	48.8
Waikiki - Pālolo	9.9	5.7	26.6	8.4	1.3	50.2
McCully - Makiki	8.7	4.7	24.5	7.8	1.0	51.9
Ala Moana - Nu'uuanu	10.7	5.6	25.2	8.7	1.4	50.6
West Honolulu	15.3	7.3	29.2	9.1	2.0	48.6
Downtown - Kalihi	12.8	7.8	29.3	9.3	2.9	54.4
Airport - Moanalua	17.9	6.9	29.1	8.9	1.4	44.2
'Ewa	15.0	5.9	24.5	8.6	1.9	49.4
Hickam - Pearl City	13.4	4.5	26.8	7.6	1.3	47.3
Waipahu	23.5	6.3	24.3	9.2	2.0	50.5
'Ewa - Kalaeloa	16.9	6.5	23.2	8.7	2.0	49.2
Kapolei - Makakilo	14.4	7.0	23.7	8.6	2.5	50.5
Mililani	4.4	4.6	21.9	9.1	1.4	50.4
Wahiawā	21.0	5.9	29.4	8.8	2.3	40.9
Wai'anae	19.8	10.1	25.1	8.0	5.5	57.7
Waialua	20.9	6.1	25.9	8.6	1.6	39.5
Ko'olauloa	17.7	6.3	29.9	5.3	1.8	52.0
Ko'olaupoko	14.3	5.2	24.6	7.1	2.0	44.9
Hawai'i County	13.2	5.9	34.0	8.0	3.5	34.1
Hilo	13.6	4.7	28.3	8.3	3.6	52.6
Puna	12.4	5.8	29.2	9.0	4.0	50.4
Ka'ū	11.8	8.7	50.3	6.2	4.0	25.3
South Kona	16.4	7.1	52.7	6.8	4.6	8.2
North Kona	13.3	5.8	43.7	7.7	3.2	10.4
South Kohala	14.7	4.9	27.3	7.5	2.7	22.1
North Kohala	9.4	12.4	29.5	6.2	2.2	21.1
Hāmakuā	12.2	8.8	25.0	7.5	3.0	25.0
Maui County	13.4	4.8	46.2	7.4	3.0	35.9
Hāna	14.6	NR	63.2	5.5	6.5	30.8
Makawao	11.4	3.9	47.0	6.9	2.1	32.9
Wailuku	14.2	4.2	47.4	7.7	3.1	35.6
Lāhainā	13.5	6.7	48.8	6.4	2.6	35.0
Lāna'i	13.9	NR	33.0	12.6	2.7	47.5
Moloka'i	14.6	7.7	23.4	7.8	6.0	50.9
Kaua'i County	12.7	5.2	24.9	7.8	3.5	35.1
Hanalei	10.0	NR	30.0	5.3	2.1	28.1
Kapa'a	13.1	5.3	26.2	7.2	2.4	30.6
Līhu'e	13.2	4.7	20.4	10.1	3.8	38.1
Kōloa	11.9	4.2	22.5	8.4	3.9	37.2
Waimea	14.1	8.2	28.3	6.6	5.4	41.6

* Data years 2001-2010

Source: State of Hawai'i, Department of Health, Office of Health Status Monitoring;
U.S. Department of Commerce, U.S. Census Bureau, Population Estimates

Note: Rates were not reportable (NR) for areas with less than 5 events.

Summary Table 5: Adult Morbidity Indicators, 2005-2010

	Adults who are Obese (%)	Adults who Smoke (%)	Adults who are Heavy Drinkers (%)	Adults With No Physical Activity (%)	Adults with Diabetes (%)	Adults with High Blood Pressure*
State of Hawai'i	21.9	16.1	6.9	19.2	8.8	28.4
Honolulu County	21.3	15.3	6.3	19.5	9.0	29.0
East Honolulu	15.6	12.9	6.0	16.8	8.3	27.7
Hawai'i Kai - Kaimuki	13.2	9.9	6.4	14.6	7.8	30.2
Waikiki - Pālolo	16.3	16.6	7.0	19.5	6.7	24.7
McCully - Makiki	15.1	13.0	5.4	17.5	9.8	30.3
Ala Moana - Nu'uuanu	18.5	14.4	5.4	17.3	8.3	23.5
West Honolulu	17.7	14.3	5.5	25.0	7.8	26.5
Downtown - Kalihi	15.4	12.4	4.4	28.5	8.6	28.3
Airport - Moanalua	20.1	16.4	6.6	21.2	7.0	24.6
'Ewa	22.1	16.0	6.1	19.8	9.4	29.4
Hickam - Pearl City	20.5	15.6	5.4	20.3	9.4	30.9
Waipahu	21.3	15.3	5.0	22.5	10.8	30.8
'Ewa - Kalaeloa	24.5	19.8	7.3	20.1	9.0	30.4
Kapolei - Makakilo	27.7	17.9	8.7	18.6	9.1	26.0
Mililani	19.8	13.4	5.6	16.7	8.1	26.8
Wahiawā	27.5	21.0	6.3	21.9	11.2	29.1
Wai'anae	43.5	26.0	10.4	25.2	13.7	32.6
Waialua	13.8	15.9	7.1	25.2	6.0	35.4
Ko'olauloa	30.2	17.0	9.1	18.2	6.9	28.8
Ko'olaupoko	23.4	13.4	6.6	16.0	8.7	30.8
Hawai'i County	23.6	19.6	8.5	19.7	8.8	28.3
Hilo	24.6	19.3	8.5	19.5	10.2	32.5
Puna	22.8	20.7	7.3	21.2	8.3	30.3
Ka'ū	27.9	25.9	8.2	23.2	9.5	28.2
South Kona	23.2	24.2	10.6	24.3	8.6	27.7
North Kona	21.3	16.3	9.2	18.4	7.2	25.1
South Kohala	21.6	13.7	7.9	14.6	5.2	22.3
North Kohala	18.4	25.3	10.2	14.7	10.5	26.8
Hāmakuā	26.2	16.7	8.6	19.6	11.0	22.9
Maui County	23.3	17.2	8.1	18.1	8.0	24.7
Hāna	19.2	21.6	10.2	12.6	6.1	11.7
Makawao	21.3	15.6	7.3	16.1	6.5	23.2
Wailuku	23.1	17.0	7.5	18.7	8.3	25.8
Lāhainā	22.6	18.3	9.8	20.4	9.3	22.6
Lāna'i	19.7	20.6	11.7	18.4	9.2	26.7
Moloka'i	37.6	21.1	11.4	20.1	11.5	30.6
Kaua'i County	22.2	16.7	8.7	16.1	8.7	28.0
Hanalei	14.7	11.0	12.1	8.3	4.5	27.4
Kapa'a	22.0	15.5	8.4	16.7	8.5	28.2
Līhu'e	24.5	20.1	5.8	19.8	11.9	36.7
Kōloa	19.8	14.0	9.5	15.0	7.7	22.5
Waimea	29.5	23.1	9.7	17.7	9.8	25.7

* 2005, 2007, 2009

Source: State of Hawai'i, Department of Health, Behavioral Risk Factor Surveillance System (BRFSS)

Summary Table 6: Mortality Indicators, 2005-2010

	Crude Death Rate (per 1,000)	Disease of the Heart Mortality Rate (per 100,000)	Cancer (Malignant Neoplasm) Mortality Rate (per 100,000)	Stroke (Cerebrovascular Disease) Mortality Rate (per 100,000)	Unintentional Injury Mortality Rate (per 100,000)
State of Hawai'i	6.8	135.2	134.7	38.2	28.7
Honolulu County	6.9	131.5	132.7	37.7	27.7
East Honolulu	8.6	114.4	124.9	34.2	25.5
Hawai'i Kai - Kaimuki	8.7	97.4	113.6	31.0	20.2
Waikiki - Pālolo	9.3	126.7	138.1	35.5	33.3
McCully - Makiki	7.7	115.8	119.0	34.9	19.7
Ala Moana - Nu'uuanu	8.8	122.5	132.6	36.5	30.0
West Honolulu	7.4	133.6	129.7	44.0	24.3
Downtown - Kalihi	8.9	144.6	131.3	44.6	28.5
Airport - Moanalua	6.0	119.4	128.3	43.7	19.8
'Ewa	5.3	132.0	125.6	35.2	21.0
Hickam - Pearl City	6.7	113.8	125.5	35.6	18.4
Waipahu	7.8	190.9	166.1	48.2	29.7
'Ewa - Kalaeloa	3.8	122.3	95.2	22.1	19.3
Kapolei - Makakilo	3.9	140.4	115.8	36.8	25.7
Mililani	1.9	72.3	91.9	22.8	10.0
Wahiawā	5.2	151.1	141.9	48.0	33.6
Wai'anae	7.3	260.4	197.0	46.4	58.6
Waialua	6.4	148.2	159.5	39.4	52.1
Ko'olauloa	5.1	170.4	149.9	28.2	36.8
Ko'olaupoko	7.2	126.5	146.7	39.8	30.3
Hawai'i County	7.2	154.8	143.6	45.6	37.6
Hilo	10.0	177.5	152.1	49.5	37.8
Puna	5.6	158.9	140.8	48.1	35.7
Ka'ū	7.4	168.7	168.9	30.2	44.9
South Kona	7.2	152.2	129.5	40.2	48.7
North Kona	6.0	117.6	148.1	46.8	39.0
South Kohala	5.3	149.9	143.1	42.7	29.5
North Kohala	5.6	115.9	111.7	45.0	28.0
Hāmakuā	8.2	168.3	140.7	39.3	37.7
Maui County	6.1	137.6	132.7	32.0	24.2
Hāna	5.7	231.3	90.2	NR	NR
Makawao	4.9	124.1	117.1	30.6	23.1
Wailuku	6.7	142.5	138.3	33.6	23.6
Lāhainā	5.0	127.6	131.0	26.7	23.0
Lāna'i	8.3	147.6	136.9	67.8	NR
Moloka'i	7.9	155.0	177.0	33.5	42.0
Kaua'i County	7.4	136.3	145.9	40.2	30.2
Hanalei	4.9	109.1	129.6	31.0	30.3
Kapa'a	6.8	144.6	147.2	47.1	26.1
Līhu'e	8.7	154.2	149.4	35.3	30.5
Kōloa	7.8	129.8	136.9	33.6	28.8
Waimea	8.6	119.5	173.1	56.4	39.0

Source: State of Hawai'i, Department of Health, Office of Health Status Monitoring;
U.S. Department of Commerce, U.S. Census Bureau, Population Estimates

Notes: Rates were not reportable (NR) for areas with less than 5 events.

Summary Table 7: Adult Oral Health Indicators, 2006, 2008, 2010

	Adults with No Dental Visit (%)	Adults with No Teeth Cleaning (%)	Adults with Permanent Teeth Removed (%)
State of Hawai'i	26.1	28.7	39.9
Honolulu County	24.1	26.0	38.8
East Honolulu	21.3	22.4	38.6
Hawai'i Kai - Kaimuki	16.3	18.4	32.3
Waikiki - Pālolo	26.0	25.9	46.5
McCully - Makiki	22.1	22.5	40.3
Ala Moana - Nu'uauu	23.7	24.9	39.5
West Honolulu	26.1	27.3	41.3
Downtown - Kalihi	27.3	27.1	44.4
Airport - Moanalua	25.1	27.5	38.4
'Ewa	23.3	25.4	36.8
Hickam - Pearl City	21.4	23.8	35.5
Waipahu	26.0	27.8	40.8
'Ewa - Kalaeloa	27.2	29.3	35.9
Kapolei - Makakilo	22.8	24.1	39.1
Mililani	20.7	23.7	33.5
Wahiawā	19.6	22.4	42.1
Wai'anae	44.0	47.6	47.9
Waialua	31.3	32.9	32.1
Ko'olauloa	33.1	35.9	42.6
Ko'olaupoko	21.3	23.9	38.4
Hawai'i County	32.7	38.0	43.6
Hilo	30.9	36.3	42.3
Puna	35.9	43.8	42.5
Ka'ū	43.3	49.3	51.8
South Kona	37.9	39.4	47.8
North Kona	27.0	29.5	42.1
South Kohala	29.0	36.8	38.8
North Kohala	26.7	40.0	37.5
Hāmakuā	35.0	35.7	48.9
Maui County	28.4	32.7	42.1
Hāna	24.3	33.2	42.4
Makawao	28.4	32.0	39.7
Wailuku	28.2	32.6	42.5
Lāhainā	27.2	31.4	44.7
Lāna'i	38.3	42.7	45.3
Moloka'i	31.1	36.0	45.5
Kaua'i County	30.5	33.2	39.9
Hanalei	30.0	36.9	35.6
Kapa'a	32.9	36.2	41.9
Līhu'e	30.3	32.4	41.5
Kōloa	25.1	26.5	39.9
Waimea	35.1	35.6	36.6

Source: State of Hawai'i, Department of Health, Behavioral Risk Factor Surveillance System (BRFSS)

Summary Table 8: Mental Health and Substance Use Indicators, 2006-2010

	Substance Related (per 1,000)	Mood (%)	Delirium / Dementia (%)	Anxiety (%)	Schizophrenia (%)
State of Hawai'i	8.9	6.1	8.4	2.6	2.3
Honolulu County	8.0	5.7	9.0	2.5	2.3
East Honolulu	10.6	7.1	12.4	2.9	2.7
Hawai'i Kai - Kaimuki	5.9	6.3	14.8	2.4	1.3
Waikiki - Pālolo	13.2	7.7	11.8	3.4	2.8
McCully - Makiki	10.2	6.9	11.9	2.9	2.6
Ala Moana - Nu'uuanu	13.1	7.4	11.1	3.1	3.7
West Honolulu	8.7	5.1	8.5	2.3	2.7
Downtown - Kalihi	11.0	5.1	9.5	2.1	3.3
Airport - Moanalua	6.2	4.9	7.5	2.4	2.0
'Ewa	4.9	4.6	8.5	2.2	1.7
Hickam - Pearl City	5.0	4.9	9.8	2.4	1.7
Waipahu	4.3	4.0	10.5	1.7	2.5
'Ewa - Kalaeloa	5.7	4.9	7.0	2.3	1.3
Kapolei - Makakilo	5.3	4.8	6.7	2.5	1.2
Miilani	4.5	4.5	5.7	2.2	1.1
Wahiawā	6.7	6.2	5.5	3.0	1.7
Wai'anae	9.2	5.2	5.1	1.9	2.8
Waialua	8.1	5.2	6.5	2.5	1.5
Ko'olauloa	9.1	5.5	5.9	1.6	1.9
Ko'olaupoko	9.4	6.9	9.1	2.9	2.8
Hawai'i County	11.4	8.0	7.1	3.3	2.7
Hilo	10.0	9.1	9.0	3.5	3.5
Puna	13.3	10.9	5.5	4.6	3.3
Ka'ū	10.0	6.6	4.5	3.0	3.0
South Kona	13.7	6.5	6.6	2.8	2.1
North Kona	13.8	6.2	7.5	2.8	2.0
South Kohala	10.7	5.4	5.4	2.3	1.1
North Kohala	10.1	4.5	5.3	2.2	1.4
Hāmakuā	5.7	5.6	6.8	1.9	1.8
Maui County	11.9	5.8	6.5	2.6	1.6
Hāna	14.2	3.4	5.1	1.6	3.4
Makawao	12.3	6.9	6.2	3.2	1.4
Wailuku	11.0	6.0	6.9	2.5	1.7
Lāhainā	17.0	5.0	6.3	2.2	1.4
Lāna'i	6.2	3.2	5.0	1.5	0.9
Moloka'i	8.0	3.1	4.3	1.4	1.4
Kaua'i County	8.1	6.8	7.5	2.6	2.3
Hanalei	11.5	8.0	6.0	2.7	2.9
Kapa'a	9.3	7.3	7.3	2.7	2.6
Lihu'e	7.1	7.5	9.3	2.9	2.8
Kōloa	6.8	6.2	6.9	2.8	1.7
Waimea	7.3	4.7	6.2	1.9	1.7

Source: Hawai'i Health Information Corporation (HHIC)

CHAPTER 1: INTRODUCTION

PURPOSE

The *Primary Care Needs Assessment Data Book* is a compendium of comparative health statistics on 35 primary care service areas in the State of Hawai'i. This edition represents a change from previous versions in which the three largest areas in Honolulu County were expanded to 11 areas to show a finer level of detail. These three original areas are maintained in this edition for historical purposes and to highlight the diversity found in these areas. There were some other major changes resulting from the way data is collected in the decennial census that resulted in entirely new indicators that may not match those found in previous editions of the Data Book. There were also some changes in the presentation of data with an increased emphasis on community level maps.

This Data Book was developed to assist policy makers, health planners, health care professionals and community members in making assessments of the relative health risks and primary health care needs of these communities. This Data Book demonstrates significant differences in risks related to geography, but it is important to be aware there are other characteristics such as race/ethnicity, gender, age, education, poverty, and other factors that may explain the observed disparity. In strategic planning to address differences at the community level, it is essential to consider the impact of all measures due to the complex nature of disparities.

HISTORY OF THE DATA BOOK

In the early 1990's, meetings were held to develop the *Primary Care Access Plan* for the State of Hawai'i. Stakeholders from the public and private sectors were brought together to identify primary care needs and recommend appropriate allocation of resources to ensure the best possible primary care services for the people of Hawai'i. In 1994, the *Primary Care Access Plan* was released and included the development of a *Primary Care Needs Assessment Data Book* that could be used for strategic planning purposes.

Primary care is defined in this plan to be the integration of services that promote and preserve health, prevent disease, injury and dysfunction, and provide a regular source of care for acute and chronic illness and disabilities. Primary care providers are seen as the entry point into the larger health services system. The primary care provider incorporates community needs, risks, strengths, resources, and cultures into clinical practice while sharing an ongoing responsibility for health care with each family.

Earlier editions of this Data Book primarily addressed maternal and infant health and socio-economic risks, but over the years the focus was expanded to include more comprehensive indicators reflecting the diversity of primary care. The 2005 edition of the Data Book introduced several new indicators including smoking, diabetes, obesity, stroke and heart disease mortality, and some measures of adult oral health. The 2009 revision reorganized and broadened the scope of the Data Book by including several new risk factors for chronic disease and cancer mortality. This 2012 edition adds information on hospital discharge data related to mental health and substance use disorders. In addition, some of the socio-economic data was changed to reflect data available in the American Community Survey. Comments on the usefulness of the information and suggestions for new indicators were obtained through feedback surveys, presentations to the Hawai'i Primary Care Association, and through an online survey sent to those who were mailed a copy of the previous edition. It is hoped that the Data Book continues to be a valuable resource on population-level measures of risks along the life course from birth until death.

DATA SOURCES

Data was collected from public documents and unpublished files by several government agencies, namely: the United States Bureau of the Census, for socio-economic and demographic data; the Hawai'i Department of Health, Office of Health Status Monitoring, for vital statistics data, the Behavioral Risk Factor Surveillance System (BRFSS) Program, for adults that are uninsured, have chronic disease risk factors, and oral health data; and the Hawai'i Health Information Corporation, for mental health data.

United States Bureau of the Census

The U.S. Constitution requires the U.S. Census to count every resident in the United States every 10 years. The last Census was done in 2010. Census information affects the numbers of seats each state occupies in the U.S. House of Representatives. Data from the Census can be analyzed to determine demographic information such as number of residents, their ages, their race/ethnicity, family composition, and other measures living in a particular census tract. The Census data no longer collects specific information on what used to be found on the long form. The American Community Survey (ACS) was expanded to capture most of this information. The ACS is collected on an annual basis and provides data at the census tract level on a rolling basis rather than every 10 years. For this Data Book, a five year (2006-2010) aggregate is used to report out information based on census tract estimates.

Vital Statistics

The collection of Vital Statistics data including births, deaths, and marriages in the State is coordinated by the Office of Health Status Monitoring (OHSM) in the Hawai'i Department of Health. This data is used to report on indicators of health status for the State. The birth certificate data includes demographic and other characteristics about the infant, the parents, and factors related to the pregnancy and delivery. The information from the death certificate includes demographic and some basic information related to the cause and circumstance of the death. More information on the Hawai'i vital statistics data is available online at <http://hawaii.gov/health/statistics/vital-statistics/index.html>.

Behavioral Risk Factor Surveillance System Survey

The Behavioral Risk Factor Surveillance System (BRFSS) is a state-based health survey that collects information on adult health risk behaviors, preventive health practices, and health care access primarily related to chronic disease and injury. The BRFSS, first implemented in Hawai'i in 1986, is an annual survey funded by the Centers for Disease Control and Prevention. It is a random-digit telephone-based survey that provides weighted estimates to reflect those living in Hawai'i. Since 2000, the number of respondents increased from approximately 2,000 to 6,000 adults 18 years of age and over. In this Data Book, all estimates based on the BRFSS data for the population size and the number of individuals with a particular indicator are rounded to the nearest 100. More information on the Hawai'i BRFSS data is available online at <http://hawaii.gov/health/statistics/brfss/brfss/index.html>.

Hawai'i Health Information Corporation

The mission of the Hawai'i Health Information Corporation (HHIC) is to collect, analyze, and disseminate statewide health information in support of efforts to continuously improve the quality and cost-efficiency of health care services provided to the people of Hawai'i. HHIC is a private, not-for-profit corporation established in 1994 by the state's major private health care organizations. HHIC maintains one of the largest healthcare databases in Hawai'i, including inpatient, emergency department, and financial data. As an independent organization, HHIC has collected inpatient hospital data from licensed acute care hospitals in Hawai'i since 1995. The inpatient database currently includes approximately two million patient records. In 2000, Emergency Department (ED) data was added to HHIC's data repository and currently contains three million patient records. More information on HHIC and use of their data is available online at <http://hhic.org>.

HEALTH DISPARITIES

When looking at overall population level health, it's important to acknowledge that there are some subgroups in that population that may have differences when compared to other groups. The term disparity is often used to portray differences in health as being unjust and that a particular population group is at a disadvantage or suffering an increase burden of disease due to the differences. These differences could be related to multiple factors, which may include potentially (changeable, adjustable) modifiable factors such as inadequate access to health care services, socio-economic differences, education, health behaviors, and having a medical home. Whereas, non-modifiable factors could include population groups defined by age, race/ethnicity, and gender.

Often disparity research focuses on highlighting disparities among the non-modifiable factors such as race/ethnicity as it is relatively easy to measure and a simple way to categorize people. This simple categorization gets much more complicated when applied to a society with the diversity found in Hawai'i where more than a third of mothers who have a live birth and nearly a third of fathers report belonging to more than one of the five federal race groups (White, Black, Asian, Native Hawaiian and Other Pacific Islander, American Indian and Alaskan Native).¹ However, it's important to consider that race/ethnicity perhaps represents a cascade of different factors including modifiable behaviors common for particular subgroups. This contrasts with some conditions that may have an underlying genetic reason. It is imperative to assess if additional factors may be contributing to the disparity. It's also important to look at what factors may be contributing to better health outcomes among groups to determine if certain protective factors could benefit disadvantaged groups. Often, the true underlying reasons for disparities are not well characterized, but it is crucial to continue to monitor disparate populations and determine if these groups are improving or continuing to suffer an increased burden compared to others. Understandings disparities can lead to appropriate interventions to improve the overall health of the population.

The Centers for Disease Control and Prevention (CDC) developed National Healthy People Objectives and Goals to improve the health of society. Fundamental to reaching these objectives will require the elimination of long-standing and pervasive health disparities related to race/ethnicity, socioeconomic status, and other key dimensions of health. The Determinants of Health are central to address these concerns and are defined in Healthy People 2020 in five categories: 1) Policy Making; 2) Social Factors; 3) Health Services; 4) Individual Behavior; and 5) Biology and Genetics.

Determinants of Health reach beyond the boundaries of traditional health care and public health sectors. Sectors such as education, housing, transportation, agriculture, and environment can be chief allies in improving population health. The interrelationships among these influence individual and population health so interventions that target multiple Determinants of Health are more likely to be effective.²

In this report, geographic differences are highlighted at three distinct levels: 1) Primary care service area; 2) County; and 3) State. Differences across the levels are important to understand, but it's also important to look at other Determinants of Health that can contribute to disparities such as age, race/ethnicity, education, geography, insurance status, household federal poverty level, and medical home. The importance of more in depth analyses such as qualitative methods are often needed to understand the underlying reasons why a particular disparity exists. This report provides a lot of information and the reader is encouraged to use it in conjunction with other resources when planning and implementing public health activities.

1 Hamilton BE, Ventura SJ. Characteristics of births to single-and multiple-race women: California, Hawaii, Pennsylvania, Utah, and Washington, 2003. National vital statistics reports; vol 55 no 15. 2007.

2 U.S. Department of Health and Human Services. Healthy People 2020 Maternal and Infant Health Objectives. 2010. Available at <http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=26> .

RISK INDICATORS

A quantitative measure of the health and socio-economic risk faced by a population is used as a proxy for measuring the level of need for primary care services. It is implicitly assumed the higher the measured risk in a particular service area, the greater is the perceived need for primary care services. While the risk assessment approach may not be sufficient to capture all the complex dimensions of need, it allows for ease and objectivity in the comparative analysis of service areas. Risk indicators were selected for use in this Data Book from stakeholders input and the availability of data at the census tract or zip code level.

DELINEATION OF PRIMARY CARE SERVICE AREAS

Primary care service areas were selected to describe the delivery of primary health services in the State of Hawai'i through participation of multiple stakeholders in the early 1990's. The rural health associations of the Hawai'i, Maui and Kaua'i Counties delineated *rational service areas* under their respective jurisdictions. The Needs Assessment Committee of the Primary Care Roundtable participated in the delineation of *rational service areas* for Honolulu County. These *rational service areas* will be referred to as primary care service areas in this report. Clustering of neighborhoods into these primary care service areas is intended to provide information below the county or island level with demarcation between adjacent neighborhoods. Census tracts are used in defining these areas due to their availability in census and vital statistic data. The size of the population in these areas, based on the 2010 U.S. Census data, vary from 170 individuals in Ni'ihau and 2,291 in Hāna to 115,164 in Ko'olaupoku. Thus direct comparisons in estimates between primary care service areas are limited and this limitation will be described later in this chapter. Clusters of census tracts were defined using both 2010 and 2000 census tracts depending on the data source. Both groupings are presented in Table 1-1 and detail on usage in particular data sets are presented later in this chapter.

Kalawao County

Kalawao County occupies the Kalaupapa Peninsula on Moloka'i. The county does not have its own county government, and is administered by the Hawai'i State Department of Health. Its occupants are primarily Hansen's disease patients who chose to remain after 1969 when the quarantine policy was lifted, and those who work with them. An agreement with the state permits the current residents to reside there for the remainder of the lives. Access to the county by the public is restricted. The U.S. Census Bureau's 2010 population for Kalawao County was 90 with a median age of 55.3 years living in 69 households. Because Kalawao is a small, institutionalized population with unique social-demographic characteristics, its health data is generally not reported with those of the general population. For this Data Book, due to limitations described, general data is not included specifically for Kalawao County.

Ni'ihau

Ni'ihau is located southwest of the island of Kaua'i and is part of Kaua'i County. The island has been privately owned since 1864 with access to the island severely restricted. The 2010 U.S. Census reports Ni'ihau's population at 170. The population fluctuates as people move to and from Kaua'i for educational and economic opportunities. Medical services are generally acquired by residents on the island of Kaua'i. Due to its small population, absence of data, and unique social-demographic characteristics, health data is generally not reported for the island. Although Ni'ihau was one of the original primary care service areas identified in the *Primary Care Access Plan*, it is not included as a primary care service area for any of the indicators due to the limitations described above.

Table 1-1: Primary Care Areas Defined, 2000 and 2010 Census Tracts

Geography	2000 Census Tracts	2010 Census Tracts
State of Hawai'i		
Honolulu County		
East Honolulu	1 - 45	1 - 45, 9800
Hawai'i Kai - Kaimuki	1 - 9	1 - 9, 9800
Waikiki - Pālolo	10 - 20	10 - 20
McCully - Makiki	21 - 33	21 - 33
Ala Moana - Nu'uuanu	34 - 45	34 - 45
West Honolulu	46 - 72	46 - 71, 9802, 9813, 9814
Downtown - Kalihi	46 - 62	46 - 62
Airport - Moanalua	63 - 72	63 - 71, 9802, 9813, 9814
'Ewa	73 - 89	73 - 89, 114, 115, 9803
Hickam - Pearl City	73 - 81	73 - 80, 114
	82, 87 - 88, 89.05,	87 - 88, 89.12 - 89.14, 89.20 - 89.25
Waipahu	89.10 - 89.14, 89.20 - 89.99	
'Ewa - Kalaeloa	83 - 84, 86.05	83 - 85, 9803
Kapolei - Makakilo	85 - 86.04, 86.06 - 86.99	86, 115
Mililani	89.06 - 89.09, 89.15 - 89.19	89.06 - 89.09, 89.15 - 89.18, 89.26 - 89.31
Wahiawā	90 - 95	90 - 95, 9806, 9807
Wai'anae	96 - 98	96 - 98, 9400.02
Waialua	99 - 100	99 - 100
Ko'olauloa	101 - 102	101 - 102
Ko'olaupoko	103 - 113	103 - 113, 9400.01, 9808, 9810, 9811
Hawai'i County		
Hilo	201 - 209	201 - 209
Puna	210 - 211	210 - 211
Ka'ū	212	212
South Kona	213 - 214	213 - 214
North Kona	215 - 216	215 - 216
South Kohala	217	217
North Kohala	218	218
Hāmakuā	219 - 221	219 - 221
Maui County		
Hāna	301	301
Makawao	302 - 305	302 - 305, 9800
Wailuku	306 - 313	307 - 311, 319
Lāhainā	314 - 315	314 - 315, 320
Lāna'i	316	316
Moloka'i	317 - 318	317 - 318
Kaua'i County		
Hanalei	401	401
Kapa'a	402 - 403	402 - 403, 9400
Līhu'e	404 - 405	404 - 405
Kōloa	406 - 407	406 - 407
Waimea	408 - 409	408 - 409

Changes between 2000 and 2010 Census Tracts

Most 2010 census tracts remained unchanged, but a number of census tracts were split, merged, or revised resulting in changes to the census tract numbering. Other census tract numbering changes has occurred to reflect 1) Hawaiian Home Land Tracts (9400 - 9499), 2) Special Land Use Tracts (9800 - 9899), and 3) Water Tracts (9900 - 9989). Because the US Census Bureau changed their methodology, census tract numbering will be unique only within counties so there may be duplicate census tract numbers within State. Such as CT 319 for Kalawao, and Spreckelville, Maui and CT 9800 for Hanauma Bay, Oahu and Kahoolawe, Maui. The data sources vary on use of census tracts so somewhat different definitions were used in this report based on the available data. The following narrative identifies what tracts were used in the respective data sources and table 1-1 shows the census tracts used for the Primary Care Service Area.

Primary Care Service Areas and US Census Data

Data from the 2006-2010 American Community Survey (ACS) and the 2010 US Census was obtained at the census tract level. Primary Care Service Areas were assigned based on aggregated census tracts as noted in Table 1-1. All data from the 2006-2010 ACS was reported based on 2010 census tracts.

Primary Care Service Areas and Vital Statistics Data

Vital statistics is obtained at the census tract level and assigned to the appropriate primary care service area based on the 2000 census tracts as noted in Table 1-1. When census tract information was listed as unknown for a particular county, it was included in the county and State totals and not in an individual primary care service area.

Primary Care Service Areas and the BRFSS Data

BRFSS data is collected at the zip code level. When zip codes overlap census tracts, individuals are assigned to a census tract using a random number calculation based on a crosswalk obtained from the Missouri Census Data Center from 2000 census tracts using a 5% threshold (if more than 5% occurred in one area, this proportion was assigned to that area). For example, zip code 96786 overlaps two primary care service areas (Wahiawa and Waialua), but 91% of the population with a 96786 zip code reside in one of the areas (Wahiawa) based on the 2000 U.S. Census. Therefore, we randomly selected 91% of the respondents with this zip code to be assigned to Wahiawa, with the remaining 9% being assigned to Waialua. Due to changes with 2010 census tracts and zip codes, the original 2000 crosswalk was modified when possible due to zip codes lying entirely in specific census tracts. For example, zip code 96725 used to cover a much larger area that included Ka'ū and N. Kona, but with changes in how the zip code was defined in now covers a much smaller area that is exclusively within the N. Kona primary care service area. Thus, all observations with a 96725 zip code are assigned to N. Kona instead of a proportion assigned to Ka'ū. For the island of Ni'ihau, the island's small population and the limited number of land-line telephones mean very few if any of the residents would be captured in the BRFSS survey. Therefore, all respondents with a zip code 96769 were assigned to the primary care service area of Waimea which shares the same zip code.

Primary Care Service Areas and the HHIC Data

HHIC data has been available at the zip code level, but there was an initiative started in late 2011 to geocode all admissions. For the purposes of this report, geocoded data was available at the census tract level (2000 census tracts) for about 70% of all inpatient admissions. Areas not geocoded were assigned based on zip code to appropriate primary care service areas using the same procedure done with the BRFSS data.

MAP DEVELOPMENT

Throughout this Data Book, Geographical Information System (GIS) software was used to portray graphically some key information for the State of Hawai'i. In the first map, the individual primary care service areas we superimposed on a map for the State of Hawai'i. The second chapter overlays of the primary care service areas in Hawai'i are included to demonstrate how they interact with the standard federal designations representing areas at greatest need. As both the primary care service areas and the federal designations are based on census tracts, it is informative to see that some overlap completely; while others only a portion of the primary care service area is considered a federally designated area. For example on Map 1-2, within the primary care service area of South Kohala, only the census tract corresponding to Waikolola is considered a Primary Care Health Professional Shortage Area (HPSA). Similarly, Kalawao County is considered a Primary Care HPSA, but is not considered one of our primary care service areas.

Additionally, maps were developed to graphically portray each indicator using basic percentiles in six categories so the darkest color represent those primary care service areas with the highest risk (1-6), while the lightest color represents those at the lowest risk (31-35). These summary maps are useful to demonstrate variation in ranking of the individual indicators for the primary care service areas, but please refer to the section on *Data Limitations and Interpretation* when making conclusions based on these maps and corresponding tables.

DATA LIMITATIONS AND INTERPRETATION

The Small Numbers Problem

The *Small Numbers Problem* is a result of a small at-risk population. While there are clear advantages to using rates as a measure of frequency, there is a major limitation when the number of events (e.g., births, population) in the denominator is very small. To reduce this problem, data for six years was aggregated, whenever possible. However, even with such aggregation, the events number very few for some service areas. It is therefore advised that considerable caution be exercised in the interpretation of these rates, particularly in making comparisons. For example, in cases when the numerator of a multiple year period refers to a very small number of events (fewer than 20), the confidence interval is often too wide to make meaningful comparisons. In these instances a standardized ratio can be computed instead of a confidence interval.³ A standardized ratio is the relationship between the observed number of events versus the expected number of events. To calculate the expected number of events, state rates are applied to the area denominator to generate an expected number of events if the area rate was the same as the state rate. The equation for the expected number of events is:

$$\text{Area Denominator} \times \text{State Rate} = \text{Expected Number of Events}$$

A standardized ratio can then be calculated by dividing the observed number of events by the expected number and multiplying by 100. When the standardized ratio is greater than 200, the area in question is likely to have a rate that is significantly higher than the overall rate for the state.

$$\text{Standardized Ratio} = \frac{\text{Observed Number of Events}}{\text{Expected Number of Events}} \times 100$$

³ Family Health Outcomes Project (FHOP), Guidelines for Using Federal Data Templates with Small Numbers (1997).

Comparison of Primary Care Service Areas

The 35 primary care service areas are unweighted with respect to the size of the resident population so caution has to be used when comparing estimates between areas. Generally, estimates based on smaller populations will have less precision and be more variable when compared to those based on much larger populations. The presentation of confidence intervals highlight the variability found in the indicators by community and can facilitate comparisons to estimates found for the state, county, and with other primary care service areas.

Notes on Confidence Intervals

In order to assess if a particular primary care service area's rate on a health status indicator is different from some baseline rate or from the county or state average, it is necessary to compare the rates. But simply looking at the rates and determining which is higher or lower may not be meaningful when the *Small Numbers Problem* exists. For example, there are random fluctuations every year in the number of deaths that occur in a community, apart from the real changes in mortality rates due to epidemics, poor access to care, etc... In areas with very small populations and number of deaths, these fluctuations can produce large changes in mortality rates from year to year. This certain amount of variation between rates that can be expected due to chance and is not indicative of true changes occurring in the population is referred to as *random variation*. One way of interpreting the magnitude of random variation between rates is by using *confidence intervals*.

The confidence interval calculated for a particular service area rate indicates the expected range of random variation in the estimate. Suppose the service area rate is being compared to the state rate. If the confidence interval for the state rate overlaps the confidence interval for the service area, it can be inferred that the difference between the rates is probably due to random fluctuation (or chance) and there is probably no meaningful difference between the rates. On the other hand, if there is no overlap, it can be concluded that the difference between the rates is meaningful or statistically significant. The smaller the denominator used to calculate the rate for a particular service area, the larger the random fluctuation in the estimate, and the more likely that there may not actually be a meaningful differences. This is important to bear in mind during the comparison and interpretation of the rates. An example of the use of confidence intervals⁴ follows:

	Infant Mortality Rate	Confidence Interval	Number of Deaths	Number of Live Births
State	6.9	6.4 – 7.4	731	105,823
Service area X	6.8	5.8 – 7.8	179	26,186
Service area Y	4.7	3.4 – 6.1	47	9,897

Since the confidence interval for the state overlaps that of service area X, it can be concluded that service area X's infant mortality rate is not meaningfully different from the state rate. On the other hand, service area Y's infant mortality rate of 4.7 can be said to be significantly lower than the state rate since the confidence interval for service area Y does not overlap with the confidence interval for the state.

While confidence intervals are not a rigorous test of significance, they provide a reasonable guide to the interpretation of the magnitude of the random fluctuations in the difference between rates. Confidence intervals based on vital statistics and hospital discharge information were calculated using the standard formula introduced in the example above on infant mortality. American Community Survey Data standard 90% confidence intervals provided in the data were converted to 95% confidence intervals for consistency throughout this report. Statistical software, accounting for the complex survey design, was used to calculate the 95% confidence intervals for indicators based on BRFSS data. No confidence intervals were calculated for the 2010 census data population estimates for race groups.

⁴ Confidence Interval Lower Limit = $p - 1.96 * SE$. Confidence Interval Upper Limit = $p + 1.96 * SE$.
 p = area rate. SE= Standard error = (p/\sqrt{n}) . n = the number of events in the area.

CHAPTER 2: PRIMARY CARE OFFICE, UNINSURED, FEDERAL DESIGNATIONS

PRIMARY CARE OFFICE

The Hawai'i Primary Care Office (PCO) is located in the Department of Health (DOH), Family Health Services Division. This is a comprehensive program that promotes and supports access to primary care services for the medically underserved in Hawai'i. The PCO is responsible for overseeing the Health Professional Shortage Areas (HPSA), and Medically Underserved Area/Populations (MUA/P) designations. Designations document the medical, dental, and mental health needs in specific geographic areas. Once an area receives a shortage designation it is eligible for important federal programs including the National Health Service Corps (NHSC), Centers for Medicare & Medicaid Services (CMS) Medicare Incentive Payments, CMS Rural Health Clinic Program, J-1 Visa Waiver Program, Rural Health Clinic certification, and Federally Qualified Health Center (FQHC) and FQHC look-alikes.

The PCO is funded through the Health Services Administration (HRSA), Primary Care Services Resources Coordination and Development grant. The program's following core functions are to:

- Support organizational effectiveness and foster collaboration;
- Provide technical assistance to organizations and communities wishing to expand access to primary care for underserved populations;
- Conduct needs assessment(s) and data sharing;
- Support workforce development for the National Health Service Corps and safety Net/Health Center Network; and
- Review and update shortage designation areas.

The Hawai'i PCO works in close collaboration with federally qualified health center's (FQHC's), primary care contractors, the Hawai'i Primary Care Association, the Hawai'i State Office of Rural Health, Hawai'i Area Health Education Centers, the Native Hawaiian Health Scholarship Program, community stakeholders, and other public and private organizations to support the development, viability, and expansion of a statewide comprehensive primary health care system for the medically underserved. An integral part of the program is the provision of high-quality, culturally competent, coordinated, primary care services to the uninsured and underinsured through contracts with the 14 Federally Qualified Health Centers throughout the state and two community clinics. Services covered under these contracts include medical care, behavioral health, dental treatment, and pharmaceutical services. Program data demonstrates an ever increasing demand for services.

Having an accurate picture of our communities' health status and needs is critical for planning and program needs. This is accomplished through a needs assessment process supported by the PCO. The product of the statewide assessment is the PCO Needs Assessment Data Book a biennial publication, which provides essential data for identifying community, shortage designation, health workforce, and primary care health needs.

UNINSURED POPULATION IN HAWAII

Access to quality care is vital to eliminate health disparities and increase the quality and years of healthy life for all persons in the United States. Although the lack of health insurance is clearly a major factor impeding access to care, having health insurance does not guarantee that health care will be accessible or affordable. Significant numbers of privately insured persons lack a usual source of care or report delays or difficulties accessing needed care due to costs or insurance problems.¹

In Hawai'i, there are three major estimates of uninsured status generally reported and are based on the Behavioral Risk Factor Surveillance System (BRFSS) Survey, the Current Population Survey, and the American Community Survey (ACS). The BRFSS is limited to those aged 18 years and older. The US Census Bureau conducts both the Current Population Survey Annual Social and Economic Supplement (CPS ASEC) and the ACS on an annual basis to provide information related to insurance status.² The American Community Survey implemented questions related to insurance status in 2008 and will be available in the future at the census tract level. In the following table information related to the BRFSS, the CPS ASEC, and the ACS are presented for comparison related to the State estimates.

Table 2-1: State of Hawai'i Percent Uninsured by Age and Data Source, 2005-2010

Data Set and Age Group	2005	2006	2007	2008	2009	2010
BRFSS: 18 and older	7.8	8.3	6.0	6.3	7.3	6.8
BRFSS: 18-64	9.3	10.0	7.2	7.6	8.9	8.2
BRFSS: 65 and older	1.4	1.1	0.9	0.5	0.7	0.7
CPS ASEC: All ages	8.1	7.9	6.9	7.3	7.4	7.7
CPS ASEC: 0-17	4.6	5.0	4.3	5.1	2.4	2.3
CPS ASEC: 18-64	10.9	10.3	9.2	9.7	10.7	11.3
CPS ASEC: 65 and older	1.8	1.7	1.3	1.5	2.0	1.6
ACS: all ages	**	**	**	6.5	7.0	7.9
ACS: 0-17	**	**	**	3.4	2.5	3.7
ACS: 18-64	**	**	**	9.1	10.1	11.0
ACS: 65 and older	**	**	**	0.3	0.8	1.6

** Data not available from ACS prior to 2008.

There is some variation in estimates shown in the table which may be partly explained by the differences in methodologies used to obtain information on the uninsured. We have presented these estimates for the overall population in the above table, and expect that the true estimate is likely closer to that in the CPS ASEC data with a greater degree of underestimation by the BRFSS. Information at the sub county level is only available in BRFSS, so BRFSS data is presented for uninsured adults by primary care service area in this Data Book.

1 U.S. Department of Health and Human Services. Office of Disease Prevention and Health Promotion. Available online at: <http://www.healthypeople.gov/Document/HTML/Volume1/01Access.htm>.

2 U.S. Department of Commerce. U.S. Census Bureau. Available online at: <http://www.census.gov/hhes/www/hlthins/about/index.html>

BACKGROUND ON FEDERAL DESIGNATIONS

Health Professional Shortage Area (HPSA)

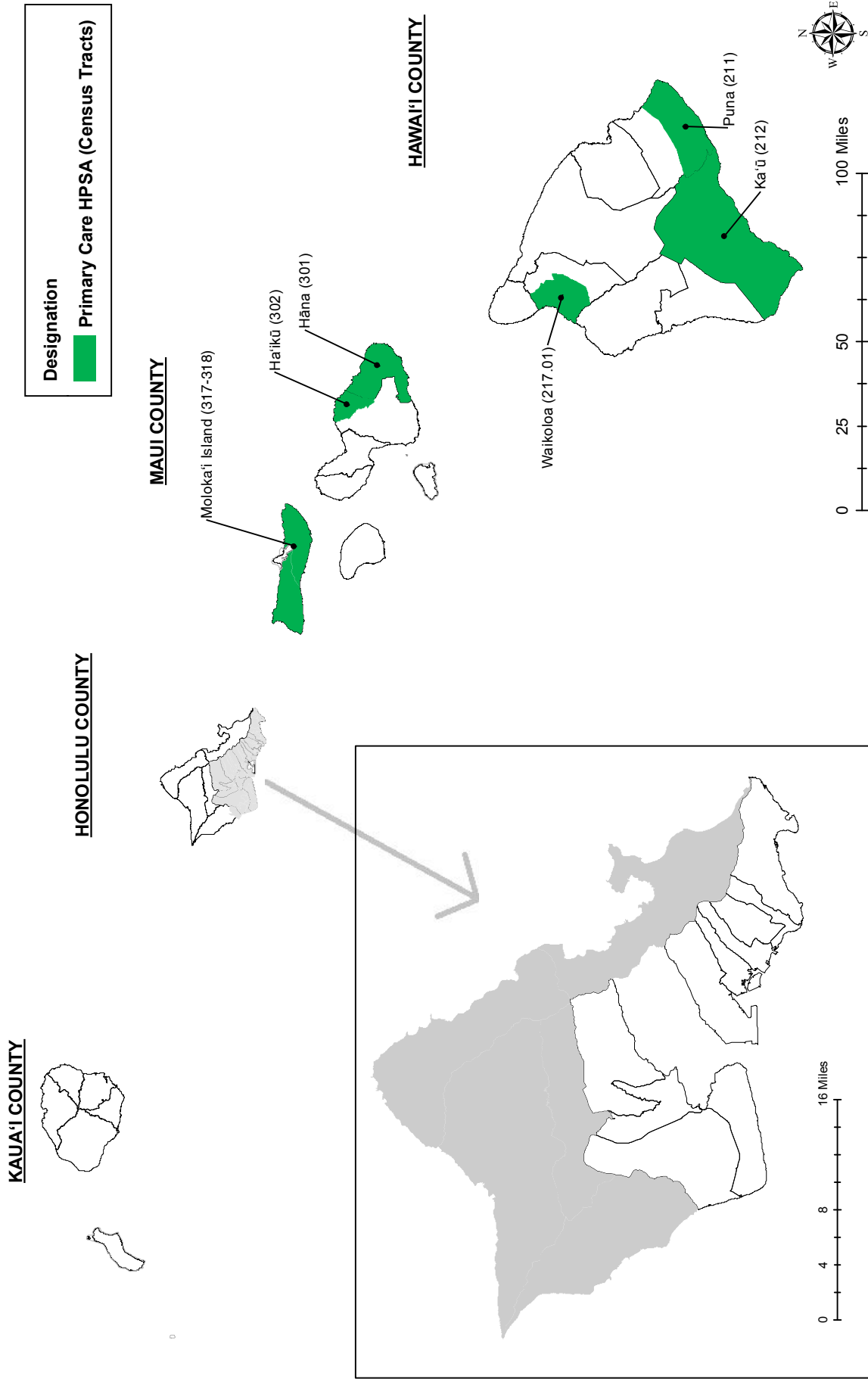
Health Professional Shortage Areas (HPSAs) are designated by HRSA as having shortages of primary medical care, dental or mental health providers and may be geographic (a county or service area), demographic (low income population) or facility (comprehensive health center, federally qualified health center or other public or private facility). Health Professional Shortage Area designations are based on general HPSA designation criteria, plus additional criteria and guidelines specific to each of the three types of designations (primary care, dental and mental health). Information about the specific designation criteria may be found at: <http://bhpr.hrsa.gov/shortage/hpsas/designationcriteria/designationcriteria.html>

Two federal programs, the National Health Service Corps (NHSC) and the Rural Health Clinic Certification Program, require a HPSA designation. The Area Health Education Center (AHEC) Program gives special consideration to centers that serve HPSAs with higher percentages of underserved minorities, and also provides special funding priority to centers offering substantial training experience in HPSAs. The Division of Shortage Designation of the Bureau of Health Professions with the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services is responsible for reviewing and designating HPSAs.

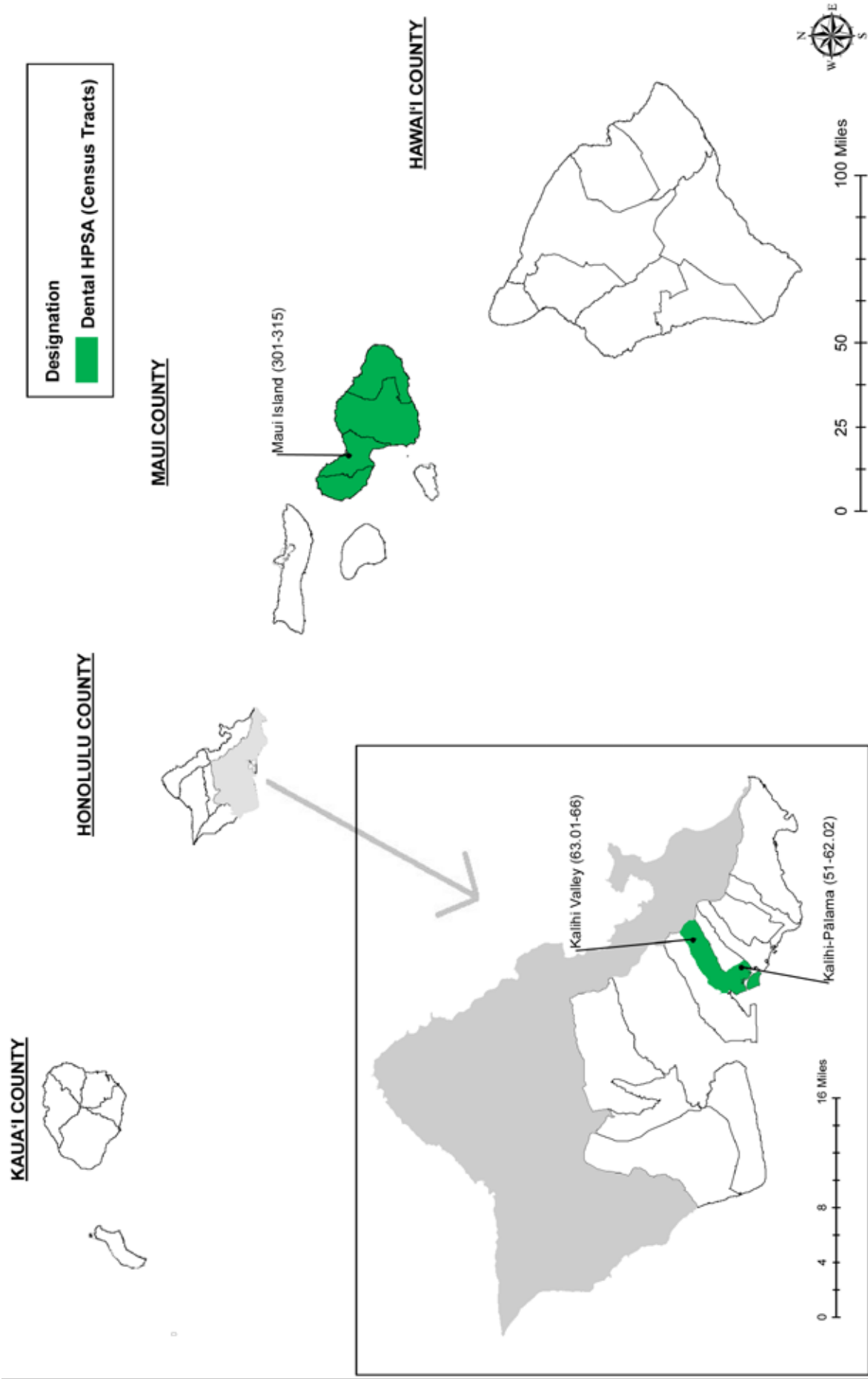
Medically Underserved Area/Population (MUA/MUP)

Medically Underserved Areas (MUAs) may be a whole county or a group of contiguous counties, a group of county or civil divisions or a group of urban census tracts in which residents have a shortage of personal health services. Medically Underserved Populations (MUPs) may include groups of persons who face economic, cultural or linguistic barriers to health care. Like HPSAs, MUA/Ps are determined using a set of eligibility criteria that computes an Index of Medical Under-service score. This score determines if an area may be designated as either a MUA or MUP. For more information on the criteria and scoring methodology see the website: <http://bhpr.hrsa.gov/shortage/muaps/index.html>.

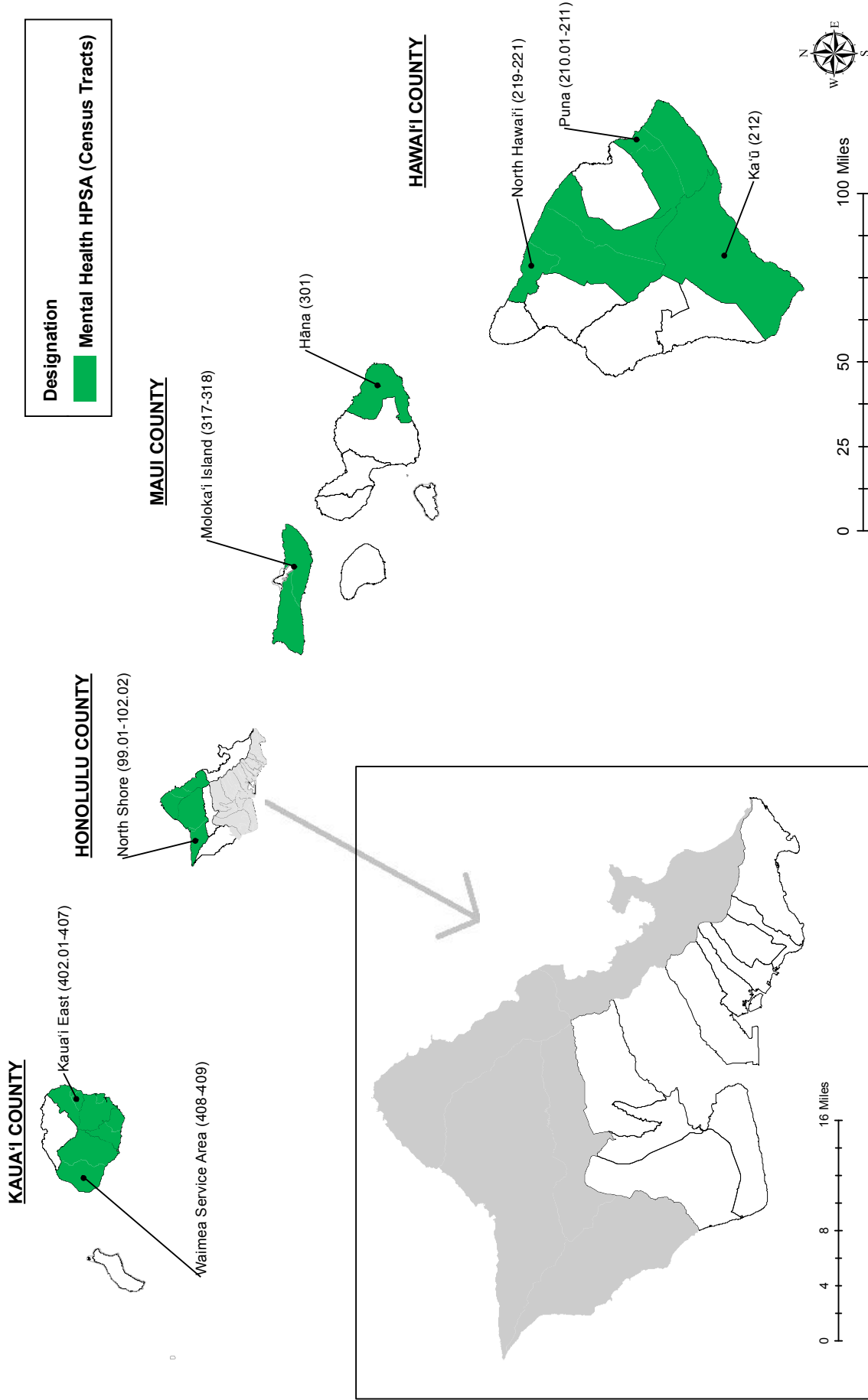
Sources: 42 CFR Chapter 1, Part 5; Health Resources and Services Administration, Bureau of Primary Health Care Guidelines; and the National Health Service Corps website, <http://nhsc.hrsa.gov/>.



Map 2-1: Location of Federally Designated Primary Care Health Professional Shortage Areas (HPSAs)



Map 2-2: Location of Federally Designated Dental Health Professional Shortage Areas (HPSAs)



Map 2-3: Location of Federally Designated Mental Health Professional Shortage Areas (HPSAs)

The National Health Service Corps (NHSC)

The National Health Service Corps is one of several scholarship and loan repayment assistance programs operated by the Bureau of Clinician Recruitment and Service (BRCS) to support the recruitment and retention of health care professionals to work in a HPSA. The NHSC program requires a service commitment by an individual to work at an approved health care site for at least two years in exchange for financial assistance. Eligible healthcare professionals are:

- Primary Care Physicians (Family Medicine, General Internal Medicine, General Pediatrics, Obstetrics/Gynecology, General Psychiatry)
- Nurse Practitioners
- Physician Assistants
- Certified Nurse-Midwives
- Dentists (General dentistry and pediatric dentistry)
- Dental Hygienists
- Mental and Behavioral Health Professionals (health service psychologists, clinical social workers, licensed professional counselors, marriage and family therapists, and psychiatric nurse specialists)

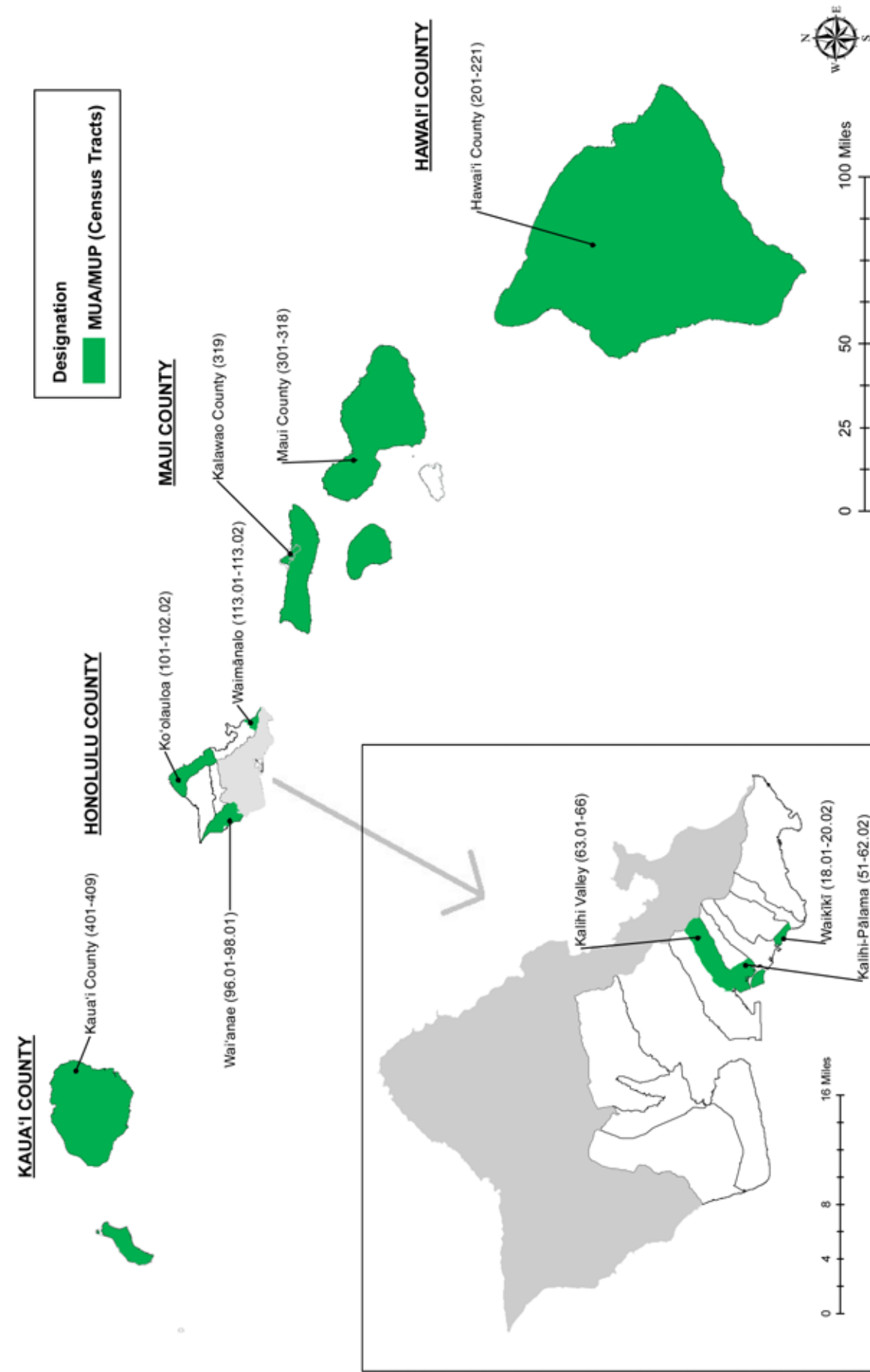
These health professionals can apply to serve as :

- Ready Responders (serve on a mobile team as U.S. Public Health Service commissioned officer)
- Obligated Scholars (graduates who have been provided tuition support in return for obligated service in a HPSA)
- Participants in the NHSC Loan Repayment program (professionals who receive loan repayment while serving in a HPSA)

Many types of practices can apply to become eligible sites for the placement of NHSC Ready Responders, Scholars and Loan Repayers, including:

- FQHCs, FQHC Look-A-Likes, and Rural Health Clinics
- Public Health Departments
- Hospital Affiliated Primary Care Practices
- Managed Care delivery systems
- Group Practices, Clinic Networks
- Solo Practices/Partnerships
- State and Federal Prisons
- U.S. Immigration, Customs & Enforcement
- Tribally Run Indian Health Service Sites and Federal Indian Health Service Sites
- Other (Critical Access Hospital, Community Mental Health Center, Free Clinic, Mobile units, School-based clinic)

More information and application forms for interested health professionals and practice sites can be found at <http://nhsc.hrsa.gov>. For further assistance call the NHSC Helpline at 1-800-221-9393 (available from 9 a.m. to 5:30 p.m. EST) or through the new Customer Service Portal @ <https://programportal.hrsa.gov/extranet/landing.seam>.



Map 2-4: Location of Federally Designated Medically Underserved Areas/Populations (MUAs/MUPs)

COMMUNITY HEALTH CENTERS AND CLINICS

Access to health care occurs in many settings. Ideally, an individual will have a central medical home where all services are coordinated. This data report focuses on primary care access among Rural Health Clinics, FQHC and FQHC Look-Alikes, and State Primary Care Contractors.

Rural Health Clinic (RHC)

The Rural Health Clinic (RHC) program is intended to increase primary care services for Medicaid and Medicare patients in rural communities. RHCs can be public, private, or non-profit, and must be located in rural underserved areas as designated under Section 1861(aa)(2) of the Social Security Act. An advantage of having a RHC status is the enhanced reimbursement rates for providing Medicaid and Medicare services. A RHC is required to use a team approach of physicians and mid-level practitioners such as nurse practitioners, physician assistants, and certified nurse midwives to provide services. The clinic must be staffed at least half time with a mid-level practitioner and must provide the same services that are required of a community health center.

Federally Qualified Health Center (FQHC) and FQHC Look-A-Likes

Community health centers are community-based and patient-directed organizations that serve populations with limited access to health care. These include low income populations, the uninsured, those with limited English proficiency, migrant and seasonal farm workers, individuals and families experiencing homelessness, and those living in public housing. A Federally Qualified Health Center (FQHC) is a community health center that meets certain criteria under the Medicare and Medicaid Programs (respectively, Sections 1861 (aa)(4) and 1905(I)(2)(B) of the Social Security Act and receive funds under the Health Center Program (Section 330 of the Public Health Service Act). FQHC Look-Alikes are health centers that have been identified by HRSA and certified by the Centers for Medicare and Medicaid Services as meeting the definition of “health center” under Section 330 of the Public Health Service Act, however they do not received grant funding under Section 330. A Federally Qualified Health Center is an entity which meets the requirements of a federally-funded health center, whether or not it receives a grant under Sections 329, 330 or 340 of the Public Health Service Act. These requirements include being nonprofit, having a community-based board of directors, providing or arranging all the necessary and enabling services, providing care regardless of the ability to pay, and must be in or serve a HPSA. There are 14 FQHC’s in Hawai’i to help serve as Hawai’i’s safety net. All of the FQHC’s provide the un- and underinsured with primary care services through Department of Health contracts. Many of these FQHC’s have satellite sites that expand primary care services to additional areas. In order to simplify the map on the next page, we have only shown the satellite clinics located outside of Honolulu County.

State Funded Primary Care Contractors

The Department of Health identified the need to provide primary care services to areas that did not meet the requirements for a RHC or FQHC, but were critical in ensuring appropriate access to services. Currently, there are three sites that receive such funding identified through an open and competitive procurement process. These health centers and clinics expand access to primary care services for the medically underserved that are coordinated, culturally sensitive, and focus on health promotion and disease prevention.

HAWAI'I HEALTH SYSTEMS CORPORATION AND CRITICAL ACCESS HOSPITALS

Hospitals provide advanced services for those with and without health insurance. There are some hospitals with 24 hour emergency services, some with urgent care, and others that focus on long-term care. This section highlights hospital resources organized within the Hawai'i Health Systems Corporation and those designated as a critical access hospital.

Hawai'i Health Systems Corporation (HHSC)

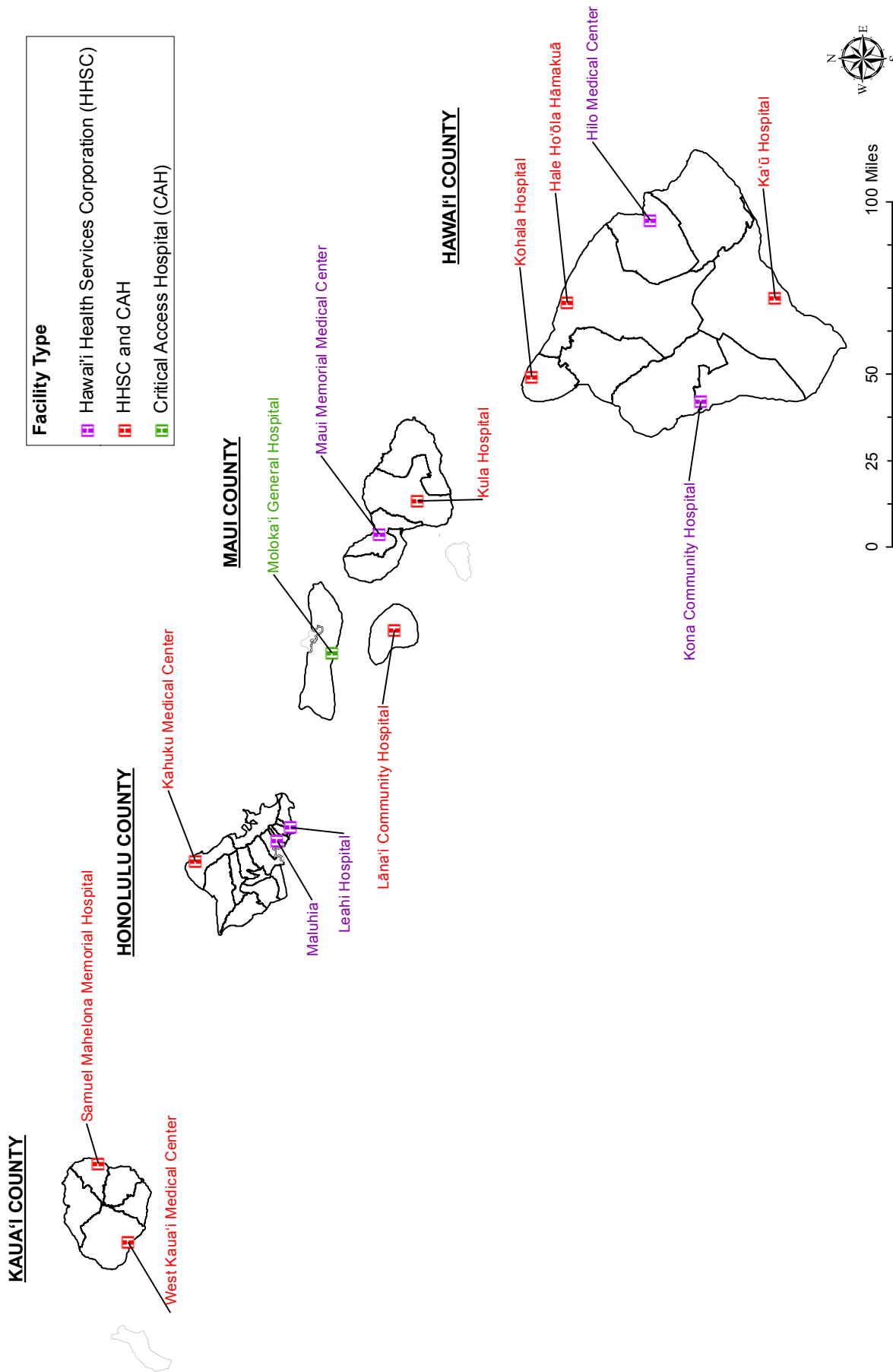
The Hawai'i Health Systems Corporation (HHSC) was established by the Hawai'i State Legislature in 1996 to more efficiently and effectively manage and operate the 13 community-based hospitals in the State. The HHSC is the fourth largest public healthcare system in the United States, and in Hawai'i, the single largest provider of long-term care services and collectively the largest provider of emergency services. HHSC has restructured the original 13 acute and long-term care hospitals of the State into five regions, providing quality healthcare to the Neighbor Island communities, thereby greatly enhancing the inter- and intra-regional operational support and fiscal efficiency of those hospitals. All HHSC hospitals are fully licensed and certified or accredited by a state or federal accrediting organization.

Critical Access Hospital (CAH)

A critical access hospital (CAH) is a small, rural hospital considered critical to providing access to medical care to the populations they serve. These hospitals have less than 25 acute care beds and must maintain 24-hour emergency departments. Because these hospitals are considered critical for maintaining the rural health safety net, they receive cost-based reimbursement from Medicare.

Table 2-2: Hawai'i Health Systems Corporation (HHSC) and Critical Access Hospitals

County	HHSC Hospitals	Critical Access Hospitals
Honolulu	Kahuku Medical Center Leahi Hospital Maluhia	Kahuku Medical Center
Hawai'i	Kohala Hospital Hale Ho'ōla Hāmākua Ka'ū Hospital Kona Community Hospital Hilo Medical Center	Kohala Hospital Hale Ho'ōla Hāmākua Ka'ū Hospital
Maui	Maui Memorial Medical Center Kula Hospital Lāna'i Community Hospital	Kula Hospital Lāna'i Community Hospital Moloka'i General Hospital
Kaua'i	West Kaua'i Medical Center Samuel Mahelona Medical Center	West Kaua'i Medical Center Samuel Mahelona Medical Center

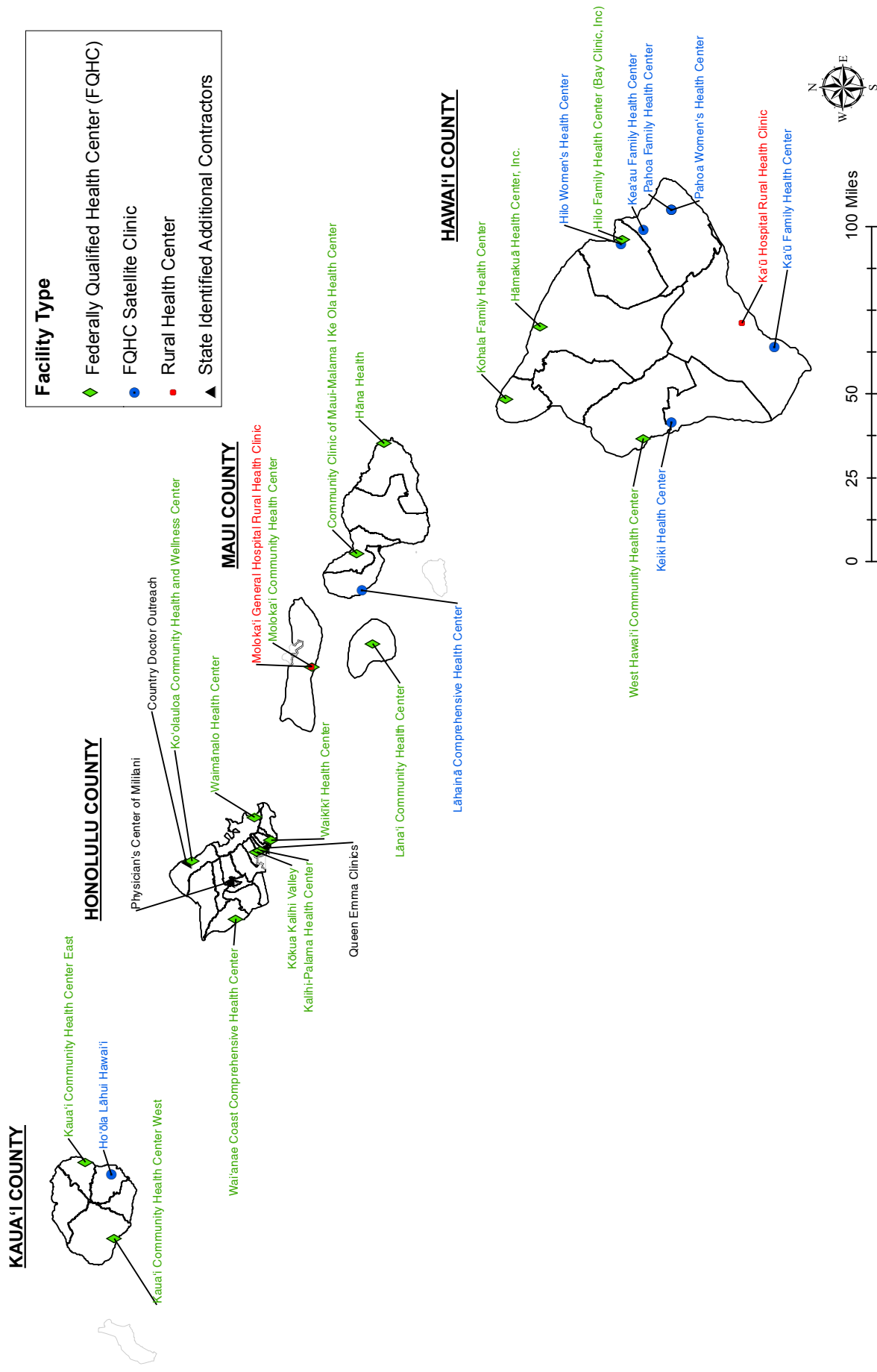


Map 2-5: Location of Hawai'i Health Services Corporation and Critical Access Hospitals

Table 2-3: Automatic Facility Health Professional Shortage Area Scores by Area, Type, and Classification

Facility	Primary Care Designation Score	Dental Health Designation Score	Mental Health Designation Score	Facility Classification
Honolulu County				
Kalihi-Pālama Health Center	12	10	10	CHC
Kōkua Kalihi Valley	10	10	10	CHC
Ko'olauloa Health and Wellness Center	18	24	16	CHC
Papa Ola Lokahi	0	0	0	FQHC-LA
Wai'anae Coast Comprehensive Health Center	7	11	17	CHC
Waikīkī Health Center	6	10	10	CHC
Waimānalo Health Center	7	10	9	CHC
Federal Detention Center Honolulu	12	12	12	Correctional
Hālawa Correctional Facility	3	15	3	Correctional
Women's Community Correctional Center	3	9	3	Correctional
Hawai'i County				
Bay Clinic	17	21	11	CHC
Hāmākua Health Center	5	8	10	CHC
Hui Malama Ola Na 'Oiwi	10	0	0	CHC
West Hawai'i Health Center	4	6	8	CHC
Maui County				
Community Clinic of Maui	14	6	13	CHC
Hāna Community Health Center	5	5	18	CHC
Hui no ke Ola Pono	0	0	0	CHC
Lāna'i Community Health Center	8	0	7	CHC
Moloka'i 'Ohana Health Care	5	10	18	CHC
Moloka'i General Hospital	5		18	RHC
Na Pu'uwai	0	0	0	CHC
Kaua'i County				
Ho'ola Lahui Hawai'i/Kaua'i Community Health Center	5	10	10	CHC
<p>CHC — Comprehensive Health Center FQHC-LA—Federally Qualified Health Center Look-Alike HPSA — Health Professional Shortage Area RHC — Rural Health Clinic</p> <p><u>Note: Automatic Facility HPSA Scores may be subject to change. Check for updated scores at http://hpsafind.hrsa.gov/HPSASearch.aspx</u> (under "Type" choose the type of facility)</p> <p>Clinics may use the higher of their parent site's Automatic Facility Score or the geographic or population group score for the Census Tract in which they are located (see Table 11)</p>				

Note: Designations listed are as of May 2012



Map 2-6: Location of Community Health Centers and Clinics

Table 2-4: Medically Underserved Area/Population and Health Professional Shortage Area Designations by Area, Type, Score, and Designation Date

Area (Census Tract)	Medically Underserved Area/Population (MUA/P)	Primary Care HPSA	Dental HPSA	Mental Health HPSA	Primary Care	Dental	Mental Health
		Designation/Scores			Date of Last HPSA Update		
Honolulu County							
Waikīkī (18.01-20.02)	GOV MUP						
Kalihi-Pālama (51-62.02)	GOV MUP		** 11			Jun 2011	
Kalihi Valley (63.01-66)	MUA		** 11			Jun 2011	
Wai'anae (96.01-98.01)	MUA						
North Shore (99.01-102.02)				** 10			Feb 2009
Ko'olauloa (101-102.02)	MUA						
Waimānalo (113.01-113.02)	GOV MUP						
Hawai'i County							
Hawai'i County	MUP						
Puna (210.01-211)		* (211) 13		* 16	Nov 2011		Aug 2007
Ka'ū (212)		* 15		* 14	Nov 2011		Aug 2011
Waikoloa (217.01)		* 12			Nov 2011		
North Hawai'i (219-221)				* 17			May 2012
Maui County							
Hāna/Ha'ikū (301-302)	GOV MUP	* 14	** 18	* (301) 9	Aug 2011	Apr 2008	Sep 2011
Maui (303.01-315)	MUP		* 12			Mar 2009	
Lāna'i Island (316)	MUP						
Moloka'i Island (317-318)	MUA	* 10		* 17	Nov 2008		Aug 2007
Kaua'i County							
Kaua'i County	GOV MUP						
Kaua'i East (402.01-407)				* 9			Aug 2011
Waimea Service Area (408-409)				* 14			May 2012
Kalawao County							
Kalawao County (319)	MUA						
<p>MUA — Medically Underserved Area MUP — Medically Underserved Population HPSA — Health Professional Shortage Area GOV MUP — Medically Underserved Area requested by Governor * — Approved as an Area designation ** — Approved as a Population designation</p>							

Note: Designations listed are as of May 2012

CHAPTER 3: POPULATION AND SOCIO-ECONOMIC STATUS

Population level factors often contribute to disparities in health with significantly higher risks in most adverse outcomes among those living in poverty, some racial/ethnic groups, those with low education and with other factors. This chapter was developed to highlight many of the key population and socio-economic indicators that may be related to the health disparities observed between populations.

POPULATION STATUS INDICATORS

Total Number of Residents	=	Number of resident population in each service area
Population Density*	=	$\frac{\text{Number of resident population in each service area}}{\text{Total area in square miles}}$
Percent of Population Under 18 Years of Age	=	$\frac{\text{Number of persons Under 18 years of age}}{\text{Total population}}$
Percent of Population 65 Years of Age and Over	=	$\frac{\text{Number of persons 65 years of age and over}}{\text{Total population}}$
Percent of Population that are White	=	$\frac{\text{Number of White (alone or in combination) in each service area}}{\text{Total number of persons in each service area}}$
Percent of Population that are Native Hawaiian	=	$\frac{\text{Number of Native Hawaiians (alone or in combination) in each service area}}{\text{Total number of persons in each service area}}$
Percent of Population that are Filipino	=	$\frac{\text{Number of Filipinos (alone or in combination) in each service area}}{\text{Total number of persons in each service area}}$
Percent of Population that are Japanese	=	$\frac{\text{Number of Japanese (alone or in combination) in each service area}}{\text{Total number of persons in each service area}}$
Percent of Population that are Chinese	=	$\frac{\text{Number of Chinese (alone or in combination) in each service area}}{\text{Total number of persons in each service area}}$

* Area for Population density includes all land in respective area and does not differentiate land designation or utilization.

** Total Population for rates used 2010 Census Data. Other Estimates used 2006-2010 American Community Survey Data.

SOCIO-ECONOMIC STATUS INDICATORS

Uninsured Adults***	=	Population of Adults that were Uninsured
Percentage of Population Below 100% of Federal Poverty Level	=	$\frac{\text{Number of persons with incomes below 100 percent of the federal poverty level}}{\text{Total population}}$
Per Capita Income	=	Average Annual income (U.S. dollars) per person
Percent of Civilian Labor Force Unemployed	=	$\frac{\text{Number of persons in civilian labor force (25-64 years of age) unemployed}}{\text{Total civilian labor force}}$
Percent of Population 25 Years of Age and Older with No High School Diploma	=	$\frac{\text{Number of persons 25 years of age and over with no high school diploma}}{\text{Total population 25 years of age and over}}$
Percent of Children in Households Receiving Assistance	=	$\frac{\text{Receipt of Supplemental Security Income (SSI), cash public assistance, or Food stamps/SNAP in past 12 months for children under 18 years of age in households}}{\text{Total number of households}}$
Percent of Households Receiving SNAP	=	$\frac{\text{Number of households receiving food stamps/ Supplemental Nutrition Receipt (SNAP) in past 12 months}}{\text{Total number of households}}$
Percent of Population Foreign Born	=	$\frac{\text{Number of persons born outside the United States}}{\text{Total population}}$
Percent of Households Linguistic Isolation	=	$\frac{\text{Number of households with no one 14 years of age and older who speaks English only or English very well}}{\text{Total number of households}}$

***Uninsured estimates are from BRFSS, 2005-2010 with all other indicators from standard measures/tables from American Community Survey, 2006-2010.

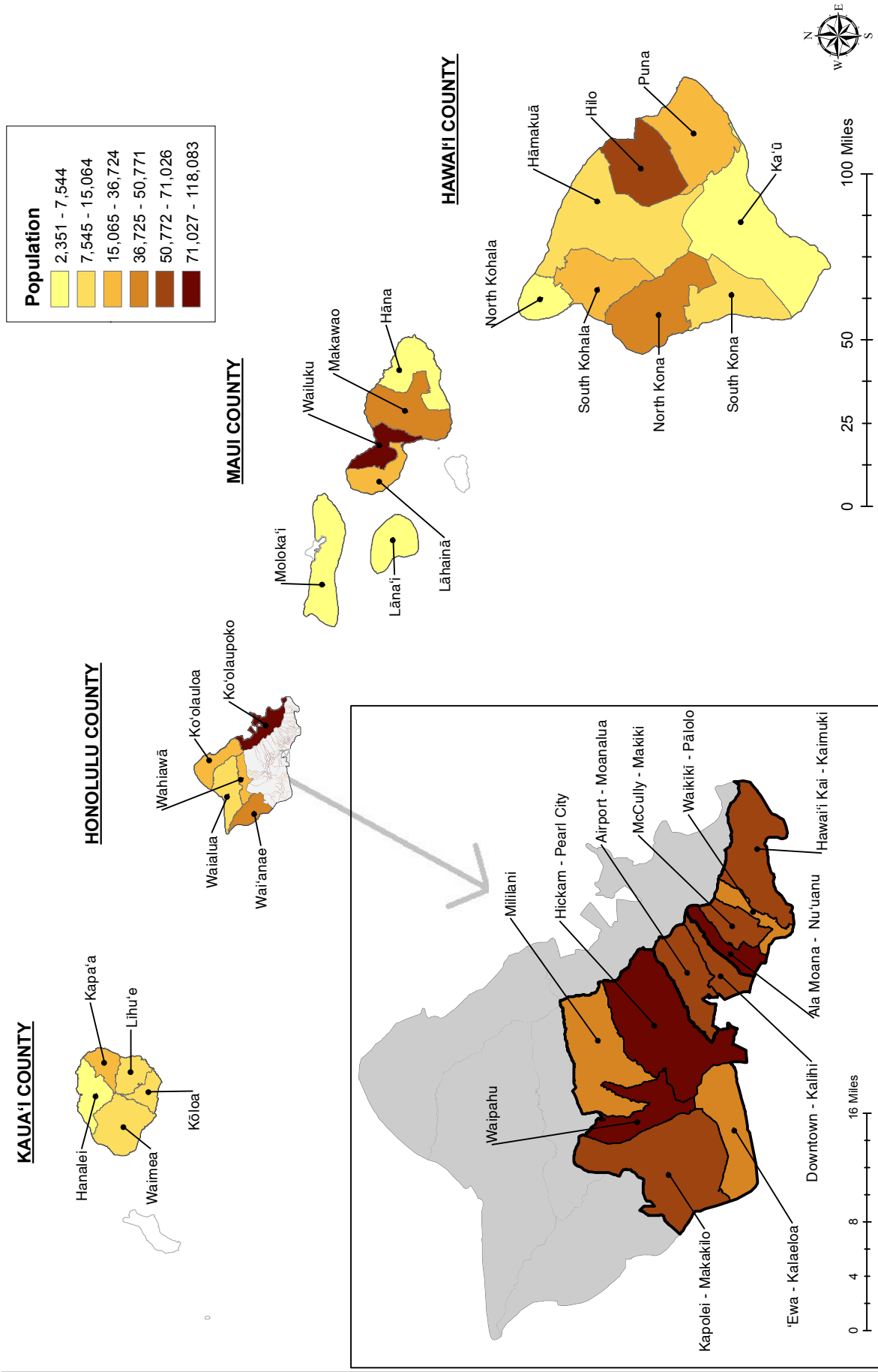
RACIAL POPULATION FIGURES UPDATE

Due to the growing changes in the racial and ethnic makeup of the country and in order to collect data that would better reflect the diversity of the country's population, the U.S. Census Bureau modified the way they collected race data in the year 2000 Census. Respondents were allowed to identify one or more races to indicate their racial identity. There were 15 check box response categories and three write-in areas on the Census 2000 questionnaire, compared with 16 check box response categories and two write-in areas for the 1990 Census. Consequently, data on race from the 2000 Census are not directly comparable with those from the 1990 Census and previous censuses due, in part, by allowing respondents the option to report more than one race. There were no changes with how race was collected in the 2010 census. Data on race can be presented using several different options. The following table based on data from the 2010 U.S. Census illustrates the differences in groups when comparing those of a single race to those classified as "alone or in any combination."

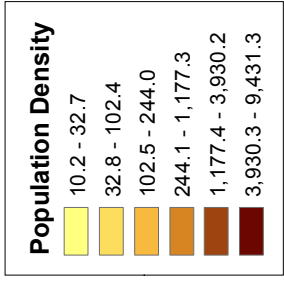
Population Group	State of Hawai'i	Honolulu County	Hawai'i County	Maui County	Kaua'i County
White Alone	336,599	198,732	62,348	53,336	22,159
White Alone or in Any Combination	564,323	350,690	101,344	78,090	34,166
Native Hawaiian Alone	80,337	47,951	15,812	11,440	5,097
Native Hawaiian Alone or in Any Combination	289,970	182,120	54,919	36,758	16,127
Filipino Alone	197,497	142,238	15,834	27,314	12,108
Filipino Alone or in Any Combination	342,095	234,894	40,878	44,892	21,423
Japanese Alone	185,502	149,701	18,086	11,449	6,264
Japanese Alone or in Any Combination	312,292	241,290	35,586	22,802	12,607
Chinese Alone	54,955	51,743	1,661	1,060	490
Chinese Alone or in Any Combination	199,751	156,625	22,634	14,315	6,171

Of the Native Hawaiian population living in Hawai'i, there were 289,970 who were identified as Native Hawaiian alone or in combination with one or more of the other races. The more than three-fold increase in the numbers of Native Hawaiian population for the State reflects the multi-racial identity of the population in Hawai'i by including those that are sometimes reported as "part-Hawaiian". The White, Filipino, and Japanese populations saw approximately a 1.7 fold increase and the Chinese population a 3.6 fold increase when alone or in combination with one or more of the other races are included for the State population. Similar ratios are seen by county except for the Filipino population in Hawai'i County which had a 2.6 fold difference, and the Chinese population which had a 12-14 fold increase outside of Honolulu County. These are the five most common race groups for "alone or in any combination" and are shown in this book by primary care service area.

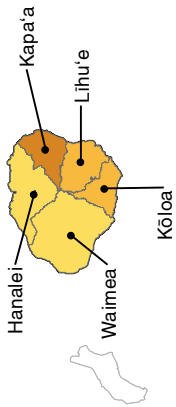
The focus of this report is to identify overall community risks and it is hoped that showing a brief overview of various race/ethnic groups may provide assistance in planning for primary care needs. It is important to consider that disparities seen in health are complex in nature and may be related to age, gender, race/ethnicity, socio-economic conditions, and other factors so a comprehensive approach is needed to improve health and address disparities.



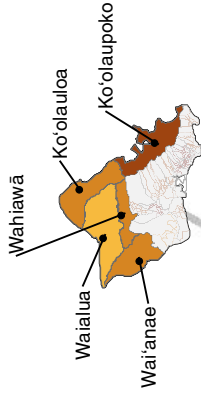
Map 3-1: Population Count by Primary Care Service Area



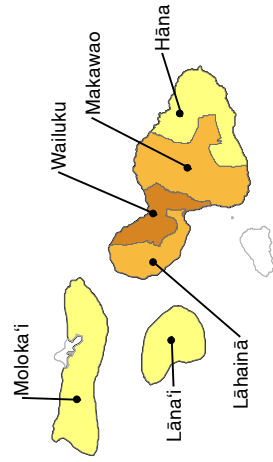
KAUAI COUNTY



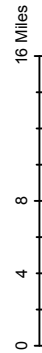
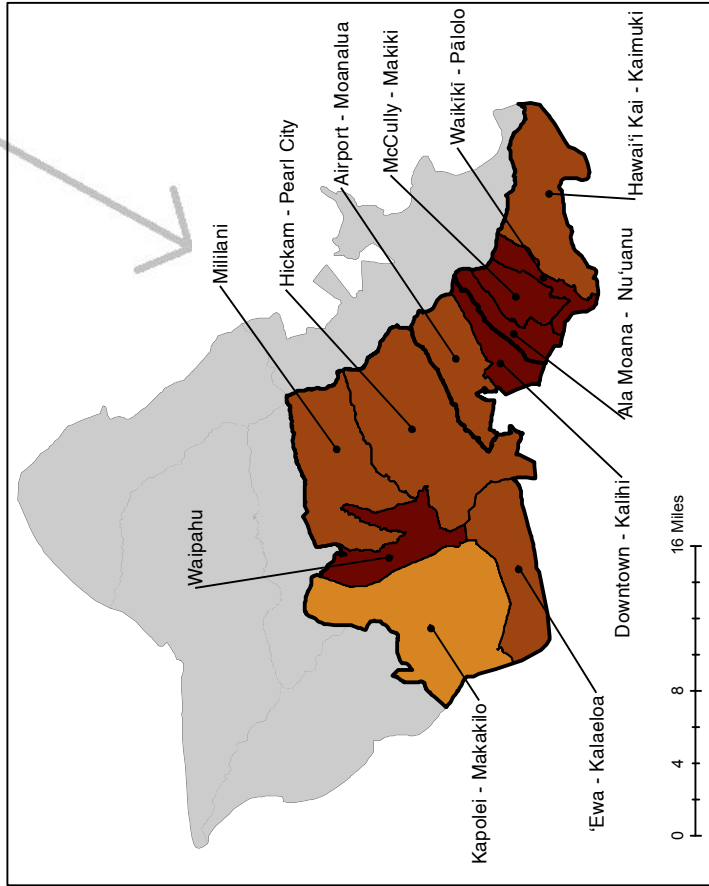
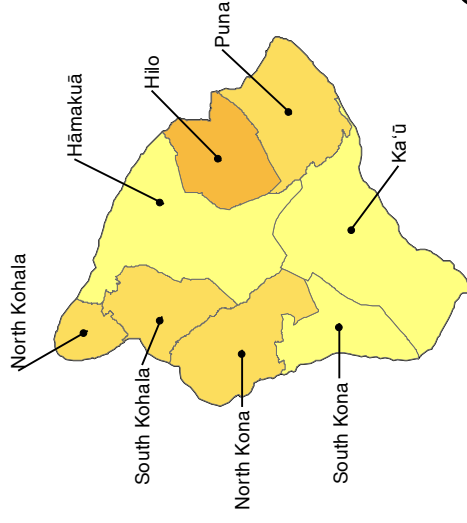
HONOLULU COUNTY



MAUI COUNTY



HAWAII COUNTY

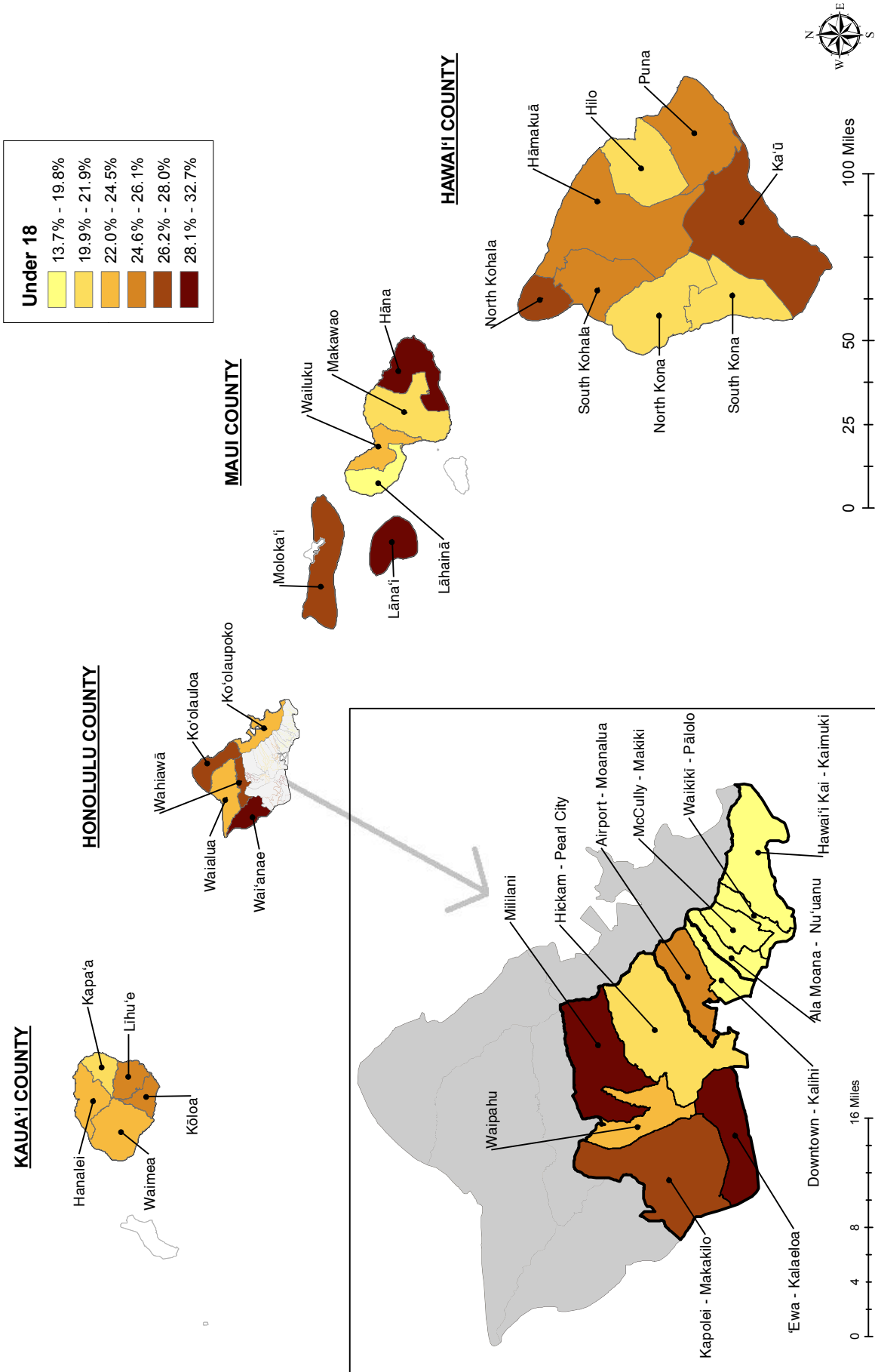


Map 3-2: Population Density (per square mile) by Primary Care Service Area

Table 3-1: Population Under 18 Years of Age, 2006-2010

Service Area	Annual Total Population (N)	Number Under 18 Years of Age (n)	Percent Under 18 Years of Age (%)	95% Confidence Interval
State of Hawai'i	1,333,591	300,728	22.6	(22.4 - 22.7)
Honolulu County	936,984	208,902	22.3	(22.1 - 22.5)
East Honolulu	251,991	39,329	15.6	(14.9 - 16.3)
Hawai'i Kai - Kaimuki	71,026	13,417	18.9	(17.6 - 20.2)
Waikiki - Pālolo	50,771	7,392	14.6	(12.6 - 16.5)
McCully - Makiki	59,080	8,755	14.8	(13.5 - 16.1)
Ala Moana - Nu'uuanu	71,114	9,765	13.7	(12.4 - 15.1)
West Honolulu	129,858	28,786	22.2	(21.2 - 23.2)
Downtown - Kalihi	66,102	13,103	19.8	(18.7 - 21.0)
Airport - Moanalua	63,756	15,683	24.6	(23.0 - 26.2)
'Ewa	321,146	80,607	25.1	(24.5 - 25.7)
Hickam - Pearl City	93,057	19,580	21.0	(20.0 - 22.0)
Waipahu	78,990	19,321	24.5	(23.4 - 25.6)
'Ewa - Kalaeloa	56,026	14,718	26.3	(24.8 - 27.8)
Kapolei - Makakilo	43,670	12,241	28.0	(26.0 - 30.0)
Mililani	49,403	14,747	29.9	(28.4 - 31.3)
Wahiawā	36,724	10,007	27.2	(25.2 - 29.3)
Wai'anae	46,482	15,187	32.7	(31.2 - 34.2)
Waialua	13,066	3,162	24.2	(22.1 - 26.3)
Ko'olauloa	19,634	5,499	28.0	(27.3 - 28.8)
Ko'olaupoko	118,083	26,325	22.3	(21.3 - 23.2)
Hawai'i County	180,362	41,546	23.0	(22.6 - 23.5)
Hilo	56,454	11,796	20.9	(19.5 - 22.3)
Puna	36,707	9,580	26.1	(24.6 - 27.6)
Ka'ū	6,949	1,850	26.6	(22.6 - 30.6)
South Kona	9,552	2,088	21.9	(19.2 - 24.5)
North Kona	38,825	8,010	20.6	(18.8 - 22.4)
South Kohala	17,752	4,521	25.5	(22.8 - 28.2)
North Kohala	5,303	1,482	27.9	(24.4 - 31.5)
Hāmakuā	8,820	2,219	25.2	(22.4 - 27.9)
Maui County	150,711	35,174	23.3	(22.8 - 23.9)
Hāna	2,351	707	30.1	(13.5 - 46.7)
Makawao	42,416	9,262	21.8	(20.1 - 23.5)
Wailuku	74,568	18,242	24.5	(23.2 - 25.8)
Lāhainā	20,497	3,956	19.3	(16.8 - 21.8)
Lāna'i	3,335	1,019	30.6	(24.4 - 36.7)
Moloka'i	7,544	1,988	26.4	(22.8 - 29.9)
Kaua'i County	65,460	15,106	23.1	(22.3 - 23.8)
Hanalei	7,126	1,680	23.6	(21.2 - 25.9)
Kapa'a	20,617	4,317	20.9	(18.9 - 22.9)
Līhu'e	15,064	3,695	24.5	(21.7 - 27.3)
Kōloa	14,129	3,459	24.5	(21.9 - 27.1)
Waimea	8,524	1,955	22.9	(20.4 - 25.4)

Source: U.S. Department of Commerce, U.S. Census Bureau, American Community Survey

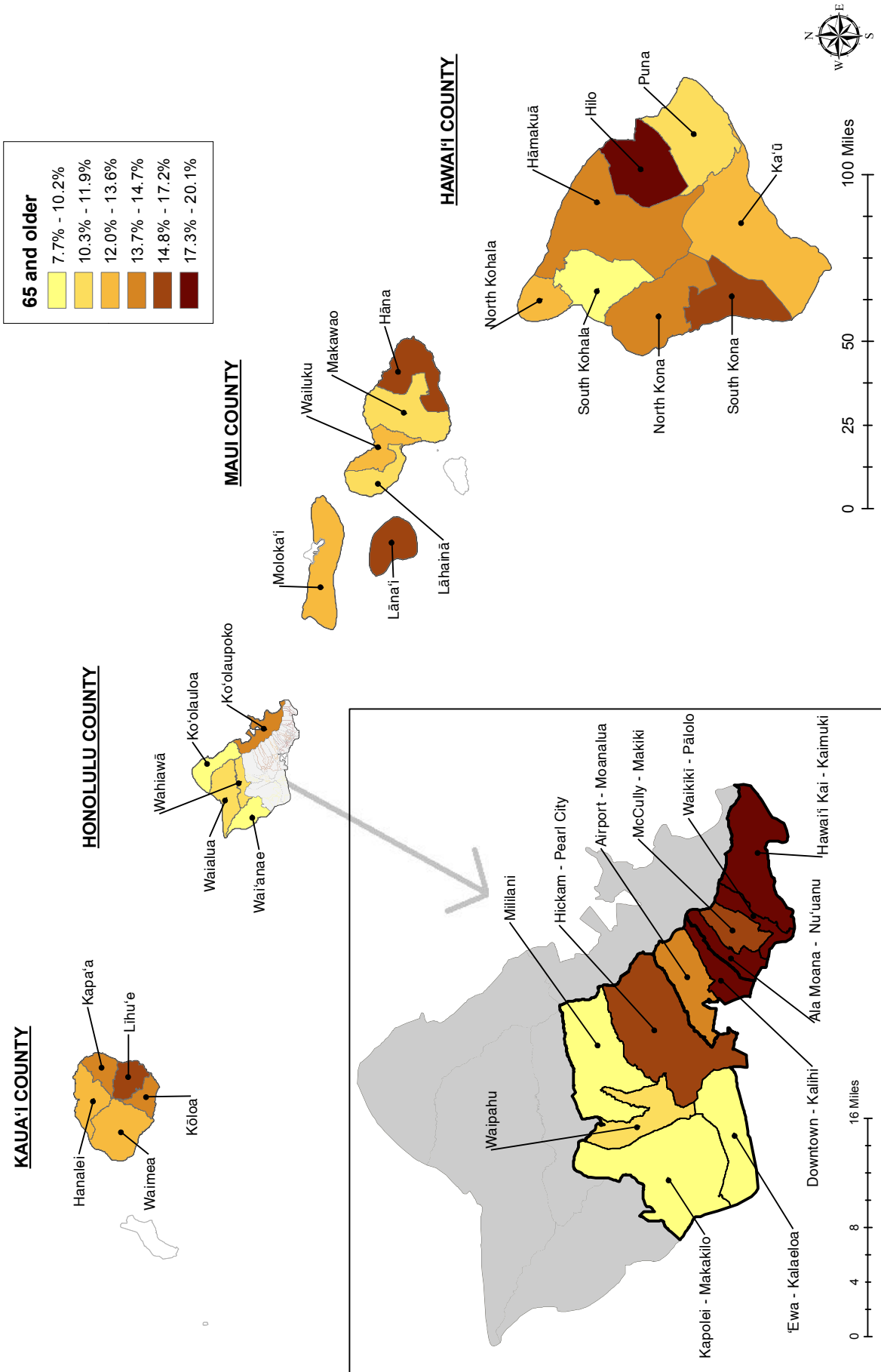


Map 3-3: Population Under 18 Years of Age by Primary Care Service Area

Table 3-2: Population 65 Years of Age and Older, 2006-2010

Service Area	Annual Total Population (N)	Number 65 Years of Age and Over (n)	Percent 65 Years of Age and Over (%)	95% Confidence Interval
State of Hawai'i	1,333,591	186,400	14.0	(13.8 - 14.2)
Honolulu County	936,984	133,406	14.2	(14.0 - 14.5)
East Honolulu	251,991	47,912	19.0	(18.3 - 19.7)
Hawai'i Kai - Kaimuki	71,026	14,254	20.1	(18.7 - 21.4)
Waikiki - Pālolo	50,771	10,013	19.7	(18.0 - 21.4)
McCully - Makiki	59,080	10,152	17.2	(16.0 - 18.4)
Ala Moana - Nu'uauu	71,114	13,493	19.0	(17.8 - 20.2)
West Honolulu	129,858	21,717	16.7	(15.4 - 18.0)
Downtown - Kalihi	66,102	12,327	18.6	(17.3 - 20.0)
Airport - Moanalua	63,756	9,390	14.7	(12.4 - 17.0)
'Ewa	321,146	36,085	11.2	(10.5 - 11.9)
Hickam - Pearl City	93,057	14,213	15.3	(13.9 - 16.6)
Waipahu	78,990	9,404	11.9	(10.9 - 12.9)
'Ewa - Kalaeloa	56,026	5,158	9.2	(7.7 - 10.8)
Kapolei - Makakilo	43,670	3,517	8.1	(5.9 - 10.2)
Mililani	49,403	3,793	7.7	(5.5 - 9.9)
Wahiawā	36,724	3,892	10.6	(6.9 - 14.3)
Wai'anae	46,482	4,149	8.9	(7.7 - 10.1)
Waialua	13,066	1,442	11.0	(8.2 - 13.9)
Ko'olauloa	19,634	1,809	9.2	(7.8 - 10.6)
Ko'olaupoko	118,083	16,400	13.9	(12.8 - 15.0)
Hawai'i County	180,362	25,318	14.0	(13.6 - 14.5)
Hilo	56,454	9,742	17.3	(16.4 - 18.1)
Puna	36,707	4,162	11.3	(10.2 - 12.5)
Ka'ū	6,949	911	13.1	(10.7 - 15.5)
South Kona	9,552	1,426	14.9	(12.8 - 17.1)
North Kona	38,825	5,402	13.9	(12.7 - 15.1)
South Kohala	17,752	1,813	10.2	(8.5 - 11.9)
North Kohala	5,303	637	12.0	(9.9 - 14.2)
Hāmakuā	8,820	1,225	13.9	(11.5 - 16.2)
Maui County	150,711	18,171	12.1	(11.5 - 12.6)
Hāna	2,351	391	16.6	(6.9 - 26.4)
Makawao	42,416	4,798	11.3	(10.0 - 12.6)
Wailuku	74,568	9,000	12.1	(11.0 - 13.2)
Lāhainā	20,497	2,441	11.9	(10.0 - 13.9)
Lāna'i	3,335	518	15.5	(10.3 - 20.8)
Moloka'i	7,544	1,023	13.6	(11.6 - 15.5)
Kaua'i County	65,460	9,476	14.5	(13.7 - 15.3)
Hanalei	7,126	907	12.7	(9.4 - 16.0)
Kapa'a	20,617	2,862	13.9	(12.2 - 15.6)
Līhu'e	15,064	2,579	17.1	(15.4 - 18.8)
Kōloa	14,129	1,989	14.1	(12.7 - 15.5)
Waimea	8,524	1,139	13.4	(11.8 - 14.9)

Source: U.S. Department of Commerce, U.S. Census Bureau, American Community Survey

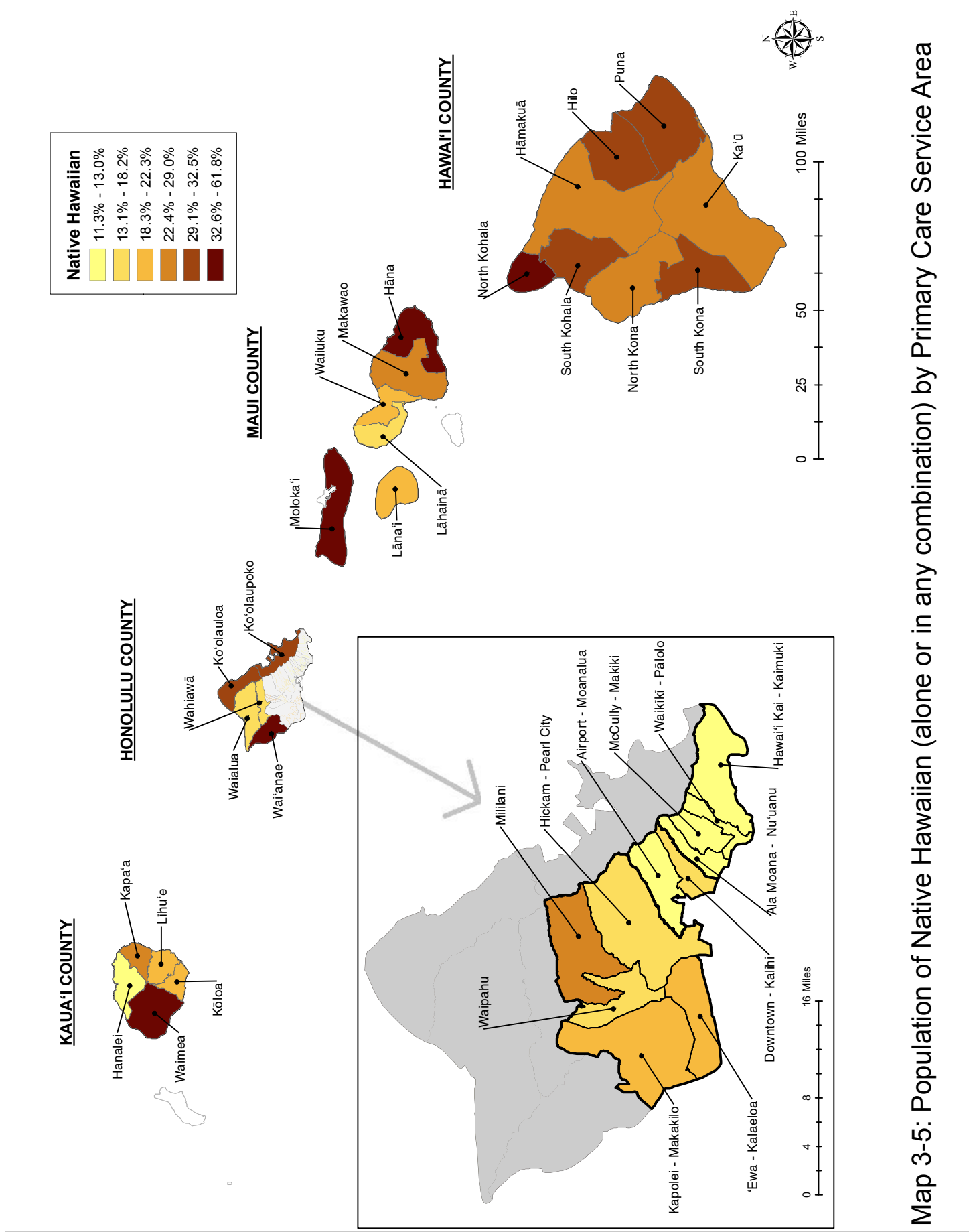


Map 3-4: Population 65 Years of Age and Older by Primary Care Service Area

Table 3-3: Population of Native Hawaiian (alone or in any combination), 2010

Service Area	Annual Total Population (N)	Number Native Hawaiian (alone or in any combination) (n)	Percent Native Hawaiian (alone or in any combination) (%)
State of Hawai'i	1,360,301	289,970	21.3
Honolulu County	953,207	182,120	19.1
East Honolulu	255,009	31,114	12.2
Hawai'i Kai - Kaimuki	70,638	8,616	12.2
Waikiki - Pālolo	52,489	5,925	11.3
McCully - Makiki	60,510	7,310	12.1
Ala Moana - Nu'uuanu	71,372	9,263	13.0
West Honolulu	135,080	16,898	12.5
Downtown - Kalihi	69,010	9,444	13.7
Airport - Moanalua	66,070	7,454	11.3
'Ewa	323,767	56,840	17.6
Hickam - Pearl City	95,025	13,987	14.7
Waipahu	74,760	9,885	13.2
'Ewa - Kalaeloa	54,207	9,943	18.3
Kapolei - Makakilo	46,972	12,774	27.2
Mililani	52,803	10,251	19.4
Wahiawā	41,216	6,018	14.6
Wai'anae	48,519	28,404	58.5
Waialua	13,046	2,376	18.2
Ko'olauloa	21,406	6,709	31.3
Ko'olaupoko	115,164	33,761	29.3
Hawai'i County	185,079	54,919	29.7
Hilo	50,927	16,527	32.5
Puna	45,326	14,517	32.0
Ka'ū	8,451	2,409	28.5
South Kona	9,997	3,024	30.2
North Kona	37,875	8,821	23.3
South Kohala	17,627	5,125	29.1
North Kohala	6,322	2,284	36.1
Hāmakuā	8,554	2,212	25.9
Maui County	154,834	36,758	23.7
Hāna	2,291	1,314	57.4
Makawao	41,887	9,844	23.5
Wailuku	77,758	17,317	22.3
Lāhainā	22,508	3,191	14.2
Lāna'i	3,135	611	19.5
Moloka'i	7,255	4,481	61.8
Kaua'i County	67,091	16,127	24.0
Hanalei	7,828	917	11.7
Kapa'a	20,992	6,096	29.0
Līhu'e	14,683	3,011	20.5
Kōloa	14,086	2,800	19.9
Waimea	9,332	3,154	33.8

Source: U.S. Department of Commerce, U.S. Census Bureau, Population Estimates

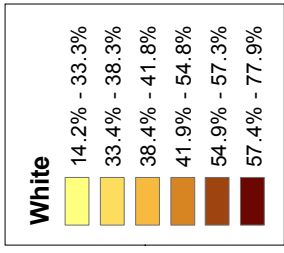


Map 3-5: Population of Native Hawaiian (alone or in any combination) by Primary Care Service Area

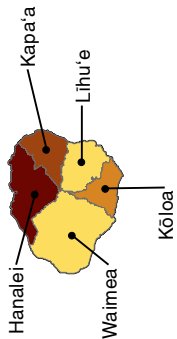
Table 3-4: Population of White (alone or in any combination), 2010

Service Area	Annual Total Population (N)	Number White (alone or in any combination) (n)	Percent White (alone or in any combination) (%)
State of Hawai'i	1,360,301	564,323	41.5
Honolulu County	953,207	350,690	36.8
East Honolulu	255,009	93,323	36.6
Hawai'i Kai - Kaimuki	70,638	29,284	41.5
Waikiki - Pālolo	52,489	21,916	41.8
McCully - Makiki	60,510	20,143	33.3
Ala Moana - Nu'uuanu	71,372	21,980	30.8
West Honolulu	135,080	29,530	21.9
Downtown - Kalihi	69,010	9,770	14.2
Airport - Moanalua	66,070	19,760	29.9
'Ewa	323,767	106,859	33.0
Hickam - Pearl City	95,025	32,999	34.7
Waipahu	74,760	14,630	19.6
'Ewa - Kalaeloa	54,207	20,712	38.2
Kapolei - Makakilo	46,972	18,643	39.7
Mililani	52,803	19,875	37.6
Wahiawā	41,216	19,511	47.3
Wai'anae	48,519	18,569	38.3
Waialua	13,046	7,336	56.2
Ko'olauloa	21,406	11,548	53.9
Ko'olaupoko	115,164	64,014	55.6
Hawai'i County	185,079	101,344	54.8
Hilo	50,927	21,148	41.5
Puna	45,326	27,285	60.2
Ka'ū	8,451	4,677	55.3
South Kona	9,997	5,359	53.6
North Kona	37,875	23,732	62.7
South Kohala	17,627	10,693	60.7
North Kohala	6,322	3,547	56.1
Hāmakuā	8,554	4,903	57.3
Maui County	154,834	78,090	50.4
Hāna	2,291	1,224	53.4
Makawao	41,887	28,908	69.0
Wailuku	77,758	32,187	41.4
Lāhainā	22,508	12,010	53.4
Lāna'i	3,135	870	27.8
Moloka'i	7,255	2,891	39.8
Kaua'i County	67,091	34,166	50.9
Hanalei	7,828	6,097	77.9
Kapa'a	20,992	11,645	55.5
Līhu'e	14,683	5,231	35.6
Kōloa	14,086	7,718	54.8
Waimea	9,332	3,461	37.1

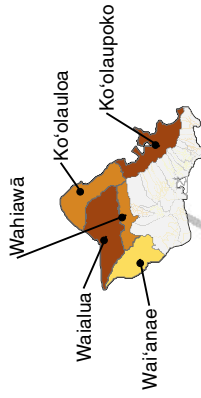
Source: U.S. Department of Commerce, U.S. Census Bureau, Population Estimates



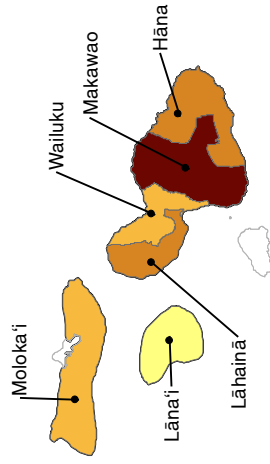
KAUAI COUNTY



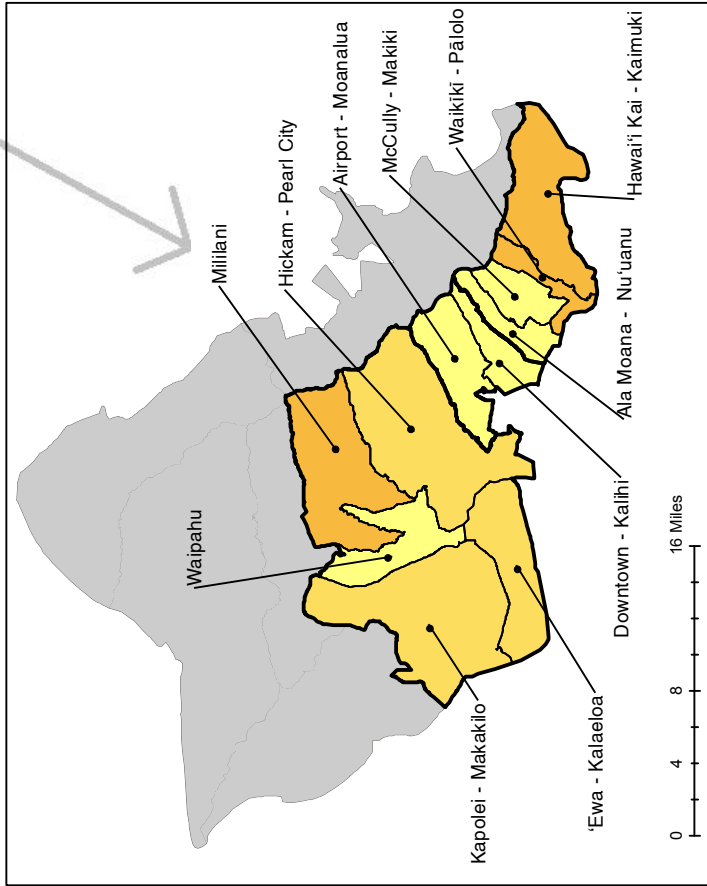
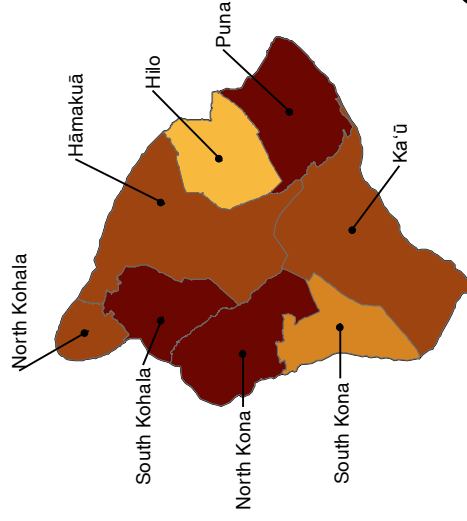
HONOLULU COUNTY



MAUI COUNTY



HAWAII COUNTY

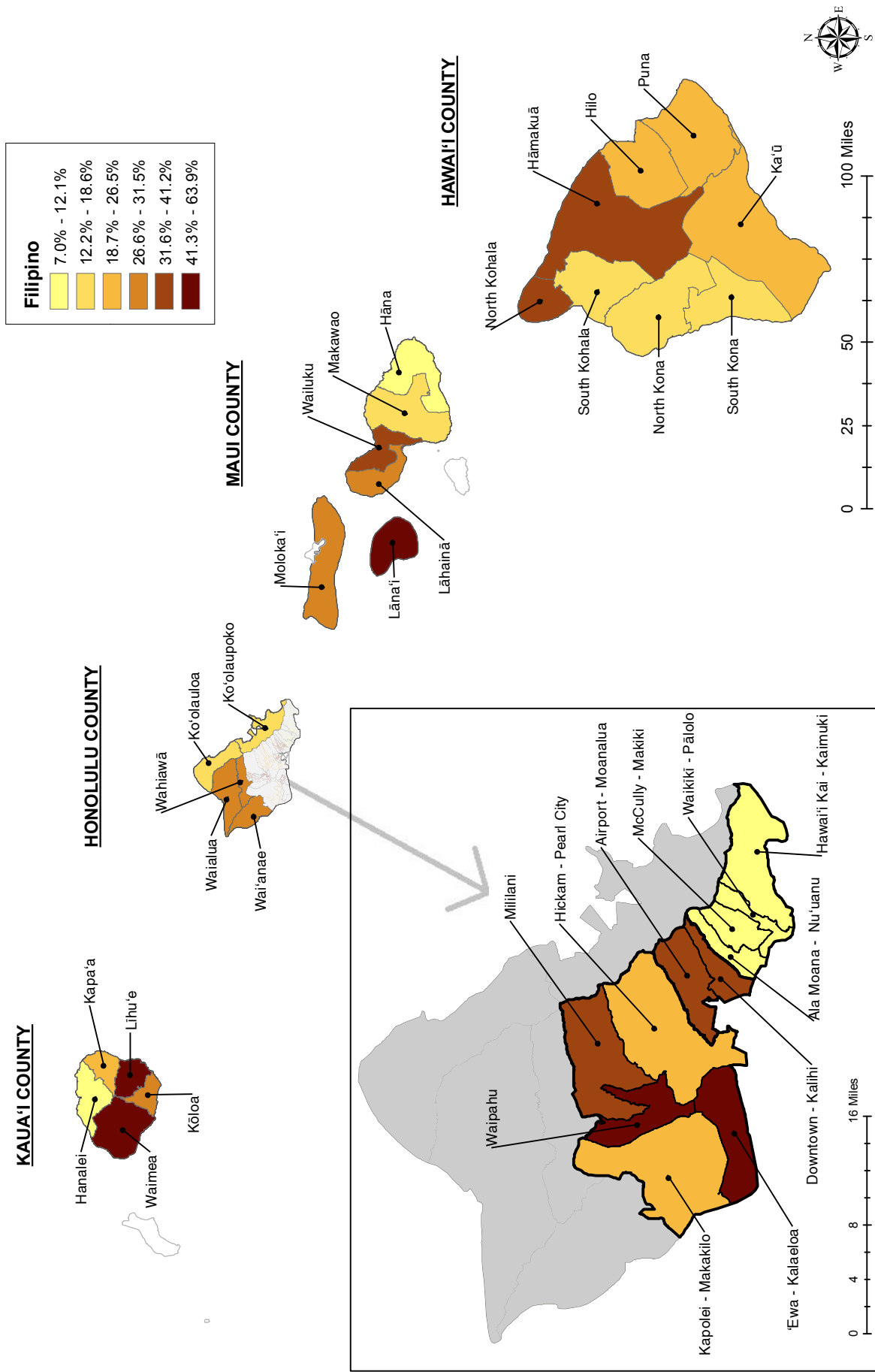


Map 3-6: Population of White (alone or in any combination) by Primary Care Service Area

Table 3-5: Population of Filipino (alone or in any combination), 2010

Service Area	Annual Total Population (N)	Number Filipino (alone or in any combination) (n)	Percent Filipino (alone or in any combination) (%)
State of Hawai'i	1,360,301	342,095	25.1
Honolulu County	953,207	234,894	24.6
East Honolulu	255,009	22,692	8.9
Hawai'i Kai - Kaimuki	70,638	4,912	7.0
Waikiki - Pālolo	52,489	4,434	8.4
McCully - Makiki	60,510	5,932	9.8
Ala Moana - Nu'uauu	71,372	7,414	10.4
West Honolulu	135,080	46,124	34.1
Downtown - Kalihi	69,010	25,044	36.3
Airport - Moanalua	66,070	21,080	31.9
'Ewa	323,767	119,848	37.0
Hickam - Pearl City	95,025	22,587	23.8
Waipahu	74,760	40,652	54.4
'Ewa - Kalaeloa	54,207	14,391	26.5
Kapolei - Makakilo	46,972	19,365	41.2
Mililani	52,803	22,853	43.3
Wahiawā	41,216	11,095	26.9
Wai'anae	48,519	13,729	28.3
Waialua	13,046	3,787	29.0
Ko'olauloa	21,406	2,614	12.2
Ko'olaupoko	115,164	15,005	13.0
Hawai'i County	185,079	40,878	22.1
Hilo	50,927	11,264	22.1
Puna	45,326	11,046	24.4
Ka'ū	8,451	2,051	24.3
South Kona	9,997	1,668	16.7
North Kona	37,875	6,181	16.3
South Kohala	17,627	3,285	18.6
North Kohala	6,322	2,075	32.8
Hāmakuā	8,554	3,308	38.7
Maui County	154,834	44,892	29.0
Hāna	2,291	277	12.1
Makawao	41,887	6,551	15.6
Wailuku	77,758	27,299	35.1
Lāhainā	22,508	6,516	29.0
Lāna'i	3,135	2,003	63.9
Moloka'i	7,255	2,246	31.0
Kaua'i County	67,091	21,423	31.9
Hanalei	7,828	942	12.0
Kapa'a	20,992	5,331	25.4
Lihu'e	14,683	6,694	45.6
Kōloa	14,086	4,432	31.5
Waimea	9,332	4,014	43.0

Source: U.S. Department of Commerce, U.S. Census Bureau, Population Estimates

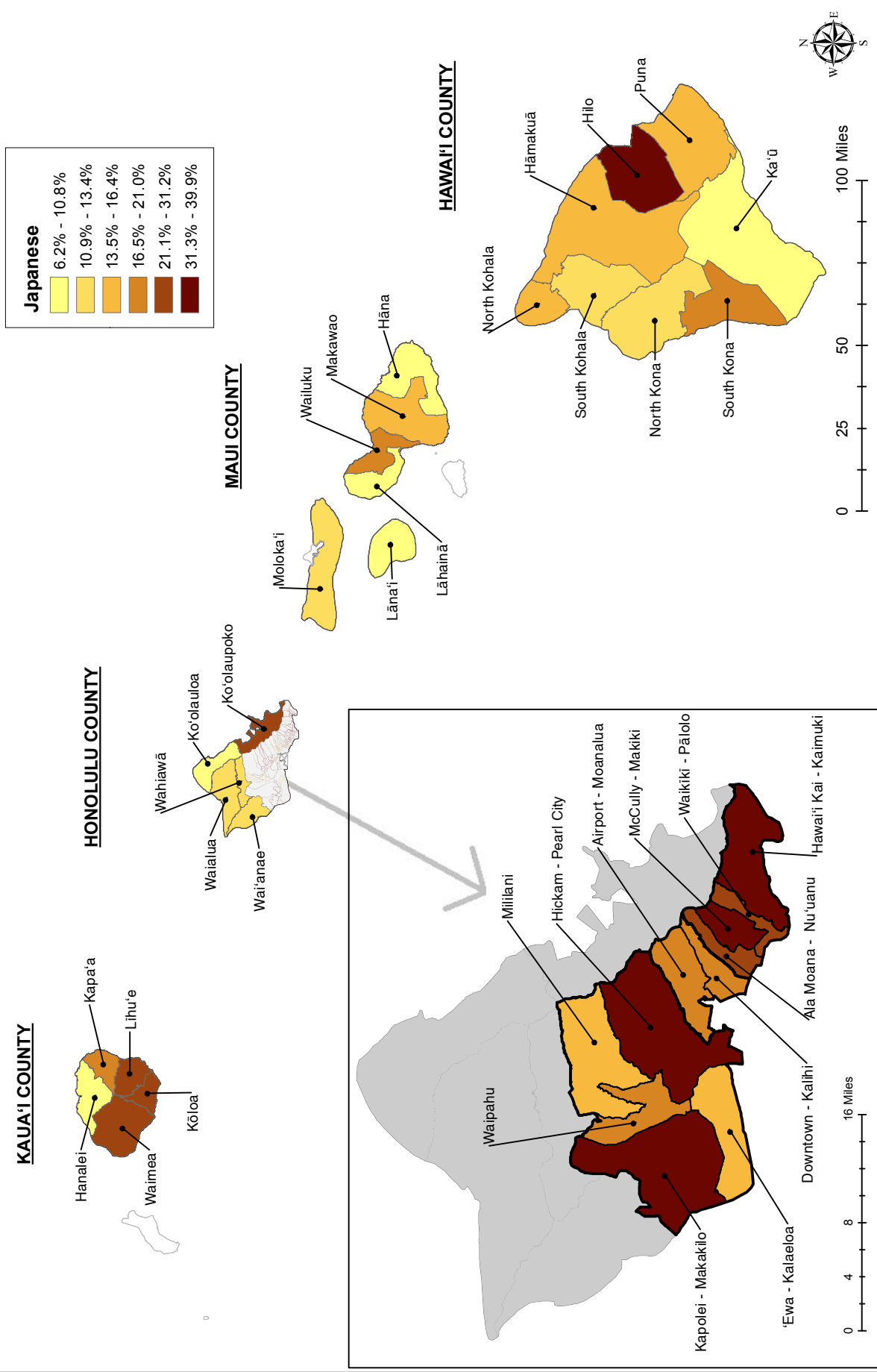


Map 3-7: Population of Filipino (alone or in any combination) by Primary Care Service Area

Table 3-6: Population of Japanese (alone or in any combination), 2010

Service Area	Annual Total Population (N)	Number Japanese (alone or in any combination) (n)	Percent Japanese (alone or in any combination) (%)
State of Hawai'i	1,360,301	312,292	23.0
Honolulu County	953,207	241,290	25.3
East Honolulu	255,009	89,692	35.2
Hawai'i Kai - Kaimuki	70,638	28,185	39.9
Waikiki - Pālolo	52,489	16,374	31.2
McCully - Makiki	60,510	23,140	38.2
Ala Moana - Nu'uuanu	71,372	21,993	30.8
West Honolulu	135,080	25,161	18.6
Downtown - Kalihi	69,010	11,909	17.3
Airport - Moanalua	66,070	13,252	20.1
'Ewa	323,767	82,872	25.6
Hickam - Pearl City	95,025	32,037	33.7
Waipahu	74,760	14,709	19.7
'Ewa - Kalaeloa	54,207	20,977	38.7
Kapolei - Makakilo	46,972	7,652	16.3
Mililani	52,803	7,497	14.2
Wahiawā	41,216	5,492	13.3
Wai'anae	48,519	5,406	11.1
Waialua	13,046	1,610	12.3
Ko'olauloa	21,406	1,791	8.4
Ko'olaupoko	115,164	29,266	25.4
Hawai'i County	185,079	35,586	19.2
Hilo	50,927	17,232	33.8
Puna	45,326	6,096	13.4
Ka'ū	8,451	756	8.9
South Kona	9,997	2,099	21.0
North Kona	37,875	4,662	12.3
South Kohala	17,627	2,366	13.4
North Kohala	6,322	1,039	16.4
Hāmakuā	8,554	1,336	15.6
Maui County	154,834	22,802	14.7
Hāna	2,291	174	7.6
Makawao	41,887	6,109	14.6
Wailuku	77,758	13,421	17.3
Lāhainā	22,508	1,910	8.5
Lāna'i	3,135	338	10.8
Moloka'i	7,255	850	11.7
Kaua'i County	67,091	12,607	18.8
Hanalei	7,828	487	6.2
Kapa'a	20,992	3,757	17.9
Līhu'e	14,683	3,361	22.9
Kōloa	14,086	2,961	21.0
Waimea	9,332	2,035	21.8

Source: U.S. Department of Commerce, U.S. Census Bureau, Population Estimates

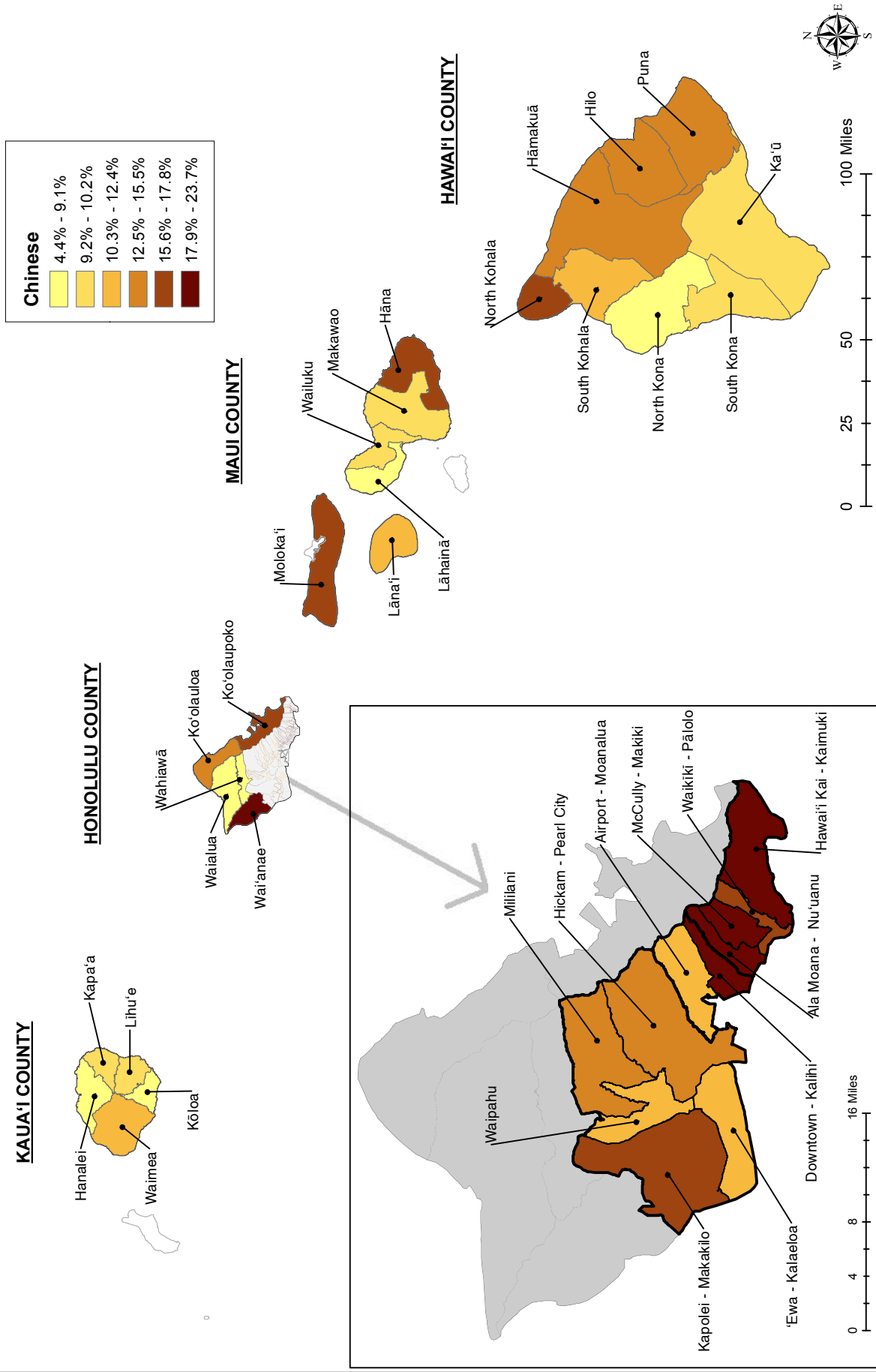


Map 3-8: Population of Japanese (alone or in any combination) by Primary Care Service Area

Table 3-7: Population of Chinese (alone or in any combination), 2010

Service Area	Annual Total Population (N)	Number Chinese (alone or in any combination) (n)	Percent Chinese (alone or in any combination) (%)
State of Hawai'i	1,360,301	198,711	14.6
Honolulu County	953,207	155,687	16.3
East Honolulu	255,009	50,252	19.7
Hawai'i Kai - Kaimuki	70,638	15,902	22.5
Waikiki - Pālolo	52,489	8,628	16.4
McCully - Makiki	60,510	11,358	18.8
Ala Moana - Nu'uuanu	71,372	14,364	20.1
West Honolulu	135,080	24,542	18.2
Downtown - Kalihi	69,010	16,351	23.7
Airport - Moanalua	66,070	8,191	12.4
'Ewa	323,767	44,052	13.6
Hickam - Pearl City	95,025	13,094	13.8
Waipahu	74,760	8,062	10.8
'Ewa - Kalaeloa	54,207	9,126	16.8
Kapolei - Makakilo	46,972	7,279	15.5
Mililani	52,803	6,491	12.3
Wahiawā	41,216	3,314	8.0
Wai'anae	48,519	9,044	18.6
Waialua	13,046	1,134	8.7
Ko'olauloa	21,406	2,855	13.3
Ko'olaupoko	115,164	20,494	17.8
Hawai'i County	185,079	22,578	12.2
Hilo	50,927	7,484	14.7
Puna	45,326	5,636	12.4
Ka'ū	8,451	802	9.5
South Kona	9,997	1,008	10.1
North Kona	37,875	3,448	9.1
South Kohala	17,627	2,020	11.5
North Kohala	6,322	1,032	16.3
Hāmakuā	8,554	1,148	13.4
Maui County	154,834	14,286	9.2
Hāna	2,291	385	16.8
Makawao	41,887	4,026	9.6
Wailuku	77,758	7,194	9.3
Lāhainā	22,508	1,123	5.0
Lāna'i	3,135	319	10.2
Moloka'i	7,255	1,239	17.1
Kaua'i County	67,091	6,154	9.2
Hanalei	7,828	345	4.4
Kapa'a	20,992	2,135	10.2
Līhu'e	14,683	1,432	9.8
Kōloa	14,086	1,208	8.6
Waimea	9,332	1,034	11.1

Source: U.S. Department of Commerce, U.S. Census Bureau, Population Estimates

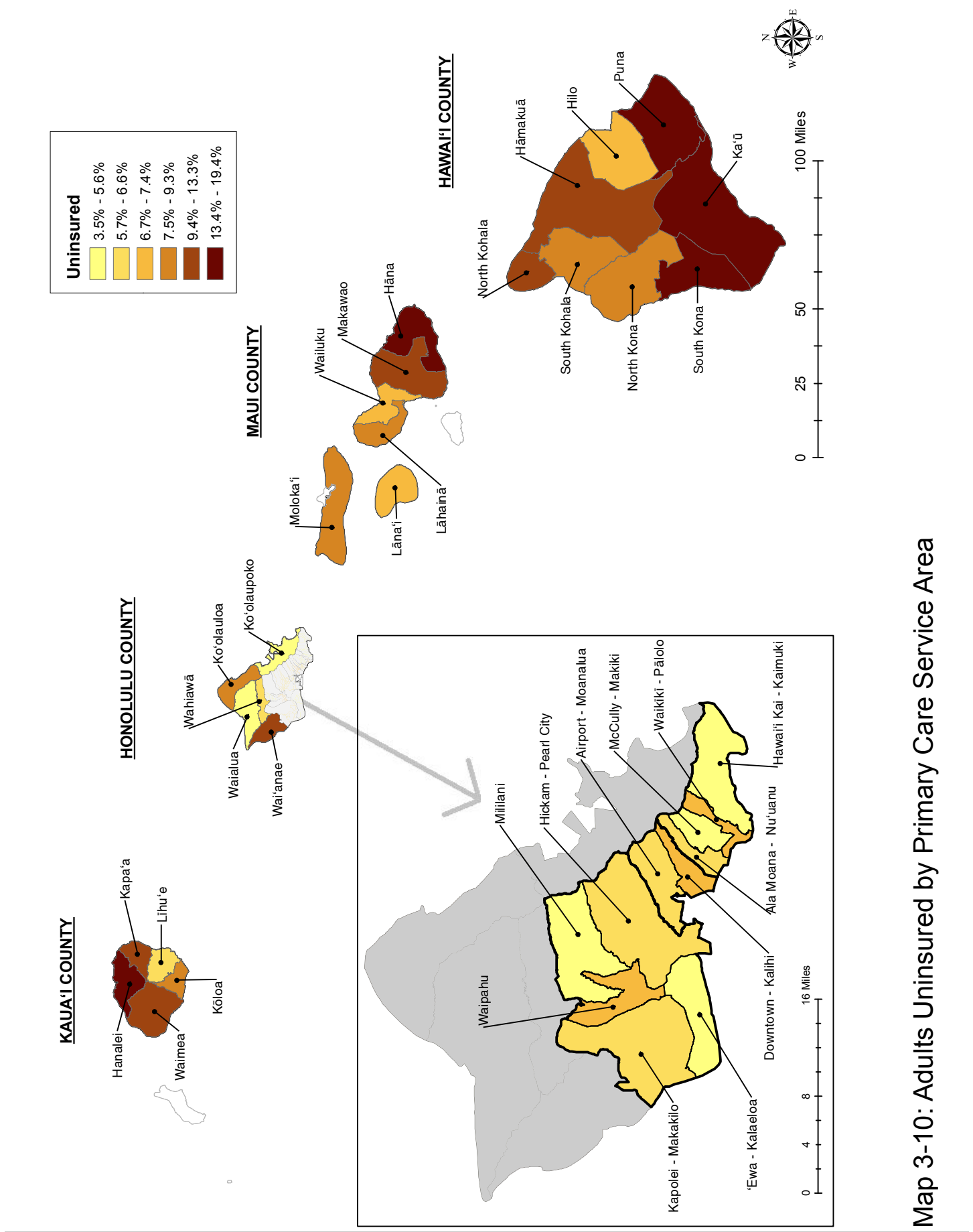


Map 3-9: Population of Chinese (alone or in any combination) by Primary Care Service Area

Table 3-8: Uninsured Adults, 2005-2010

Service Area	Annual Adult Population (N)	Number Uninsured (n)	Percent Uninsured (%)	95% Confidence Interval
State of Hawai'i	990,600	70,000	7.1	(6.7 - 7.5)
Honolulu County	701,600	42,800	6.1	(5.6 - 6.7)
East Honolulu	181,700	8,900	4.9	(4.1 - 5.8)
Hawai'i Kai - Kaimuki	59,000	2,100	3.5	(2.4 - 4.9)
Waikiki - Pālolo	28,800	2,100	7.4	(5.3 - 10.3)
McCully - Makiki	46,900	1,800	3.8	(2.7 - 5.4)
Ala Moana - Nu'uuanu	47,000	2,900	6.3	(4.6 - 8.5)
West Honolulu	90,200	6,100	6.8	(5.3 - 8.6)
Downtown - Kalihi	45,800	3,400	7.3	(5.4 - 10.0)
Airport - Moanalua	44,200	2,700	6.2	(4.2 - 9.0)
'Ewa	245,500	14,500	5.9	(5.1 - 6.9)
Hickam - Pearl City	77,000	4,500	5.9	(4.3 - 7.9)
Waipahu	53,700	3,800	7.1	(5.2 - 9.4)
'Ewa - Kalaeloa	35,300	2,300	6.6	(4.6 - 9.4)
Kapolei - Makakilo	32,800	1,700	5.1	(3.3 - 7.7)
Mililani	46,600	2,200	4.7	(3.2 - 6.8)
Wahiawā	23,900	1,400	5.8	(3.7 - 8.9)
Wai'anae	34,500	4,600	13.3	(9.4 - 18.4)
Waialua	10,600	600	5.6	(2.7 - 11.2)
Ko'olauloa	14,500	1,100	7.9	(4.6 - 13.1)
Ko'olaupoko	100,800	5,600	5.6	(4.3 - 7.1)
Hawai'i County	130,600	13,200	10.1	(9.3 - 11.1)
Hilo	41,400	2,900	7.1	(5.9 - 8.6)
Puna	19,900	2,700	13.7	(11.4 - 16.3)
Ka'ū	14,300	2,100	14.8	(11.9 - 18.2)
South Kona	8,500	1,300	15.7	(11.5 - 21.0)
North Kona	22,700	1,900	8.5	(6.5 - 11.0)
South Kohala	12,100	1,000	8.4	(6.2 - 11.4)
North Kohala	4,100	400	10.6	(6.6 - 16.7)
Hāmakuā	7,500	700	9.8	(6.6 - 14.2)
Maui County	108,700	9,500	8.8	(7.9 - 9.7)
Hāna	1,700	300	19.4	(11.8 - 30.3)
Makawao	33,600	3,800	11.2	(9.5 - 13.1)
Wailuku	50,800	3,400	6.7	(5.5 - 8.1)
Lāhainā	13,600	1,300	9.3	(6.7 - 12.8)
Lāna'i	2,000	100	7.4	(5.3 - 10.2)
Moloka'i	7,100	600	9.2	(7.4 - 11.4)
Kaua'i County	48,000	4,400	9.1	(7.8 - 10.6)
Hanalei	5,700	800	13.7	(9.9 - 18.6)
Kapa'a	14,400	1,500	10.4	(8.3 - 12.9)
Līhu'e	10,200	600	5.9	(3.8 - 9.0)
Kōloa	10,900	800	7.5	(4.9 - 11.1)
Waimea	6,900	700	10.2	(6.3 - 16.0)

Source: State of Hawai'i, Department of Health, Behavioral Risk Factor Surveillance System (BRFSS)

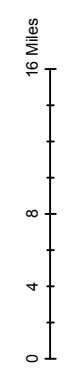
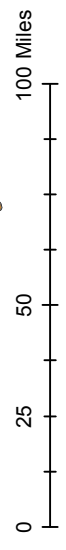
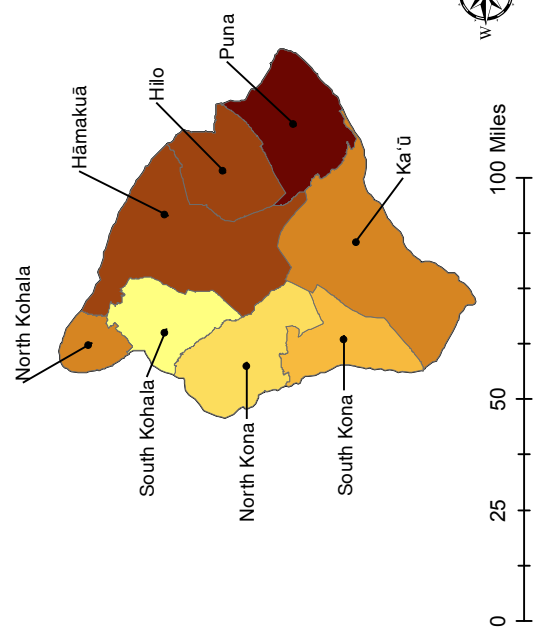
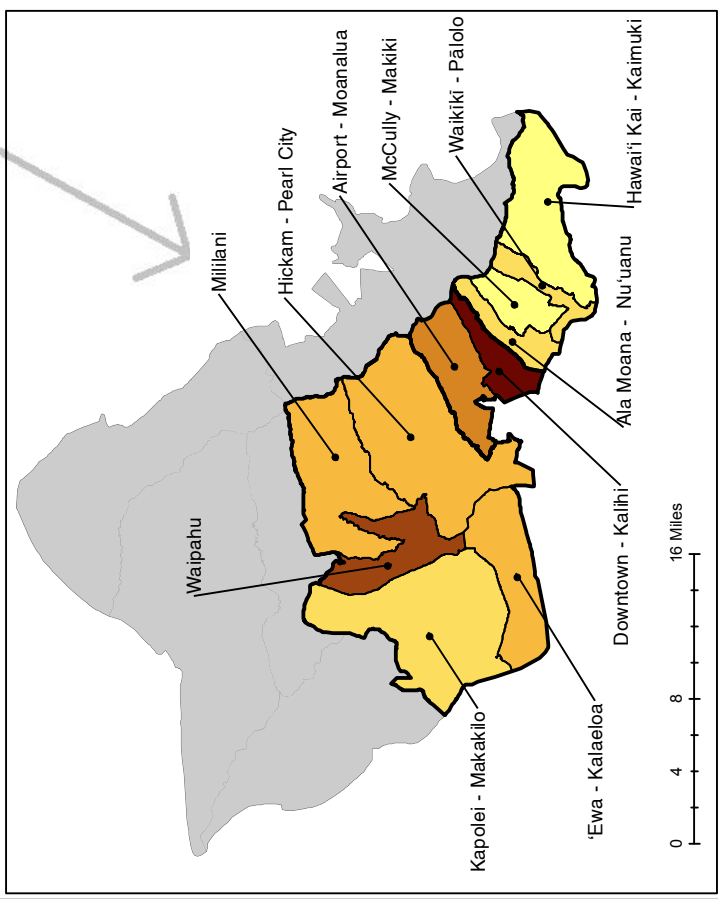
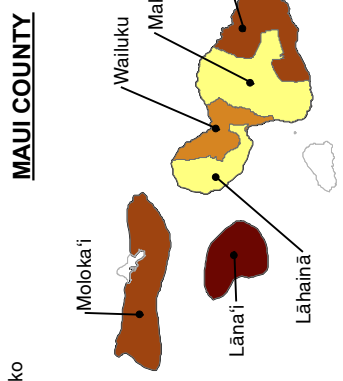
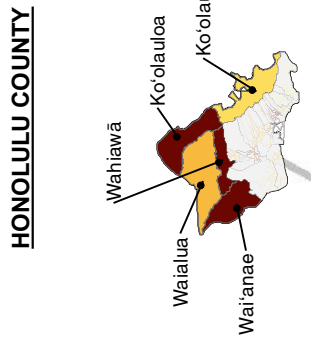
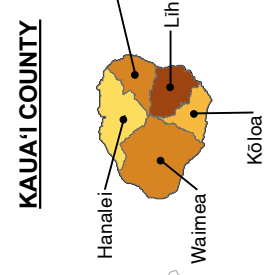
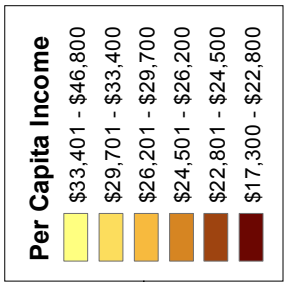


Map 3-10: Adults Uninsured by Primary Care Service Area

Table 3-9: Per Capita Income, 2006-2010

Service Area	Annual Total Population (N)	Average Per Capita Income (\$)	95% Confidence Interval
State of Hawai'i	1,333,591	28,900	(28,600 - 29,200)
Honolulu County	936,984	29,500	(29,200 - 29,900)
East Honolulu	251,991	36,900	(36,000 - 37,800)
Hawai'i Kai - Kaimuki	71,026	46,800	(44,700 - 48,900)
Waikiki - Pālolo	50,771	31,200	(29,500 - 32,800)
McCully - Makiki	59,080	35,100	(33,500 - 36,600)
Ala Moana - Nu'uuanu	71,114	32,700	(31,200 - 34,300)
West Honolulu	129,858	23,500	(22,800 - 24,200)
Downtown - Kalihi	66,102	22,500	(21,500 - 23,600)
Airport - Moanalua	63,756	24,600	(23,700 - 25,500)
'Ewa	321,146	28,300	(27,900 - 28,800)
Hickam - Pearl City	93,057	29,700	(29,100 - 30,300)
Waipahu	78,990	24,400	(23,600 - 25,300)
'Ewa - Kalaeloa	56,026	33,400	(32,200 - 34,600)
Kapolei - Makakilo	43,670	28,000	(26,600 - 29,400)
Mililani	49,403	26,400	(24,900 - 27,800)
Wahiawā	36,724	20,800	(19,300 - 22,300)
Wai'anae	46,482	17,300	(16,400 - 18,100)
Waialua	13,066	27,200	(23,800 - 30,700)
Ko'olauloa	19,634	22,800	(20,600 - 24,900)
Ko'olaupoko	118,083	32,500	(31,700 - 33,200)
Hawai'i County	180,362	26,200	(25,100 - 27,300)
Hilo	56,454	24,500	(22,900 - 26,000)
Puna	36,707	19,300	(18,100 - 20,500)
Ka'ū	6,949	25,700	(18,600 - 32,800)
South Kona	9,552	28,900	(24,400 - 33,300)
North Kona	38,825	30,800	(28,700 - 33,000)
South Kohala	17,752	36,400	(31,000 - 41,800)
North Kohala	5,303	24,800	(21,900 - 27,700)
Hāmakuā	8,820	23,400	(21,500 - 25,300)
Maui County	150,711	29,200	(28,300 - 30,100)
Hāna	2,351	23,200	(15,700 - 30,800)
Makawao	42,416	34,000	(31,600 - 36,300)
Wailuku	74,568	26,200	(25,100 - 27,400)
Lāhainā	20,497	34,100	(31,200 - 37,000)
Lāna'i	3,335	21,200	(18,300 - 24,100)
Moloka'i	7,544	23,500	(19,000 - 28,000)
Kaua'i County	65,460	26,500	(25,700 - 27,400)
Hanalei	7,126	32,300	(27,800 - 36,700)
Kapa'a	20,617	25,900	(24,000 - 27,900)
Līhu'e	15,064	23,700	(21,600 - 25,900)
Kōloa	14,129	28,600	(26,300 - 30,800)
Waimea	8,524	24,600	(22,300 - 26,800)

Source: U.S. Department of Commerce, U.S. Census Bureau, American Community Survey

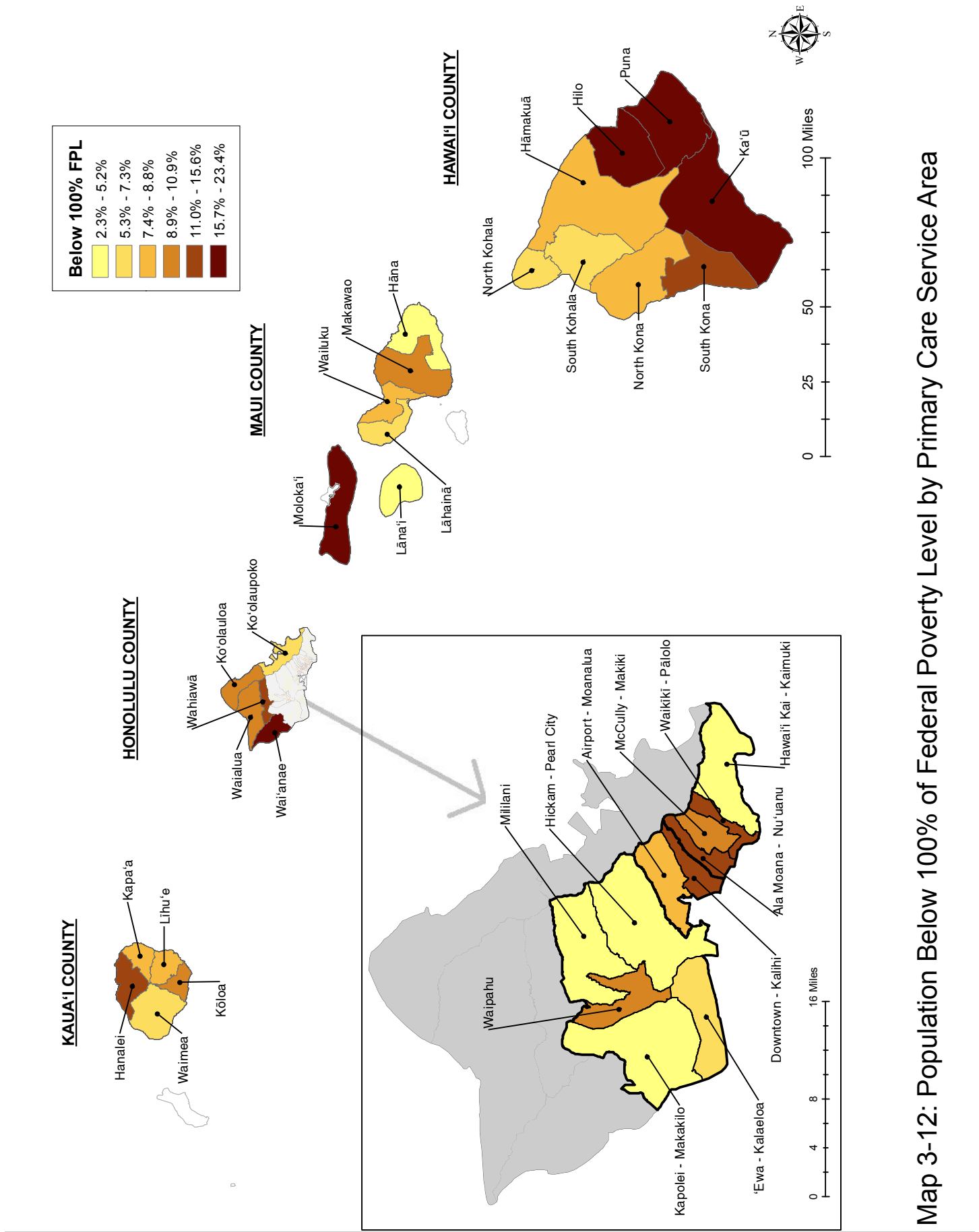


Map 3-11: Per Capita Income by Primary Care Service Area

Table 3-10: Population Below 100% of Federal Poverty Level, 2006-2010

Service Area	Annual Total Population (N)	Number Below 100% of Federal Poverty Level (n)	Percent Below 100% of Federal Poverty Level (%)	95% Confidence Interval
State of Hawai'i	1,298,918	124,627	9.6	(9.3 - 9.9)
Honolulu County	909,284	80,309	8.8	(8.4 - 9.3)
East Honolulu	247,517	22,660	9.2	(8.3 - 10.0)
Hawai'i Kai - Kaimuki	70,491	2,547	3.6	(2.7 - 4.5)
Waikiki - Pālolo	50,685	5,877	11.6	(9.5 - 13.7)
McCully - Makiki	56,641	5,453	9.6	(7.9 - 11.4)
Ala Moana - Nu'uuanu	69,700	8,783	12.6	(10.9 - 14.4)
West Honolulu	126,214	15,482	12.3	(10.9 - 13.7)
Downtown - Kalihi	64,638	10,072	15.6	(13.5 - 17.7)
Airport - Moanalua	61,576	5,410	8.8	(6.9 - 10.6)
'Ewa	313,252	17,991	5.7	(5.1 - 6.4)
Hickam - Pearl City	87,751	4,521	5.2	(4.0 - 6.3)
Waipahu	77,878	6,998	9.0	(7.4 - 10.6)
'Ewa - Kalaeleo	55,883	1,279	2.3	(1.4 - 3.2)
Kapolei - Makakilo	43,501	1,879	4.3	(2.9 - 5.8)
Mililani	48,239	3,314	6.9	(5.0 - 8.7)
Wahiawā	33,089	4,106	12.4	(9.6 - 15.2)
Wai'anae	46,109	8,617	18.7	(15.6 - 21.8)
Waialua	12,799	1,263	9.9	(6.8 - 13.0)
Ko'olauloa	18,399	2,002	10.9	(6.8 - 15.0)
Ko'olaupoko	111,905	8,188	7.3	(5.8 - 8.8)
Hawai'i County	176,103	25,392	14.4	(13.1 - 15.7)
Hilo	53,141	8,895	16.7	(13.9 - 19.6)
Puna	36,332	8,498	23.4	(20.1 - 26.7)
Ka'ū	6,936	1,510	21.8	(14.1 - 29.5)
South Kona	9,510	1,165	12.3	(9.4 - 15.1)
North Kona	38,652	3,271	8.5	(6.5 - 10.4)
South Kohala	17,571	988	5.6	(3.3 - 7.9)
North Kohala	5,279	360	6.8	(3.4 - 10.2)
Hāmakuā	8,682	705	8.1	(4.9 - 11.4)
Maui County	148,896	13,213	8.9	(7.6 - 10.1)
Hāna	2,344	71	3.0	(0.0 - 7.5)
Makawao	42,147	4,452	10.6	(7.5 - 13.6)
Wailuku	73,137	5,919	8.1	(6.4 - 9.8)
Lāhainā	20,441	1,328	6.5	(4.5 - 8.5)
Lāna'i	3,289	94	2.9	(0.0 - 6.0)
Moloka'i	7,538	1,349	17.9	(11.4 - 24.4)
Kaua'i County	64,561	5,710	8.8	(7.3 - 10.4)
Hanalei	7,098	861	12.1	(7.8 - 16.4)
Kapa'a	20,269	1,783	8.8	(6.0 - 11.6)
Līhu'e	14,585	1,256	8.6	(5.6 - 11.6)
Kōloa	14,102	1,251	8.9	(5.7 - 12.0)
Waimea	8,507	559	6.6	(3.7 - 9.4)

Source: U.S. Department of Commerce, U.S. Census Bureau, American Community Survey

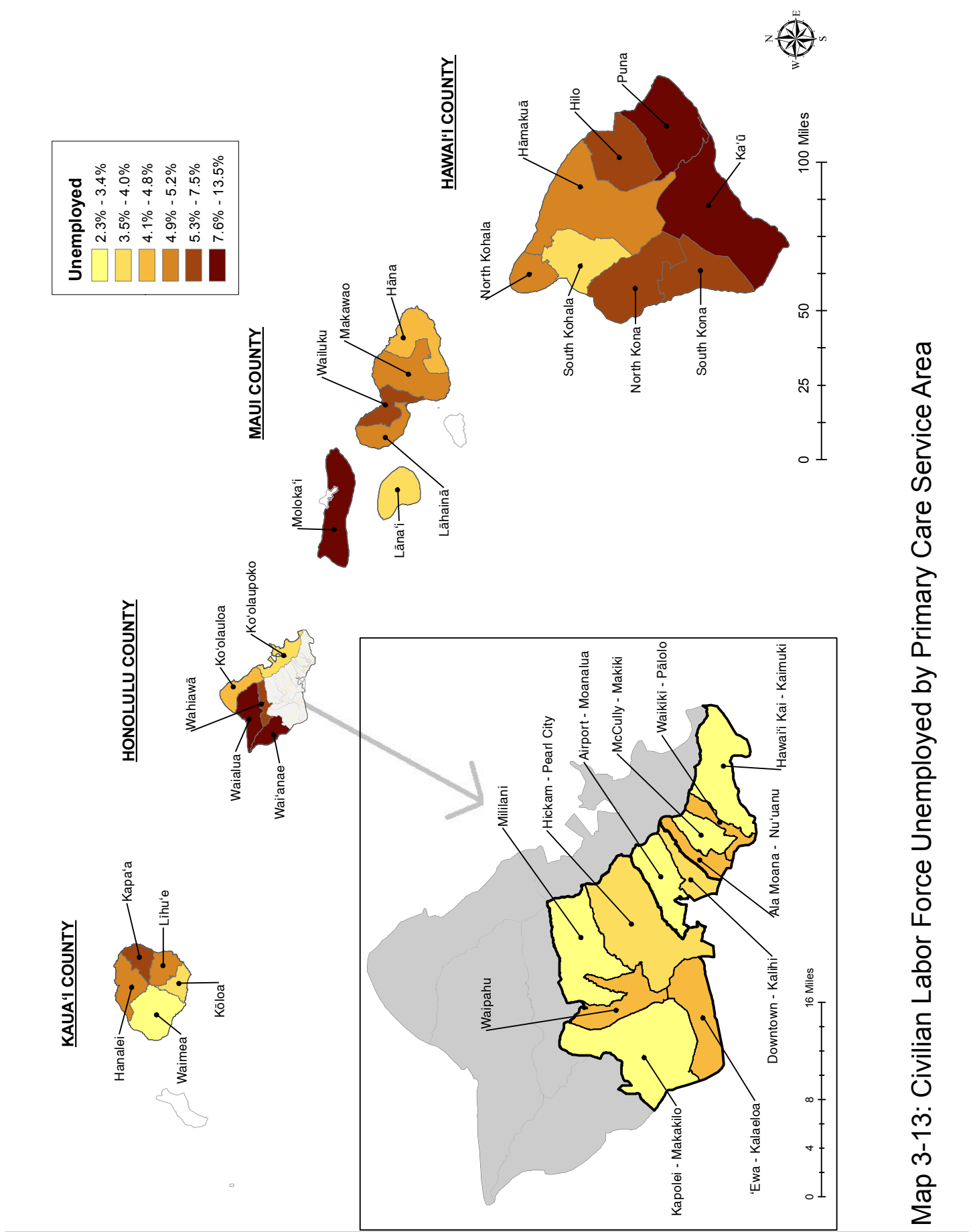


Map 3-12: Population Below 100% of Federal Poverty Level by Primary Care Service Area

Table 3-11: Civilian Labor Force Unemployed, 2006-2010

Service Area	Total Number in Civilian Labor Force (N)	Number Unemployed (n)	Percent Unemployed (%)	95% Confidence Interval
State of Hawai'i	554,905	25,536	4.6	(4.4 - 4.8)
Honolulu County	379,698	15,249	4.0	(3.8 - 4.3)
East Honolulu	115,913	4,079	3.5	(2.0 - 5.0)
Hawai'i Kai - Kaimuki	31,925	734	2.3	(0.0 - 5.3)
Waikiki - Pālolo	22,476	1,056	4.7	(1.0 - 8.4)
McCully - Makiki	27,194	833	3.1	(0.2 - 5.9)
Ala Moana - Nu'uuanu	34,318	1,456	4.2	(1.7 - 6.8)
West Honolulu	48,991	1,783	3.6	(1.3 - 6.0)
Downtown - Kalihi	27,348	1,102	4.0	(1.5 - 6.6)
Airport - Moanalua	21,643	681	3.1	(0.0 - 7.4)
'Ewa	130,014	4,630	3.6	(2.3 - 4.8)
Hickam - Pearl City	34,999	1,189	3.4	(0.6 - 6.2)
Waipahu	32,550	1,389	4.3	(2.6 - 6.0)
'Ewa - Kalaeloa	24,926	585	2.3	(0.0 - 5.5)
Kapolei - Makakilo	18,793	569	3.0	(0.0 - 6.2)
Mililani	18,746	898	4.8	(1.3 - 8.3)
Wahiawā	9,934	747	7.5	(0.2 - 14.9)
Wai'anae	16,342	1,454	8.9	(6.4 - 11.4)
Waialua	5,126	405	7.9	(1.8 - 14.0)
Ko'olauloa	7,355	315	4.3	(1.3 - 7.3)
Ko'olaupoko	46,023	1,836	4.0	(1.7 - 6.3)
Hawai'i County	76,209	4,790	6.3	(5.6 - 7.0)
Hilo	21,152	1,318	6.2	(3.8 - 8.6)
Puna	14,248	1,189	8.3	(6.1 - 10.6)
Ka'ū	2,924	285	9.7	(5.8 - 13.7)
South Kona	4,504	251	5.6	(0.6 - 10.5)
North Kona	18,503	1,088	5.9	(3.5 - 8.3)
South Kohala	8,697	347	4.0	(1.2 - 6.8)
North Kohala	2,456	121	4.9	(2.0 - 7.8)
Hāmakuā	3,725	191	5.1	(0.0 - 10.7)
Maui County	70,231	4,092	5.8	(5.0 - 6.6)
Hāna	970	42	4.3	(0.0 - 28.8)
Makawao	20,481	1,074	5.2	(2.7 - 7.8)
Wailuku	33,919	2,003	5.9	(3.9 - 8.0)
Lāhainā	10,574	535	5.1	(0.9 - 9.2)
Lāna'i	1,414	49	3.5	(0.0 - 17.4)
Moloka'i	2,873	389	13.5	(7.1 - 20.0)
Kaua'i County	28,729	1,405	4.9	(3.8 - 6.0)
Hanalei	3,137	154	4.9	(0.0 - 14.8)
Kapa'a	9,157	564	6.2	(1.8 - 10.5)
Līhu'e	6,223	301	4.8	(1.4 - 8.2)
Kōloa	6,300	254	4.0	(0.7 - 7.3)
Waimea	3,912	132	3.4	(0.0 - 10.5)

Source: U.S. Department of Commerce, U.S. Census Bureau, American Community Survey

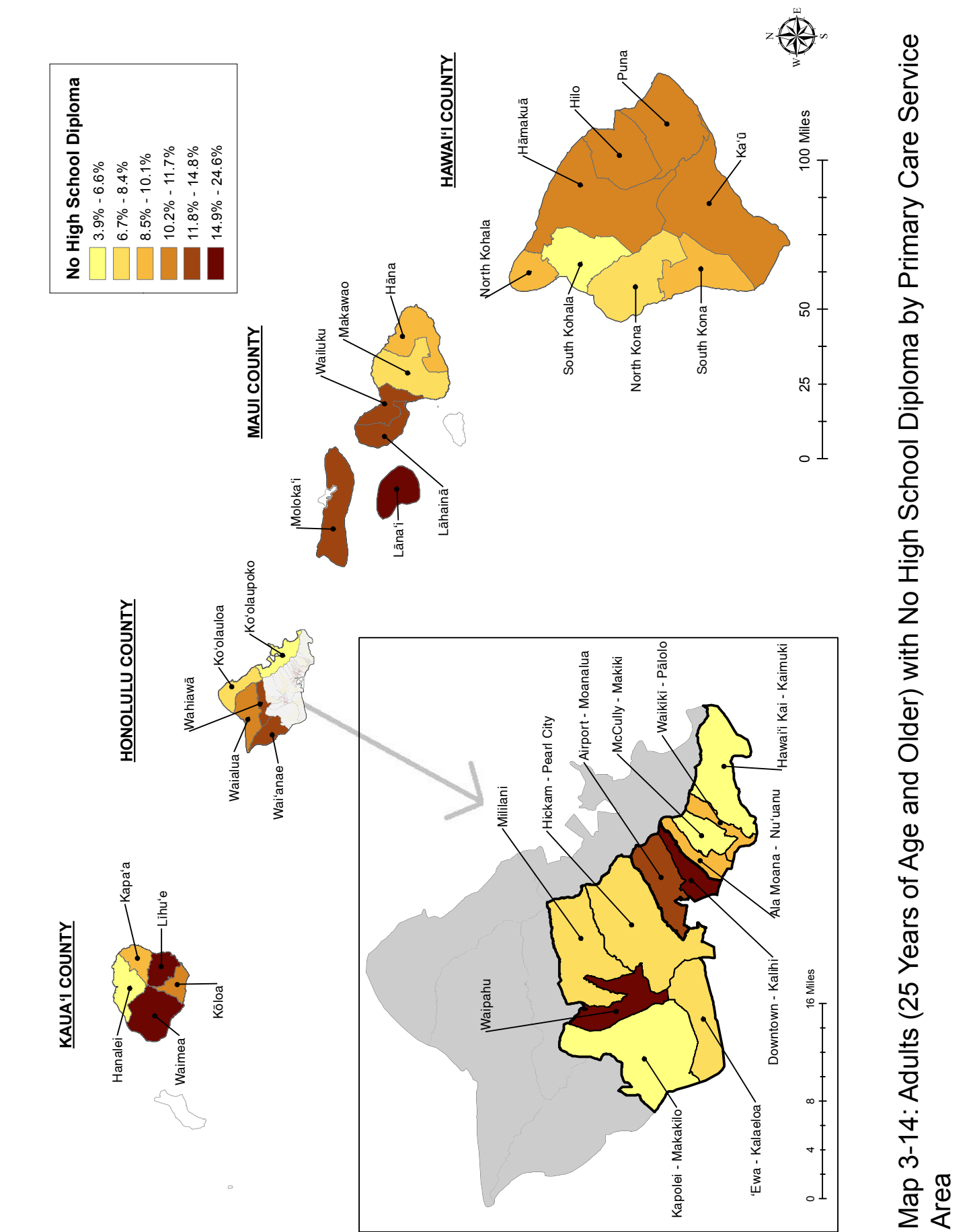


Map 3-13: Civilian Labor Force Unemployed by Primary Care Service Area

Table 3-12: Adults (25 Years of Age and Older) with No High School Diploma, 2006-2010

Service Area	Total Population 25 Years and Older (N)	Number With No High School Diploma (n)	Percent With No High School Diploma (%)	95% Confidence Interval
State of Hawai'i	903,810	92,445	10.2	(10.0 - 10.5)
Honolulu County	631,112	63,741	10.1	(9.8 - 10.4)
East Honolulu	190,240	13,890	7.3	(5.4 - 9.2)
Hawai'i Kai - Kaimuki	53,609	2,077	3.9	(0.1 - 7.7)
Waikiki - Pālolo	38,312	3,480	9.1	(4.6 - 13.6)
McCully - Makiki	42,822	2,810	6.6	(2.6 - 10.5)
Ala Moana - Nu'uuanu	55,497	5,523	10.0	(7.0 - 12.9)
West Honolulu	88,568	17,188	19.4	(17.0 - 21.8)
Downtown - Kalihi	46,873	11,546	24.6	(22.2 - 27.1)
Airport - Moanalua	41,695	5,642	13.5	(9.3 - 17.8)
'Ewa	208,222	19,382	9.3	(7.7 - 10.9)
Hickam - Pearl City	63,040	5,145	8.2	(5.2 - 11.1)
Waipahu	51,123	7,812	15.3	(13.2 - 17.4)
'Ewa - Kalaeleo	36,798	1,852	5.0	(0.9 - 9.2)
Kapolei - Makakilo	27,325	2,044	7.5	(2.5 - 12.5)
Mililani	29,936	2,529	8.4	(3.6 - 13.3)
Wahiawā	20,594	2,743	13.3	(5.9 - 20.8)
Wai'anae	26,684	3,942	14.8	(11.5 - 18.1)
Waialua	8,390	944	11.3	(4.9 - 17.6)
Ko'olauloa	11,425	854	7.5	(3.1 - 11.9)
Ko'olaupoko	76,989	4,798	6.2	(3.3 - 9.2)
Hawai'i County	123,533	11,681	9.5	(8.8 - 10.1)
Hilo	37,594	3,957	10.5	(8.1 - 13.0)
Puna	24,436	2,645	10.8	(8.0 - 13.6)
Ka'ū	4,847	538	11.1	(6.3 - 15.9)
South Kona	6,840	645	9.4	(4.5 - 14.4)
North Kona	28,445	2,218	7.8	(4.9 - 10.7)
South Kohala	11,923	673	5.6	(1.3 - 10.0)
North Kohala	3,563	319	9.0	(1.8 - 16.1)
Hāmakuā	5,885	686	11.7	(1.9 - 21.4)
Maui County	103,805	11,692	11.3	(10.4 - 12.1)
Hāna	1,571	159	10.1	(0.0 - 36.3)
Makawao	29,870	2,238	7.5	(4.3 - 10.7)
Wailuku	50,267	6,252	12.4	(9.8 - 15.1)
Lāhainā	15,073	2,006	13.3	(6.4 - 20.2)
Lāna'i	2,116	390	18.4	(7.1 - 29.8)
Moloka'i	4,908	647	13.2	(5.8 - 20.6)
Kaua'i County	45,286	5,316	11.7	(10.6 - 12.9)
Hanalei	5,001	316	6.3	(0.0 - 16.2)
Kapa'a	14,532	1,376	9.5	(4.7 - 14.3)
Līhu'e	10,376	1,619	15.6	(11.6 - 19.6)
Kōloa	9,595	1,043	10.9	(6.9 - 14.8)
Waimea	5,782	962	16.6	(11.7 - 21.5)

Source: U.S. Department of Commerce, U.S. Census Bureau, American Community Survey

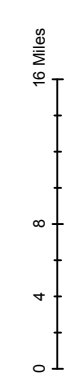
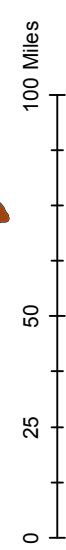
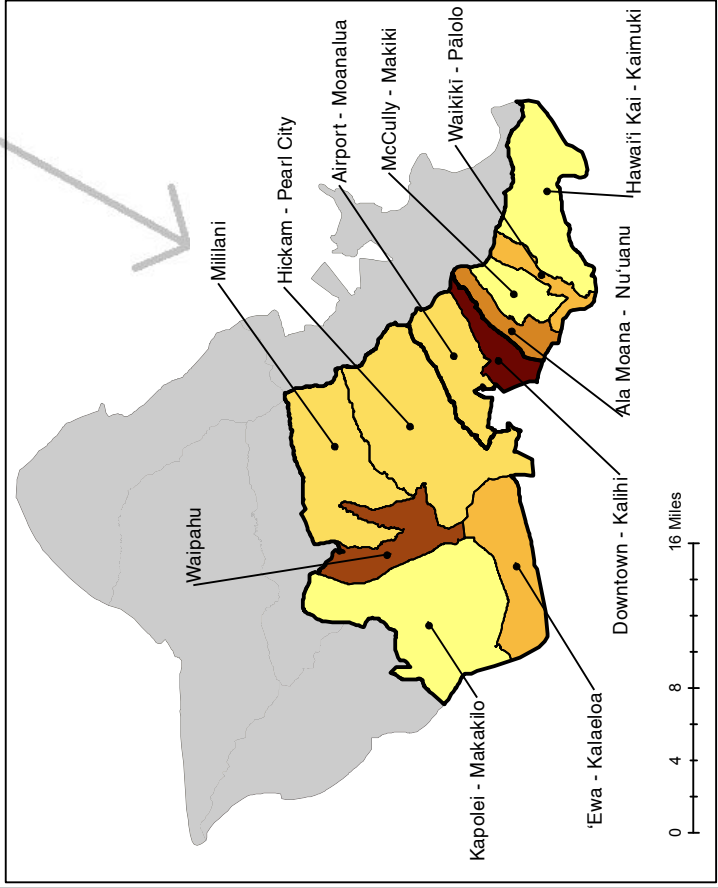
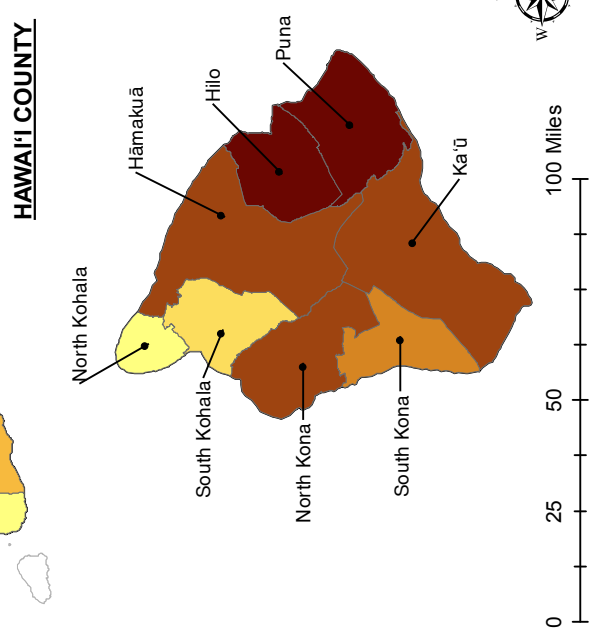
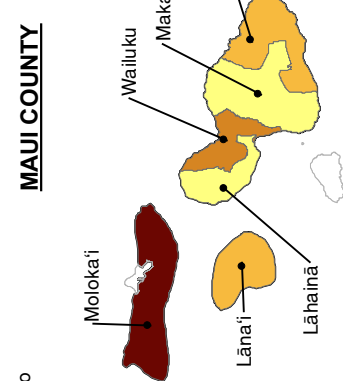
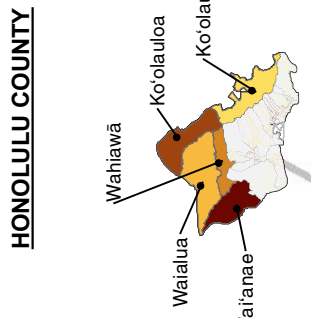
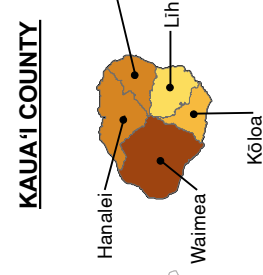
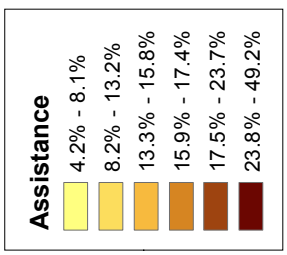


Map 3-14: Adults (25 Years of Age and Older) with No High School Diploma by Primary Care Service Area

Table 3-13: Children in Households Receiving Assistance, 2006-2010

Service Area	Total Number of Children Under 18 Years of Age (N)	Children Receiving Assistance (n)	Percent of Children Receiving Assistance (%)	95% Confidence Interval
State of Hawai'i	299,841	51,596	17.2	(16.2 - 18.2)
Honolulu County	208,269	33,402	16.0	(14.9 - 17.1)
East Honolulu	39,247	3,895	9.9	(6.8 - 13.1)
Hawai'i Kai - Kaimuki	13,417	557	4.2	(0.0 - 8.5)
Waikiki - Pālolo	7,392	1,078	14.6	(5.3 - 23.9)
McCully - Makiki	8,673	663	7.6	(1.7 - 13.6)
Ala Moana - Nu'uuanu	9,765	1,597	16.4	(9.7 - 23.1)
West Honolulu	28,755	5,919	20.6	(17.1 - 24.1)
Downtown - Kalihi	13,072	3,970	30.4	(24.7 - 36.0)
Airport - Moanalua	15,683	1,949	12.4	(8.1 - 16.8)
'Ewa	80,512	9,975	12.4	(10.5 - 14.3)
Hickam - Pearl City	19,580	1,675	8.6	(5.6 - 11.5)
Waipahu	19,275	3,456	17.9	(13.8 - 22.1)
'Ewa - Kalaeloa	14,718	908	6.2	(3.4 - 8.9)
Kapolei - Makakilo	12,241	1,611	13.2	(8.4 - 17.9)
Mililani	14,718	908	6.2	(3.4 - 8.9)
Wahiawā	12,241	1,611	13.2	(8.4 - 17.9)
Wai'anae	15,120	7,441	49.2	(42.3 - 56.2)
Waialua	3,162	421	13.3	(5.5 - 21.1)
Ko'olauloa	5,451	994	18.2	(9.0 - 27.4)
Ko'olaupoko	26,015	3,122	12.0	(9.3 - 14.7)
Hawai'i County	41,471	10,996	26.5	(23.3 - 29.7)
Hilo	11,721	3,443	29.4	(23.1 - 35.6)
Puna	9,580	4,118	43.0	(35.2 - 50.7)
Ka'ū	1,850	438	23.7	(14.6 - 32.7)
South Kona	2,088	363	17.4	(8.2 - 26.6)
North Kona	8,010	1,557	19.4	(12.5 - 26.3)
South Kohala	4,521	565	12.5	(4.4 - 20.6)
North Kohala	1,482	89	6.0	(2.1 - 9.9)
Hāmakuā	2,219	423	19.1	(9.6 - 28.5)
Maui County	34,995	4,828	13.8	(11.0 - 16.6)
Hāna	707	99	14.0	(0.0 - 32.4)
Makawao	9,182	740	8.1	(3.6 - 12.6)
Wailuku	18,143	3,062	16.9	(12.1 - 21.7)
Lāhainā	3,956	184	4.7	(0.0 - 12.3)
Lāna'i	1,019	156	15.3	(0.7 - 29.9)
Moloka'i	1,988	587	29.5	(18.2 - 40.9)
Kaua'i County	15,106	2,370	15.7	(12.3 - 19.1)
Hanalei	1,680	280	16.7	(6.9 - 26.5)
Kapa'a	4,317	695	16.1	(9.2 - 23.0)
Līhu'e	3,695	440	11.9	(5.9 - 17.9)
Kōloa	3,459	501	14.5	(6.6 - 22.4)
Waimea	1,955	454	23.2	(8.3 - 38.2)

Source: U.S. Department of Commerce, U.S. Census Bureau, American Community Survey

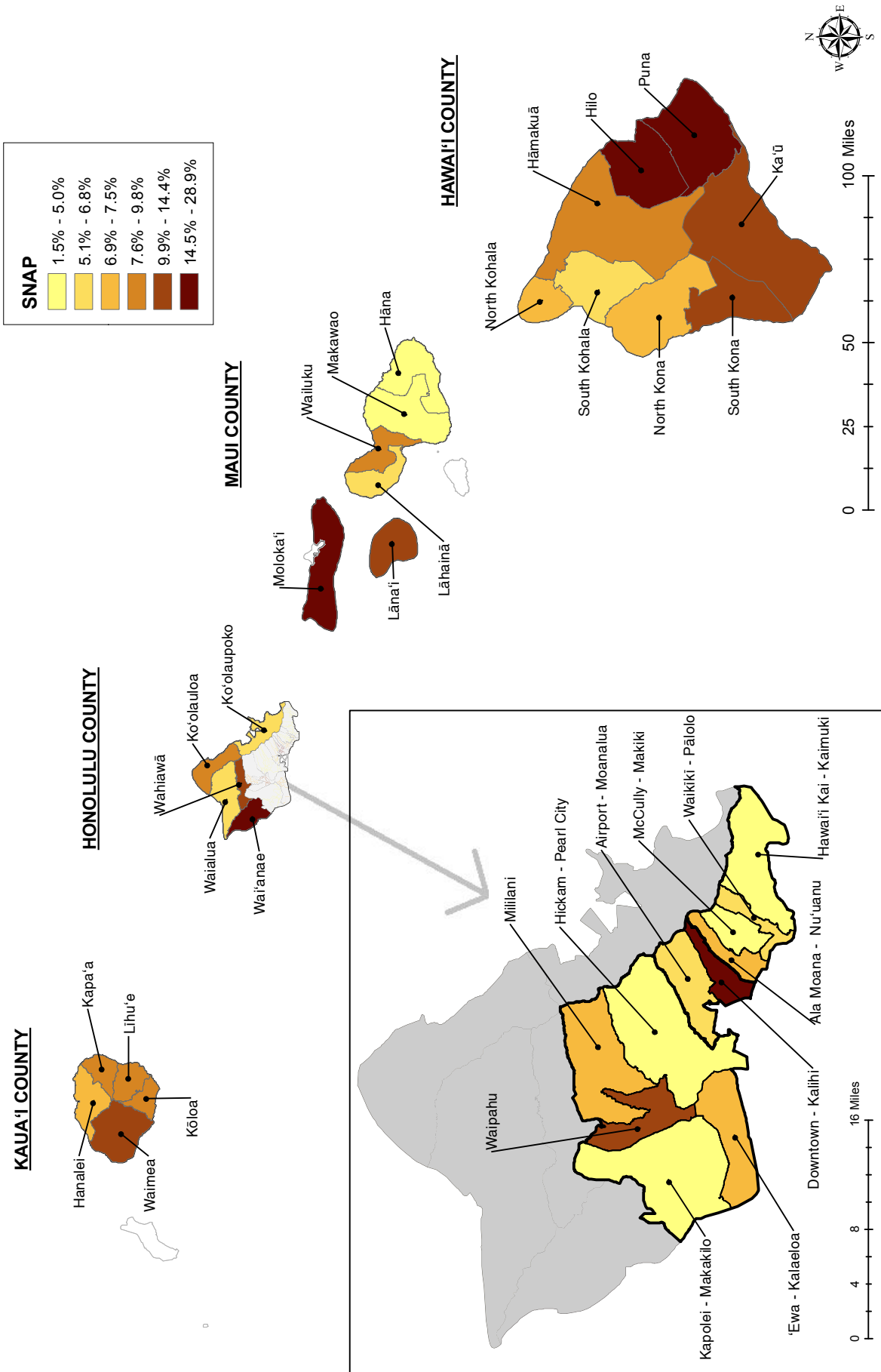


Map 3-15: Children in Households Receiving Assistance by Primary Care Service Area

Table 3-14: Households receiving SNAP or Cash Public Assistance, 2006-2010

Service Area	Total Number of Households (N)	Number Receiving SNAP (n)	Percent Receiving SNAP (%)	95% Confidence Interval
State of Hawai'i	442,267	37,017	8.4	(8.0 - 8.7)
Honolulu County	304,827	23,223	7.6	(7.3 - 8.0)
East Honolulu	105,942	5,087	4.8	(4.1 - 5.5)
Hawai'i Kai - Kaimuki	24,793	371	1.5	(0.0 - 3.2)
Waikiki - Pālolo	22,691	1,154	5.1	(3.9 - 6.2)
McCully - Makiki	24,817	1,034	4.2	(2.9 - 5.5)
Ala Moana - Nu'uuanu	33,641	2,528	7.5	(6.4 - 8.7)
West Honolulu	38,186	4,888	12.8	(11.3 - 14.3)
Downtown - Kalihi	19,926	3,701	18.6	(16.7 - 20.5)
Airport - Moanalua	18,260	1,187	6.5	(4.2 - 8.8)
'Ewa	94,522	5,778	6.1	(5.3 - 6.9)
Hickam - Pearl City	29,286	1,274	4.4	(3.0 - 5.7)
Waipahu	20,262	2,078	10.3	(8.8 - 11.8)
'Ewa - Kalaeloa	18,450	538	2.9	(1.5 - 4.4)
Kapolei - Makakilo	12,788	888	6.9	(4.1 - 9.8)
Mililani	13,736	1,000	7.3	(4.9 - 9.7)
Wahiawā	10,206	1,323	13.0	(8.4 - 17.5)
Wai'anae	11,647	3,367	28.9	(25.4 - 32.4)
Waialua	4,067	276	6.8	(4.3 - 9.3)
Ko'olauloa	5,068	448	8.8	(6.3 - 11.4)
Ko'olaupoko	35,189	2,056	5.8	(4.7 - 7.0)
Hawai'i County	64,382	8,094	12.6	(11.6 - 13.6)
Hilo	19,641	2,890	14.7	(12.7 - 16.7)
Puna	13,364	2,657	19.9	(17.3 - 22.4)
Ka'ū	2,624	378	14.4	(9.7 - 19.1)
South Kona	3,531	429	12.2	(8.2 - 16.1)
North Kona	14,374	1,021	7.1	(4.9 - 9.3)
South Kohala	6,200	315	5.1	(2.5 - 7.7)
North Kohala	1,862	130	7.0	(3.0 - 10.9)
Hāmakuā	2,786	274	9.8	(6.6 - 13.0)
Maui County	51,281	3,855	7.5	(6.3 - 8.7)
Hāna	635	16	2.5	(0.0 - 5.1)
Makawao	15,113	751	5.0	(3.1 - 6.8)
Wailuku	24,438	2,101	8.6	(6.8 - 10.4)
Lāhainā	7,274	395	5.4	(3.2 - 7.7)
Lāna'i	1,051	124	11.8	(3.4 - 20.2)
Moloka'i	2,770	468	16.9	(12.2 - 21.6)
Kaua'i County	21,710	1,842	8.5	(7.0 - 10.0)
Hanalei	2,521	180	7.1	(3.9 - 10.4)
Kapa'a	6,735	530	7.9	(5.2 - 10.5)
Līhu'e	4,790	398	8.3	(4.4 - 12.2)
Kōloa	4,836	405	8.4	(5.8 - 11.0)
Waimea	2,828	329	11.6	(7.0 - 16.3)

Source: U.S. Department of Commerce, U.S. Census Bureau, American Community Survey

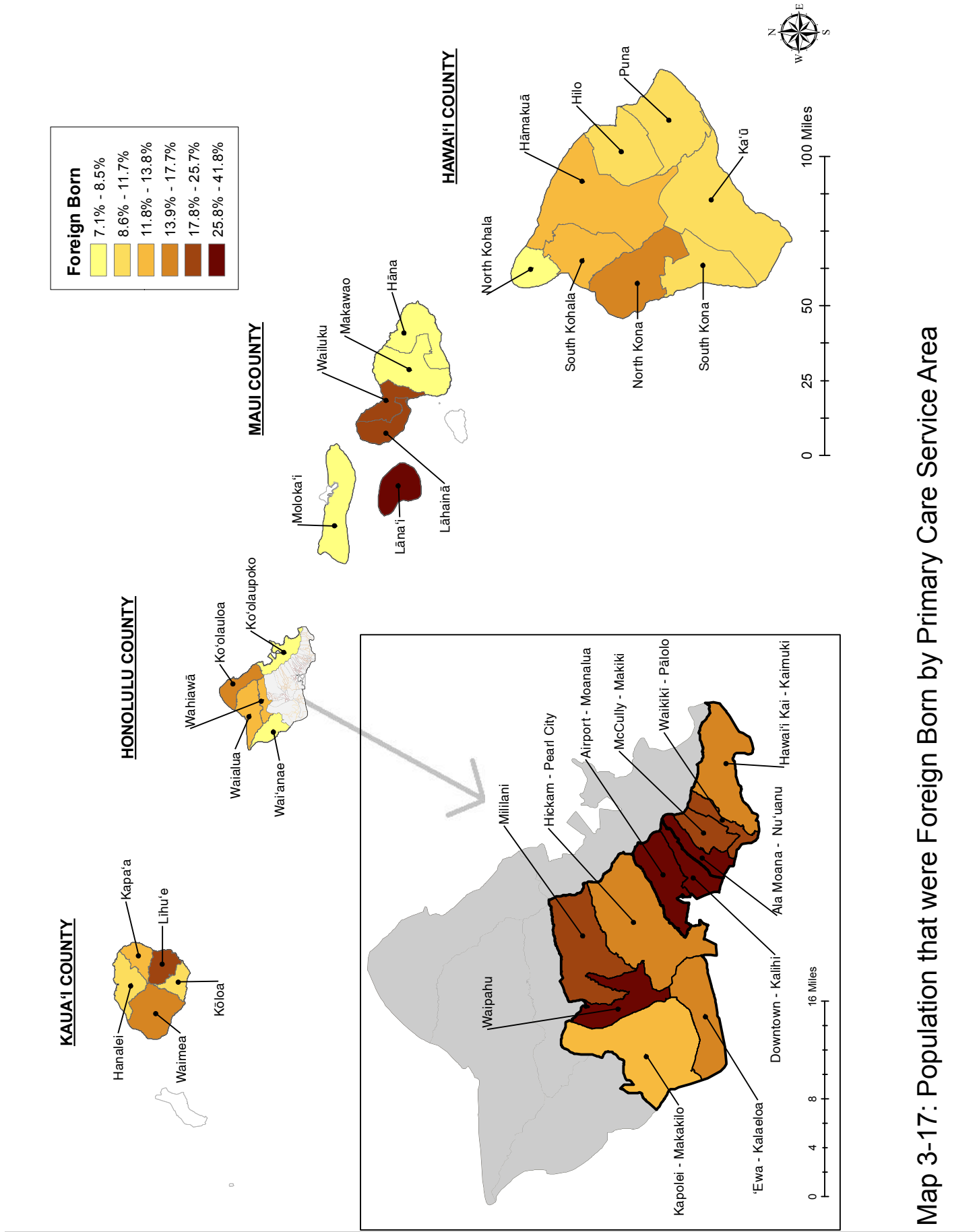


Map 3-16: Households receiving SNAP or Cash Public Assistance by Primary Care Service Area

Table 3-15: Population that were Foreign Born, 2006-2010

Service Area	Annual Total Population (N)	Number Foreign Born (n)	Percent Foreign Born (%)	95% Confidence Interval
State of Hawai'i	1,333,591	236,177	17.7	(17.3 - 18.1)
Honolulu County	936,984	183,140	19.5	(19.1 - 20.0)
East Honolulu	251,991	56,864	22.6	(21.6 - 23.6)
Hawai'i Kai - Kaimuki	71,026	10,042	14.1	(12.8 - 15.5)
Waikiki - Pālolo	50,771	13,047	25.7	(23.4 - 28.0)
McCully - Makiki	59,080	12,898	21.8	(19.7 - 24.0)
Ala Moana - Nu'uuanu	71,114	20,877	29.4	(27.3 - 31.4)
West Honolulu	129,858	44,360	34.2	(32.4 - 35.9)
Downtown - Kalihi	66,102	27,621	41.8	(39.2 - 44.4)
Airport - Moanalua	63,756	16,739	26.3	(24.0 - 28.5)
'Ewa	321,146	60,023	18.7	(17.8 - 19.6)
Hickam - Pearl City	93,057	13,009	14.0	(12.7 - 15.2)
Waipahu	78,990	22,911	29.0	(26.8 - 31.2)
'Ewa - Kalaeloa	56,026	6,979	12.5	(10.7 - 14.2)
Kapolei - Makakilo	43,670	8,375	19.2	(16.9 - 21.5)
Mililani	49,403	8,749	17.7	(15.4 - 20.0)
Wahiawā	36,724	4,881	13.3	(11.4 - 15.2)
Wai'anae	46,482	3,323	7.1	(5.6 - 8.7)
Waialua	13,066	1,773	13.6	(11.4 - 15.8)
Ko'olauloa	19,634	3,247	16.5	(12.4 - 20.7)
Ko'olaupoko	118,083	8,669	7.3	(6.3 - 8.4)
Hawai'i County	180,362	20,240	11.2	(10.2 - 12.2)
Hilo	56,454	5,142	9.1	(7.3 - 11.0)
Puna	36,707	3,949	10.8	(9.0 - 12.5)
Ka'ū	6,949	707	10.2	(7.2 - 13.1)
South Kona	9,552	969	10.1	(6.0 - 14.3)
North Kona	38,825	5,493	14.1	(11.1 - 17.2)
South Kohala	17,752	2,441	13.8	(9.5 - 18.0)
North Kohala	5,303	415	7.8	(5.1 - 10.5)
Hāmakuā	8,820	1,124	12.7	(9.8 - 15.7)
Maui County	150,711	23,790	15.8	(14.8 - 16.8)
Hāna	2,351	197	8.4	(6.1 - 10.6)
Makawao	42,416	3,596	8.5	(6.7 - 10.3)
Wailuku	74,568	14,069	18.9	(16.8 - 20.9)
Lāhainā	20,497	4,275	20.9	(16.8 - 24.9)
Lāna'i	3,335	1,068	32.0	(19.6 - 44.5)
Moloka'i	7,544	585	7.8	(5.0 - 10.5)
Kaua'i County	65,460	8,994	13.7	(12.4 - 15.1)
Hanalei	7,126	765	10.7	(7.3 - 14.2)
Kapa'a	20,617	2,469	12.0	(8.9 - 15.1)
Līhu'e	15,064	2,775	18.4	(14.8 - 22.0)
Kōloa	14,129	1,654	11.7	(8.9 - 14.5)
Waimea	8,524	1,331	15.6	(11.2 - 20.0)

Source: U.S. Department of Commerce, U.S. Census Bureau, American Community Survey

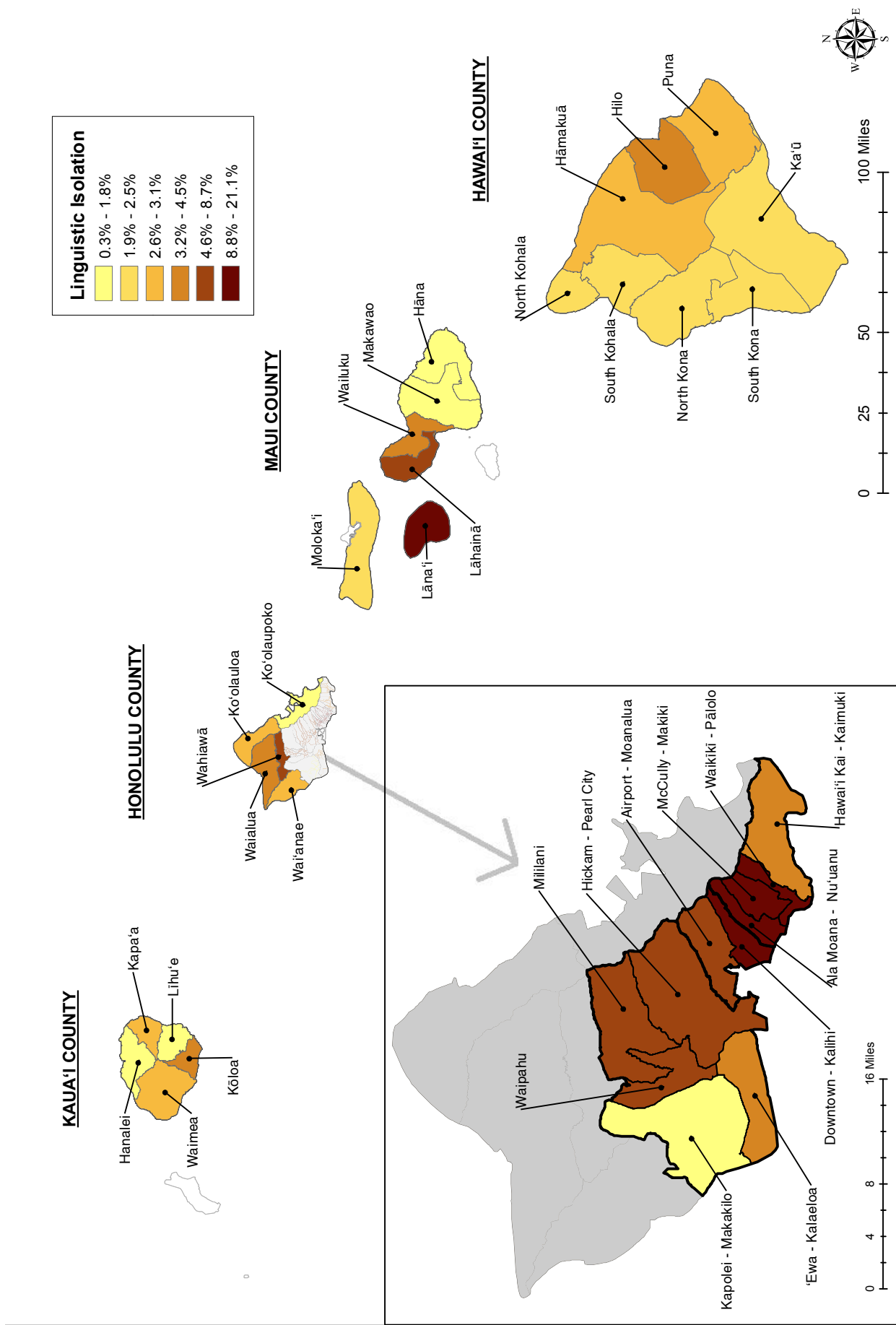


Map 3-17: Population that were Foreign Born by Primary Care Service Area

Table 3-16: Households with Linguistic Isolation, 2006-2010

Service Area	Total Number of Households (N)	Number with Linguistic Isolation (n)	Percent with Linguistic Isolation (%)	95% Confidence Interval
State of Hawai'i	442,267	27,254	6.2	(5.9 - 6.4)
Honolulu County	304,827	23,036	7.6	(7.2 - 7.9)
East Honolulu	105,942	10,941	10.3	(8.4 - 12.3)
Hawai'i Kai - Kaimuki	24,793	972	3.9	(0.0 - 8.3)
Waikiki - Pālolo	22,691	2,770	12.2	(7.7 - 16.7)
McCully - Makiki	24,817	2,362	9.5	(5.6 - 13.4)
Ala Moana - Nu'uuanu	33,641	4,837	14.4	(11.2 - 17.5)
West Honolulu	38,186	5,331	14.0	(10.0 - 17.9)
Downtown - Kalihi	19,926	4,206	21.1	(15.9 - 26.3)
Airport - Moanalua	18,260	1,125	6.2	(0.2 - 12.2)
'Ewa	94,522	4,946	5.2	(3.1 - 7.4)
Hickam - Pearl City	29,286	1,569	5.4	(1.5 - 9.3)
Waipahu	20,262	1,768	8.7	(4.5 - 12.9)
'Ewa - Kalaeloa	18,450	283	1.5	(0.0 - 6.3)
Kapolei - Makakilo	12,788	812	6.4	(0.4 - 12.3)
Mililani	13,736	514	3.7	(0.0 - 9.6)
Wahiawā	10,206	628	6.2	(0.0 - 14.6)
Wai'anae	11,647	339	2.9	(0.0 - 8.8)
Waialua	4,067	179	4.4	(0.0 - 13.9)
Ko'olauloa	5,068	138	2.7	(0.0 - 9.3)
Ko'olaupoko	35,189	534	1.5	(0.0 - 5.4)
Hawai'i County	64,382	1,839	2.9	(2.3 - 3.4)
Hilo	19,641	717	3.7	(0.0 - 7.5)
Puna	13,364	374	2.8	(0.0 - 7.3)
Ka'ū	2,624	58	2.2	(0.0 - 9.6)
South Kona	3,531	67	1.9	(0.0 - 10.5)
North Kona	14,374	364	2.5	(0.0 - 6.1)
South Kohala	6,200	145	2.3	(0.0 - 6.6)
North Kohala	1,862	37	2.0	(0.0 - 14.5)
Hāmakuā	2,786	77	2.8	(0.0 - 16.5)
Maui County	51,281	1,795	3.5	(2.8 - 4.2)
Hāna	635	2	0.3	(0.0 - 36.9)
Makawao	15,113	132	0.9	(0.0 - 5.3)
Wailuku	24,438	1,096	4.5	(0.9 - 8.1)
Lāhainā	7,274	400	5.5	(0.0 - 13.8)
Lāna'i	1,051	108	10.3	(0.0 - 33.5)
Moloka'i	2,770	57	2.1	(0.0 - 14.0)
Kaua'i County	21,710	581	2.7	(1.7 - 3.6)
Hanalei	2,521	44	1.7	(0.0 - 14.8)
Kapa'a	6,735	210	3.1	(0.0 - 9.7)
Līhu'e	4,790	87	1.8	(0.0 - 8.7)
Kōloa	4,836	164	3.4	(0.0 - 11.4)
Waimea	2,828	76	2.7	(0.0 - 14.4)

Source: U.S. Department of Commerce, U.S. Census Bureau, American Community Survey



Linguistic Isolation

0.3% - 1.8%
1.9% - 2.5%
2.6% - 3.1%
3.2% - 4.5%
4.6% - 8.7%
8.8% - 21.1%

Map 3-18: Households with Linguistic Isolation by Primary Care Service Area

CHAPTER 4: MATERNAL AND INFANT HEALTH

Maternal and infant health status indicators are often used as a measure of overall community health. This chapter was developed to highlight many of the key maternal and infant health status indicators that relate to the health disparities observed between populations. The maternal and infant health status indicators based on the aggregated 2005-2010 unless noted vital statistics data are defined below.

MATERNAL AND INFANT HEALTH STATUS INDICATORS

$$\text{Crude Birth Rate*} = \frac{\text{Number of births} * 1,000}{\text{Total population}}$$

$$\text{Infant Mortality Rate (IMR)} = \frac{\text{Number of infant deaths} * 1,000}{\text{Total number of live births}}$$

$$\text{Percent of Births with Less Than Adequate Prenatal Care Utilization} = \frac{\text{Number of births to mothers who received less than adequate prenatal care}}{\text{Total number of live births}}$$

$$\text{Percent of Births with Low Birth Weight} = \frac{\text{Number of births with weight less than 2,500 grams}}{\text{Total number of live births}}$$

$$\text{Percent of Births Under 18 Years of Age} = \frac{\text{Number of births to mothers under 18 years of age}}{\text{Total number of live births}}$$

$$\text{Percent of Births to Mothers with Pre-Existing Medical Conditions} = \frac{\text{Number of births with pre-existing medical conditions}}{\text{Total number of live births}}$$

* Total Population for Crude Birth Rates was based on 2010 Census Data.

Percent of Births with less than Adequate Prenatal Care Utilization

In 1994, Milton Kotelchuck proposed the Adequacy of Prenatal Utilization Index (APNCU), more commonly referred to as the “Kotelchuck Index.”¹ The APNCU Index combines two separate indices: the “adequacy of initiation of prenatal care,” information on the adequacy of initiation of prenatal care (month care began) and the “adequacy of received services,” (number of visits based on gestational age of the child) to characterize adequacy of pregnancy-related health services provided to an expectant mother between conception and delivery. Rates are classified as “adequate plus,” “adequate,” “intermediate,” or “inadequate.”

The Adequacy of Prenatal Utilization Index offers a more accurate and comprehensive set of measures of prenatal care use than just the trimester of prenatal care initiation. The APNCU Index is the prenatal care utilization index now being actively supported by the Maternal and Child Health Bureau (MCHB), DHHS. Consequently, it is the index which the Family Health Services Division (FHSD) and other agencies are now required to use in their reporting. In this Data Book, the percentage of births with less than adequate prenatal care as defined in the APNCU Index is shown by primary care service area.

Percent of Births with Mothers with Pre-Existing Medical Conditions

Births to mothers with pre-existing medical conditions may be associated with worse outcomes than those born to mothers without these conditions. In general women are delaying child birth to later years and this is coinciding with increases in chronic conditions (e.g., diabetes, high blood pressure) and their related risk factors (e.g., obesity, physical inactivity) among women of reproductive age. This combination stresses the importance of obtaining and providing appropriate care before pregnancy, termed preconception and interconception care, to try and optimize the health of both the mother and the infant resulting from the pregnancy.²

This particular indicator was determined with the presence of the notation for any of the following pre-existing medical conditions collected in vital statistics data: anemia, cardiac disease, acute or chronic lung disease, diabetes, genital herpes, hydraminos/oligohydraminos, hemoglobinopathy, chronic hypertension, pregnancy-associated hypertension, eclampsia, incompetent cervix, previous infant 4000+ grams, previous pre-term or small-for-gestational-age infant, renal disease, Rh sensitization, uterine bleeding, or infectious disease.

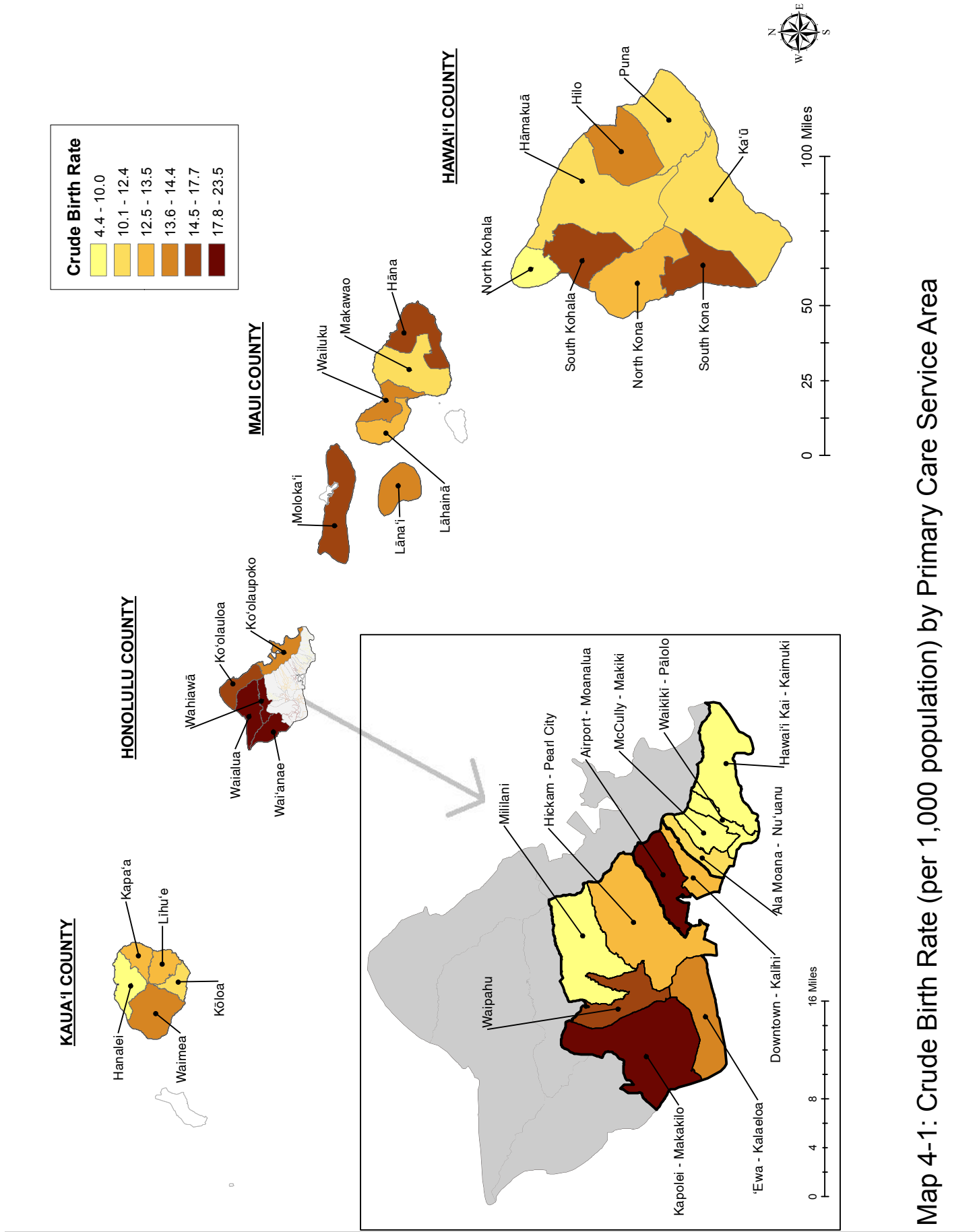
1 Kotelchuck, M. 1994. *An Evaluation of the Kessner Adequacy of Prenatal Care Index and a Proposed Adequacy of Prenatal Care Utilization Index*. American Journal of Public Health. 84 (9): 1414-1420.

2 D'Angelo D, Williams L, Morrow B, Cox S, Harris N, Harrison L, Posner SF, Hood JR, Zapata L. 2007. *Preconception and interconception health status of women who recently gave birth to a live-born infant--Pregnancy Risk Assessment Monitoring System (PRAMS), United States, 26 reporting areas, 2004*. MMWR Surveillance Summary. 56(10):1-35.

Table 4-1: Crude Birth Rate, 2005-2010

Service Area	Annual Total Population (N)	All Births (n)	Crude Birth Rate (per 1,000)	95% Confidence Interval
State of Hawai'i	1,360,301	113,354	13.9	(13.8 - 14.0)
Honolulu County	953,207	80,869	14.1	(14.0 - 14.2)
East Honolulu	255,009	14,353	9.4	(9.2 - 9.5)
Hawai'i Kai - Kaimuki	70,638	3,520	8.3	(8.0 - 8.6)
Waikiki - Pālolo	52,489	3,110	9.9	(9.5 - 10.2)
McCully - Makiki	60,510	3,160	8.7	(8.4 - 9.0)
Ala Moana - Nu'uuanu	71,372	4,563	10.7	(10.3 - 11.0)
West Honolulu	135,080	12,416	15.3	(15.0 - 15.6)
Downtown - Kalihi	69,010	5,318	12.8	(12.5 - 13.2)
Airport - Moanalua	66,070	7,098	17.9	(17.5 - 18.3)
'Ewa	323,767	29,158	15.0	(14.8 - 15.2)
Hickam - Pearl City	95,025	7,659	13.4	(13.1 - 13.7)
Waipahu	74,760	10,530	23.5	(23.0 - 23.9)
'Ewa - Kalaeloa	54,207	5,495	16.9	(16.4 - 17.3)
Kapolei - Makakilo	46,972	4,071	14.4	(14.0 - 14.9)
Mililani	52,803	1,403	4.4	(4.2 - 4.7)
Wahiawā	41,216	5,188	21.0	(20.4 - 21.5)
Wai'anae	48,519	5,777	19.8	(19.3 - 20.4)
Waialua	13,046	1,636	20.9	(19.9 - 21.9)
Ko'olauloa	21,406	2,277	17.7	(17.0 - 18.5)
Ko'olaupoko	115,164	9,865	14.3	(14.0 - 14.6)
Hawai'i County	185,079	14,677	13.2	(13.0 - 13.4)
Hilo	50,927	4,147	13.6	(13.2 - 14.0)
Puna	45,326	3,372	12.4	(12.0 - 12.8)
Ka'ū	8,451	600	11.8	(10.9 - 12.8)
South Kona	9,997	985	16.4	(15.4 - 17.4)
North Kona	37,875	3,025	13.3	(12.8 - 13.8)
South Kohala	17,627	1,556	14.7	(14.0 - 15.4)
North Kohala	6,322	356	9.4	(8.4 - 10.4)
Hāmakuā	8,554	628	12.2	(11.3 - 13.2)
Maui County	154,834	12,413	13.4	(13.1 - 13.6)
Hāna	2,291	201	14.6	(12.6 - 16.6)
Makawao	41,887	2,859	11.4	(11.0 - 11.8)
Wailuku	77,758	6,622	14.2	(13.9 - 14.5)
Lāhainā	22,508	1,828	13.5	(12.9 - 14.2)
Lāna'i	3,135	261	13.9	(12.2 - 15.6)
Moloka'i	7,255	637	14.6	(13.5 - 15.8)
Kaua'i County	67,091	5,097	12.7	(12.3 - 13.0)
Hanalei	7,828	470	10.0	(9.1 - 10.9)
Kapa'a	20,992	1,656	13.1	(12.5 - 13.8)
Līhu'e	14,683	1,164	13.2	(12.5 - 14.0)
Kōloa	14,086	1,008	11.9	(11.2 - 12.7)
Waimea	9,332	791	14.1	(13.1 - 15.1)

Source: State of Hawai'i, Department of Health, Office of Health Status Monitoring; U.S. Department of Commerce, U.S. Census Bureau, Population Estimates



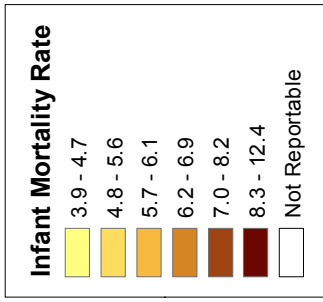
Map 4-1: Crude Birth Rate (per 1,000 population) by Primary Care Service Area

Table 4-2: Infant Mortality Rate, 2001-2010

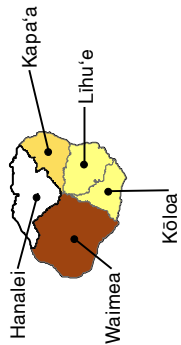
Service Area	Number of Live Births (N)	Number of Infant Deaths (n)	Infant Mortality Rate (per 1,000)	95% Confidence Interval
State of Hawai'i	183,845	1,103	6.0	(5.6 - 6.4)
Honolulu County	132,765	829	6.2	(5.8 - 6.6)
East Honolulu	23,657	127	5.4	(4.5 - 6.3)
Hawai'i Kai - Kaimuki	5,845	32	5.5	(3.6 - 7.4)
Waikiki - Pālolo	5,119	29	5.7	(3.6 - 7.8)
McCully - Makiki	5,316	25	4.7	(2.9 - 6.5)
Ala Moana - Nu'uuanu	7,377	41	5.6	(3.9 - 7.3)
West Honolulu	21,180	154	7.3	(6.1 - 8.5)
Downtown - Kalihi	8,811	69	7.8	(6.0 - 9.6)
Airport - Moanalua	12,369	85	6.9	(5.4 - 8.4)
'Ewa	47,036	277	5.9	(5.2 - 6.6)
Hickam - Pearl City	12,336	55	4.5	(3.3 - 5.7)
Waipahu	17,349	110	6.3	(5.1 - 7.5)
'Ewa - Kalaeloa	8,408	55	6.5	(4.8 - 8.2)
Kapolei - Makakilo	6,557	46	7.0	(5.0 - 9.0)
Mililani	2,386	11	4.6	
Wahiawā	8,464	50	5.9	(4.3 - 7.5)
Wai'anae	9,239	93	10.1	(8.0 - 12.2)
Waialua	2,775	17	6.1	
Ko'olauloa	3,680	23	6.3	(3.7 - 8.9)
Ko'olaupoko	16,438	85	5.2	(4.1 - 6.3)
Hawai'i County	23,027	136	5.9	(4.9 - 6.9)
Hilo	6,601	31	4.7	(3.0 - 6.4)
Puna	5,187	30	5.8	(3.7 - 7.9)
Ka'ū	916	8	8.7	
South Kona	1,554	11	7.1	
North Kona	4,652	27	5.8	(3.6 - 8.0)
South Kohala	2,443	12	4.9	
North Kohala	646	8	12.4	
Hāmakuā	1,017	9	8.8	
Maui County	19,809	95	4.8	(3.8 - 5.8)
Hāna	334	< 5	NR	
Makawao	4,609	18	3.9	
Wailuku	10,461	44	4.2	(3.0 - 5.4)
Lāhainā	2,964	20	6.7	(3.8 - 9.6)
Lāna'i	397	< 5	NR	
Moloka'i	1,040	8	7.7	
Kaua'i County	8,244	43	5.2	(3.6 - 6.8)
Hanalei	774	< 5	NR	
Kapa'a	2,649	14	5.3	
Līhu'e	1,934	9	4.7	
Kōloa	1,661	7	4.2	
Waimea	1,216	10	8.2	

Source: State of Hawai'i, Department of Health, Office of Health Status Monitoring

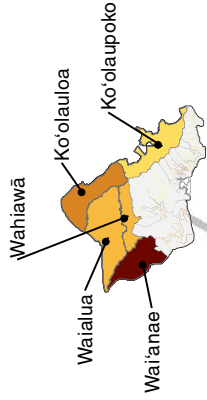
Notes: Rates were not reportable (NR) for areas with less than 5 events. No confidence intervals were computed when the number of events were less than 20. Standardized ratios less than 200 implies that the rates were not significantly higher than those for the State of Hawai'i. See Family Health Outcomes Project (FHOP), *Guidelines for Using Federal Data Templates with Small Numbers* (1997).



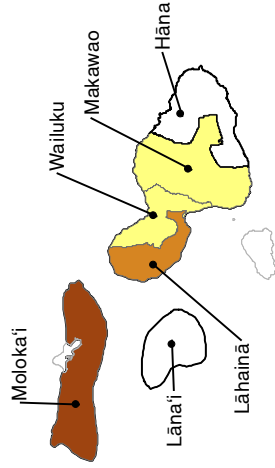
KAUAI COUNTY



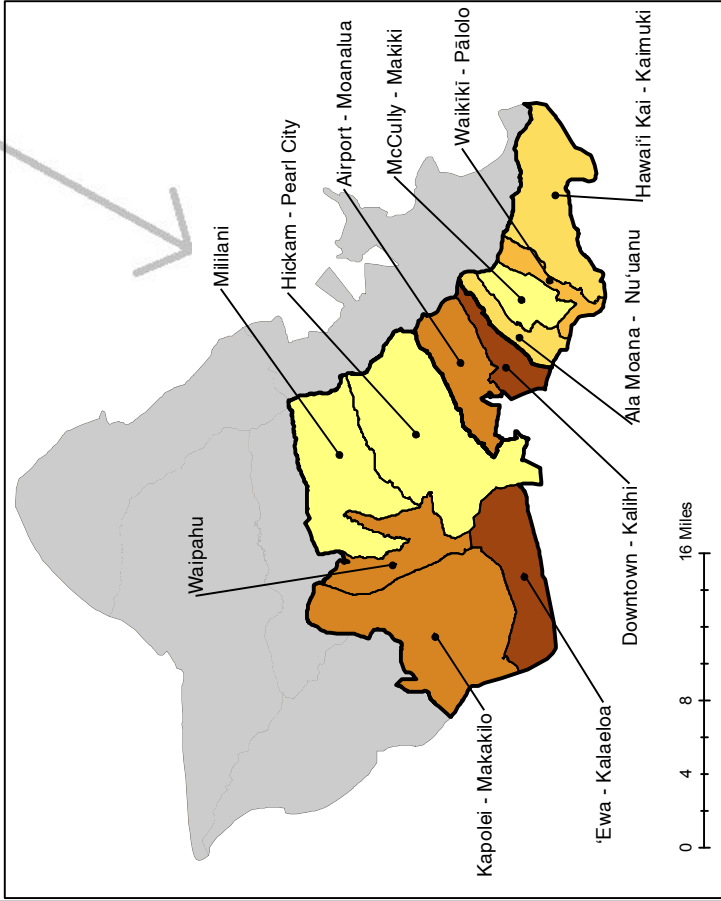
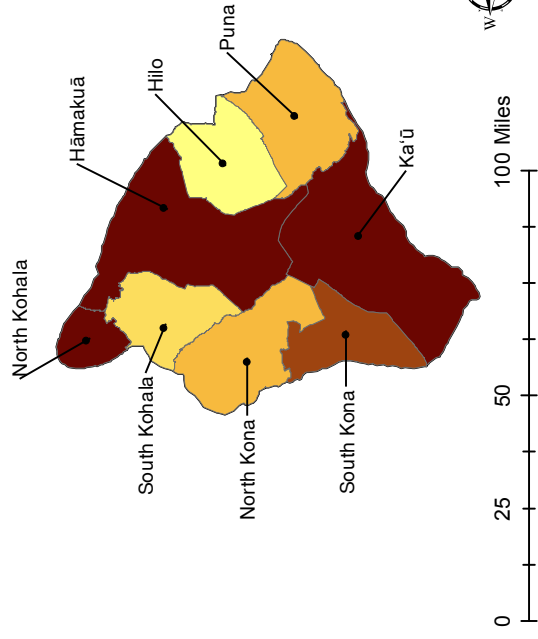
HONOLULU COUNTY



MAUI COUNTY



HAWAII COUNTY

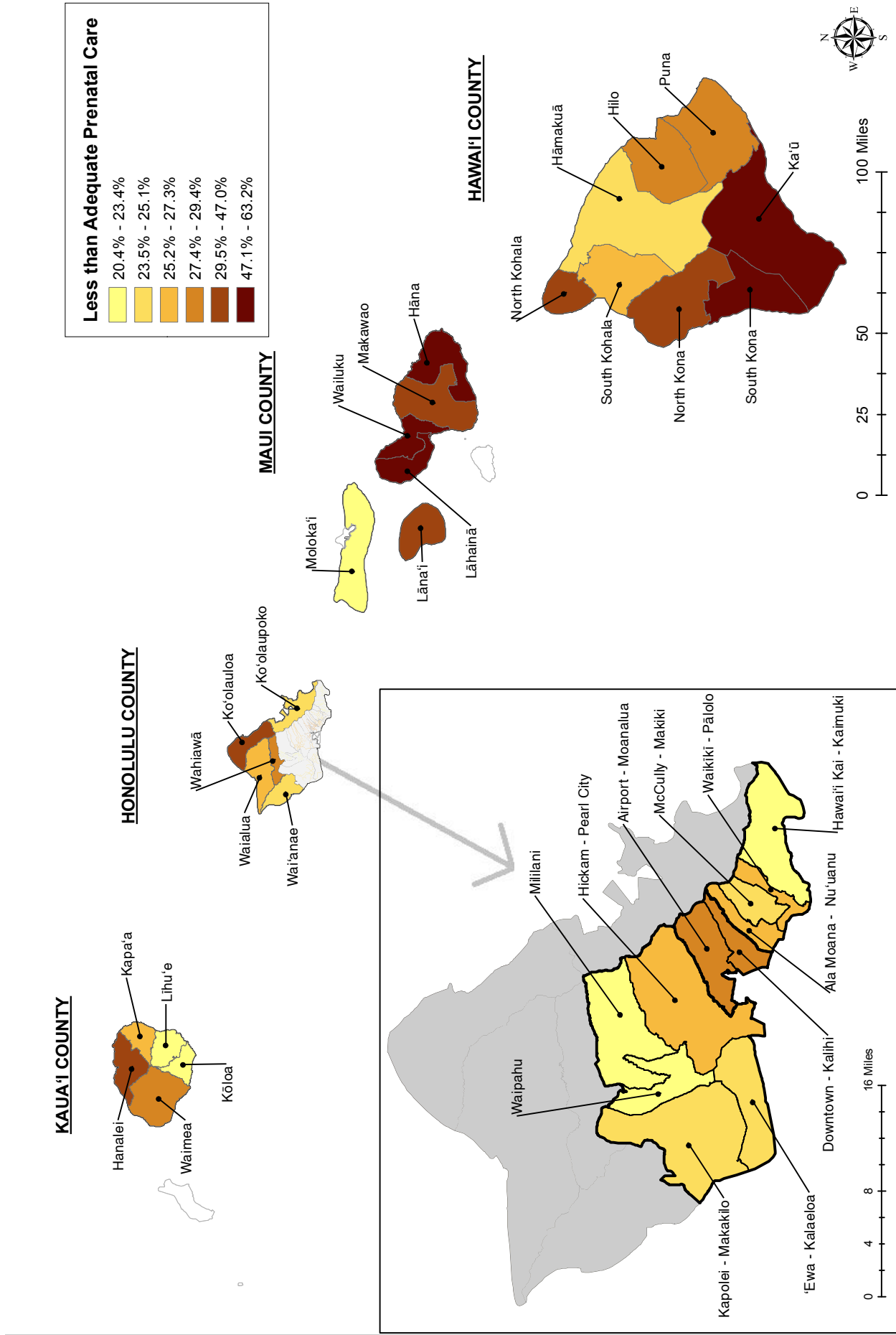


Map 4-2: Infant Mortality Rate (per 1,000 live births) by Primary Care Service Area

Table 4-3: Births with Less Than Adequate Prenatal Care Utilization, 2005-2010

Service Area	Number of Live Births (N)	Number with Less Than Adequate Prenatal Care Utilization (n)	Percent with Less Than Adequate Prenatal Care Utilization (%)	95% Confidence Interval
State of Hawai'i	113,055	32,875	29.1	(28.8 - 29.4)
Honolulu County	80,869	20,885	25.8	(25.5 - 26.1)
East Honolulu	14,353	3,543	24.7	(23.9 - 25.5)
Hawai'i Kai - Kaimuki	3,520	788	22.4	(20.8 - 24.0)
Waikiki - Pālolo	3,110	828	26.6	(24.8 - 28.4)
McCully - Makiki	3,160	775	24.5	(22.8 - 26.2)
Ala Moana - Nu'uuanu	4,563	1,152	25.2	(23.7 - 26.7)
West Honolulu	12,416	3,628	29.2	(28.2 - 30.2)
Downtown - Kalihi	5,318	1,560	29.3	(27.8 - 30.8)
Airport - Moanalua	7,098	2,068	29.1	(27.8 - 30.4)
'Ewa	29,158	7,151	24.5	(23.9 - 25.1)
Hickam - Pearl City	7,659	2,049	26.8	(25.6 - 28.0)
Waipahu	10,530	2,556	24.3	(23.4 - 25.2)
'Ewa - Kalaeloa	5,495	1,276	23.2	(21.9 - 24.5)
Kapolei - Makakilo	4,071	963	23.7	(22.2 - 25.2)
Mililani	1,403	307	21.9	(19.5 - 24.3)
Wahiawā	5,188	1,524	29.4	(27.9 - 30.9)
Wai'anae	5,777	1,450	25.1	(23.8 - 26.4)
Waialua	1,636	424	25.9	(23.4 - 28.4)
Ko'olauloa	2,277	680	29.9	(27.7 - 32.1)
Ko'olaupoko	9,865	2,428	24.6	(23.6 - 25.6)
Hawai'i County	14,677	4,990	34.0	(33.1 - 34.9)
Hilo	4,147	1,172	28.3	(26.7 - 29.9)
Puna	3,372	985	29.2	(27.4 - 31.0)
Ka'ū	600	302	50.3	(44.6 - 56.0)
South Kona	985	519	52.7	(48.2 - 57.2)
North Kona	3,025	1,321	43.7	(41.3 - 46.1)
South Kohala	1,556	425	27.3	(24.7 - 29.9)
North Kohala	356	105	29.5	(23.9 - 35.1)
Hāmakuā	628	157	25.0	(21.1 - 28.9)
Maui County	12,412	5,733	46.2	(45.0 - 47.4)
Hāna	201	127	63.2	(52.2 - 74.2)
Makawao	2,859	1,343	47.0	(44.5 - 49.5)
Wailuku	6,622	3,136	47.4	(45.7 - 49.1)
Lāhainā	1,828	892	48.8	(45.6 - 52.0)
Lāna'i	261	86	33.0	(26.0 - 40.0)
Moloka'i	637	149	23.4	(19.6 - 27.2)
Kaua'i County	5,097	1,267	24.9	(23.5 - 26.3)
Hanalei	470	141	30.0	(25.0 - 35.0)
Kapa'a	1,656	434	26.2	(23.7 - 28.7)
Līhu'e	1,164	238	20.4	(17.8 - 23.0)
Kōloa	1,008	227	22.5	(19.6 - 25.4)
Waimea	791	224	28.3	(24.6 - 32.0)

Source: State of Hawai'i, Department of Health, Office of Health Status Monitoring



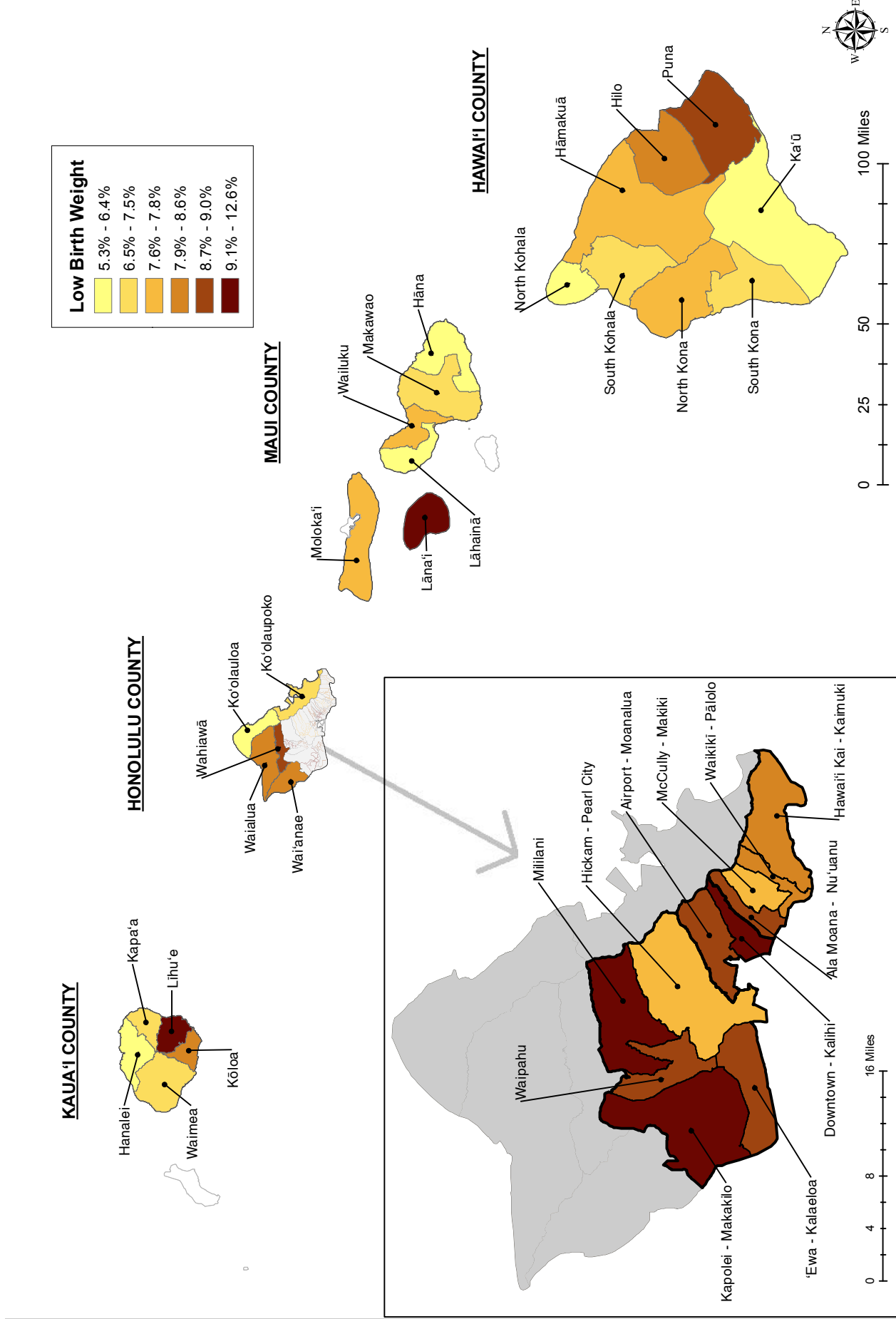
Map 4-3: Births with Less Than Adequate Prenatal Care Utilization by Primary Care Service Area

Table 4-4: Low Birth Weight, 2005-2010

Service Area	Number of Live Births (N)	Number with Low Birth Weight (n)	Percent with Low Birth Weight (%)	95% Confidence Interval
State of Hawai'i	113,055	9,224	8.2	(8.0 - 8.4)
Honolulu County	80,869	6,739	8.3	(8.1 - 8.5)
East Honolulu	14,353	1,197	8.3	(7.8 - 8.8)
Hawai'i Kai - Kaimuki	3,520	294	8.4	(7.4 - 9.4)
Waikiki - Pālolo	3,110	262	8.4	(7.4 - 9.4)
McCully - Makiki	3,160	246	7.8	(6.8 - 8.8)
Ala Moana - Nu'uuanu	4,563	395	8.7	(7.8 - 9.6)
West Honolulu	12,416	1,127	9.1	(8.6 - 9.6)
Downtown - Kalihi	5,318	493	9.3	(8.5 - 10.1)
Airport - Moanalua	7,098	634	8.9	(8.2 - 9.6)
'Ewa	29,158	2,506	8.6	(8.3 - 8.9)
Hickam - Pearl City	7,659	585	7.6	(7.0 - 8.2)
Waipahu	10,530	967	9.2	(8.6 - 9.8)
'Ewa - Kalaeloa	5,495	477	8.7	(7.9 - 9.5)
Kapolei - Makakilo	4,071	349	8.6	(7.7 - 9.5)
Mililani	1,403	128	9.1	(7.5 - 10.7)
Wahiawā	5,188	456	8.8	(8.0 - 9.6)
Wai'anae	5,777	460	8.0	(7.3 - 8.7)
Waialua	1,636	140	8.6	(7.2 - 10.0)
Ko'olauloa	2,277	121	5.3	(4.4 - 6.2)
Ko'olaupoko	9,865	705	7.1	(6.6 - 7.6)
Hawai'i County	14,677	1,168	8.0	(7.5 - 8.5)
Hilo	4,147	343	8.3	(7.4 - 9.2)
Puna	3,372	302	9.0	(8.0 - 10.0)
Ka'ū	600	37	6.2	(4.2 - 8.2)
South Kona	985	67	6.8	(5.2 - 8.4)
North Kona	3,025	234	7.7	(6.7 - 8.7)
South Kohala	1,556	116	7.5	(6.1 - 8.9)
North Kohala	356	22	6.2	(3.6 - 8.8)
Hāmakuā	628	47	7.5	(5.4 - 9.6)
Maui County	12,412	917	7.4	(6.9 - 7.9)
Hāna	201	11	5.5	
Makawao	2,859	196	6.9	(5.9 - 7.9)
Wailuku	6,622	510	7.7	(7.0 - 8.4)
Lāhainā	1,828	117	6.4	(5.2 - 7.6)
Lāna'i	261	33	12.6	(8.3 - 16.9)
Moloka'i	637	50	7.8	(5.6 - 10.0)
Kaua'i County	5,097	400	7.8	(7.0 - 8.6)
Hanalei	470	25	5.3	(3.2 - 7.4)
Kapa'a	1,656	120	7.2	(5.9 - 8.5)
Līhu'e	1,164	118	10.1	(8.3 - 11.9)
Kōloa	1,008	85	8.4	(6.6 - 10.2)
Waimea	791	52	6.6	(4.8 - 8.4)

Source: State of Hawai'i, Department of Health, Office of Health Status Monitoring

Notes: No confidence intervals were computed when the number of events were less than 20. Standardized ratios less than 200 implies that the rates were not significantly higher than those for the State of Hawai'i. See Family Health Outcomes Project (FHOP), Guidelines for Using Federal Data Templates with Small Numbers (1997).

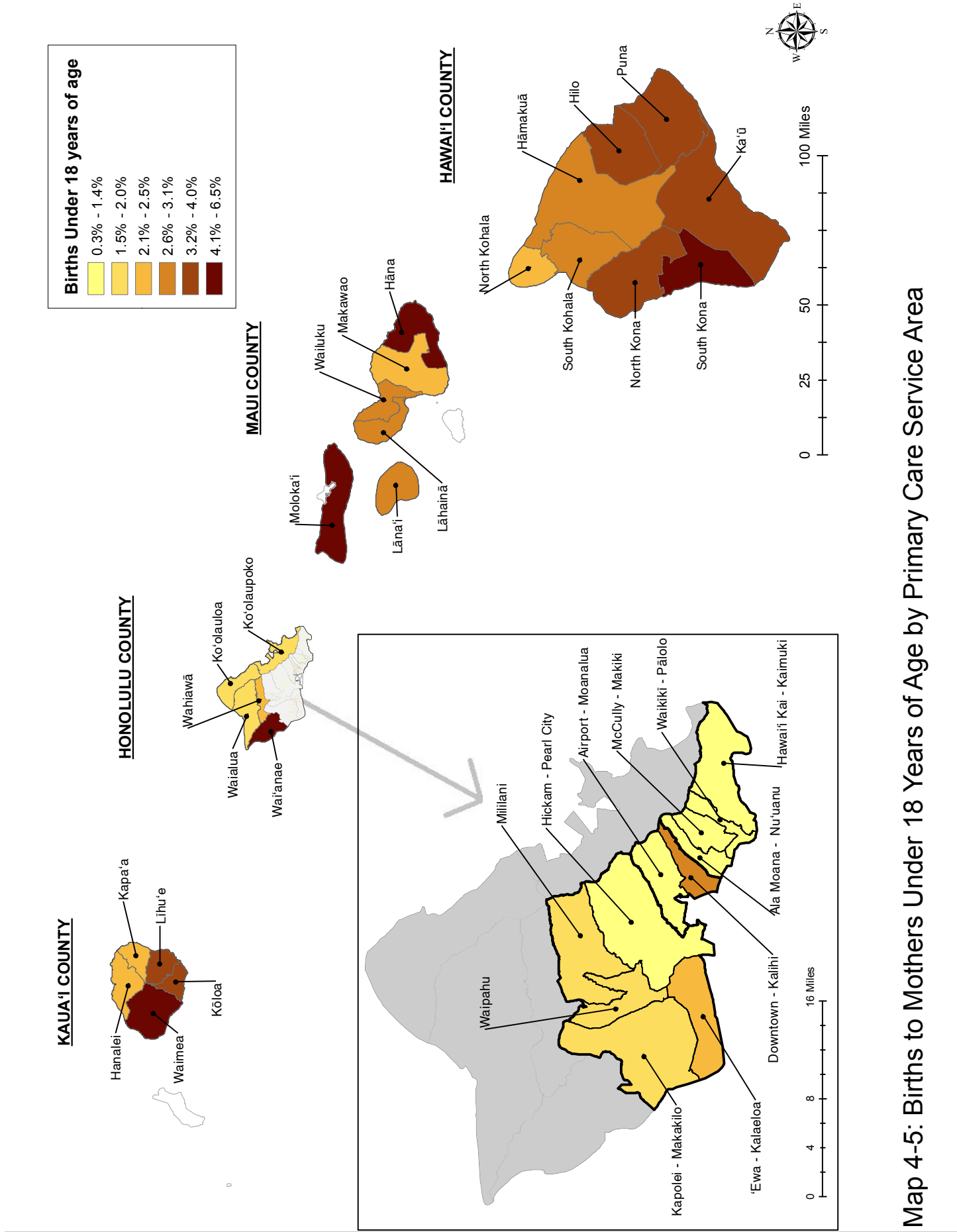


Map 4-4: Low Birth Weight by Primary Care Service Area

Table 4-5: Births to Mothers Under 18 Years of Age, 2005-2010

Service Area	Number of Live Births (N)	Number of Births Under 18 Years of Age (n)	Percent of Births Under 18 Years of Age (%)	95% Confidence Interval
State of Hawai'i	113,055	2,716	2.4	(2.3 - 2.5)
Honolulu County	80,869	1,653	2.0	(1.9 - 2.1)
East Honolulu	14,353	145	1.0	(0.8 - 1.2)
Hawai'i Kai - Kaimuki	3,520	11	0.3	
Waikiki - Pālolo	3,110	41	1.3	(0.9 - 1.7)
McCully - Makiki	3,160	31	1.0	(0.6 - 1.4)
Ala Moana - Nu'uuanu	4,563	62	1.4	(1.1 - 1.7)
West Honolulu	12,416	254	2.0	(1.8 - 2.2)
Downtown - Kalihi	5,318	154	2.9	(2.4 - 3.4)
Airport - Moanalua	7,098	100	1.4	(1.1 - 1.7)
'Ewa	29,158	547	1.9	(1.7 - 2.1)
Hickam - Pearl City	7,659	103	1.3	(1.0 - 1.6)
Waipahu	10,530	211	2.0	(1.7 - 2.3)
'Ewa - Kalaeloa	5,495	111	2.0	(1.6 - 2.4)
Kapolei - Makakilo	4,071	102	2.5	(2.0 - 3.0)
Mililani	1,403	20	1.4	(0.8 - 2.0)
Wahiawā	5,188	121	2.3	(1.9 - 2.7)
Wai'anae	5,777	318	5.5	(4.9 - 6.1)
Waialua	1,636	26	1.6	(1.0 - 2.2)
Ko'olauloa	2,277	40	1.8	(1.2 - 2.4)
Ko'olaupoko	9,865	200	2.0	(1.7 - 2.3)
Hawai'i County	14,677	519	3.5	(3.2 - 3.8)
Hilo	4,147	148	3.6	(3.0 - 4.2)
Puna	3,372	135	4.0	(3.3 - 4.7)
Ka'ū	600	24	4.0	(2.4 - 5.6)
South Kona	985	45	4.6	(3.3 - 5.9)
North Kona	3,025	98	3.2	(2.6 - 3.8)
South Kohala	1,556	42	2.7	(1.9 - 3.5)
North Kohala	356	8	2.2	
Hāmakuā	628	19	3.0	
Maui County	12,412	368	3.0	(2.7 - 3.3)
Hāna	201	13	6.5	
Makawao	2,859	60	2.1	(1.6 - 2.6)
Wailuku	6,622	202	3.1	(2.7 - 3.5)
Lāhainā	1,828	48	2.6	(1.9 - 3.3)
Lāna'i	261	7	2.7	
Moloka'i	637	38	6.0	(4.1 - 7.9)
Kaua'i County	5,097	176	3.5	(3.0 - 4.0)
Hanalei	470	10	2.1	
Kapa'a	1,656	40	2.4	(1.7 - 3.1)
Līhu'e	1,164	44	3.8	(2.7 - 4.9)
Kōloa	1,008	39	3.9	(2.7 - 5.1)
Waimea	791	43	5.4	(3.8 - 7.0)

Source: State of Hawai'i, Department of Health, Office of Health Status Monitoring

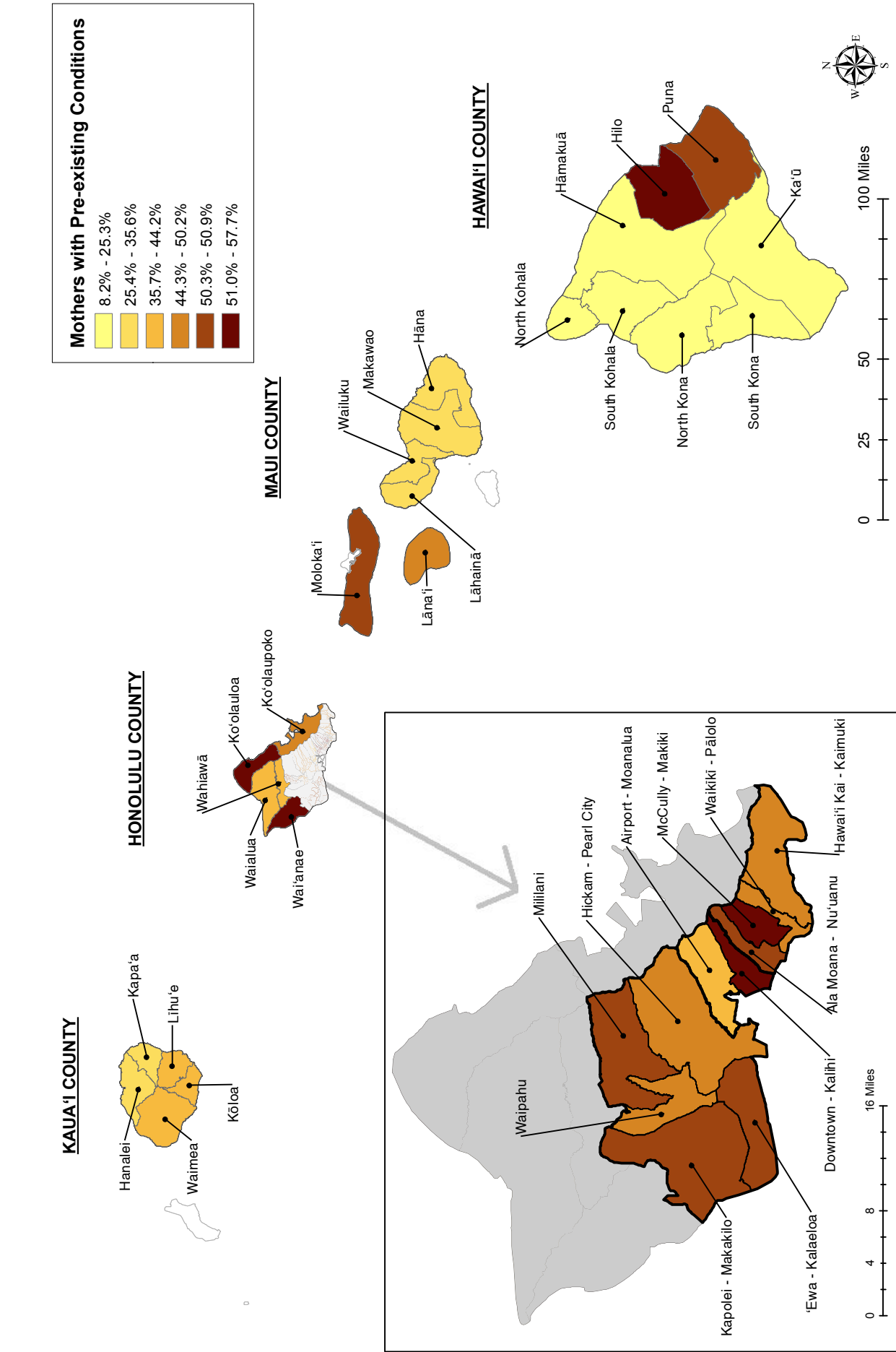


Map 4-5: Births to Mothers Under 18 Years of Age by Primary Care Service Area

Table 4-6: Births to Mothers with Pre-Existing Medical Conditions, 2005-2010

Service Area	Number of Live Births (N)	Number of Mothers with Pre-Existing Medical Conditions (n)	Percent of Mothers with Pre-Existing Medical Conditions (%)	95% Confidence Interval
State of Hawai'i	113,055	50,718	44.9	(44.5 - 45.3)
Honolulu County	80,869	39,470	48.8	(48.3 - 49.3)
East Honolulu	14,353	7,228	50.4	(49.2 - 51.6)
Hawai'i Kai - Kaimuki	3,520	1,718	48.8	(46.5 - 51.1)
Waikiki - Pālolo	3,110	1,562	50.2	(47.7 - 52.7)
McCully - Makiki	3,160	1,639	51.9	(49.4 - 54.4)
Ala Moana - Nu'uuanu	4,563	2,309	50.6	(48.5 - 52.7)
West Honolulu	12,416	6,028	48.6	(47.4 - 49.8)
Downtown - Kalihi	5,318	2,892	54.4	(52.4 - 56.4)
Airport - Moanalua	7,098	3,136	44.2	(42.7 - 45.7)
'Ewa	29,158	14,403	49.4	(48.6 - 50.2)
Hickam - Pearl City	7,659	3,622	47.3	(45.8 - 48.8)
Waipahu	10,530	5,317	50.5	(49.1 - 51.9)
'Ewa - Kalaeloa	5,495	2,703	49.2	(47.3 - 51.1)
Kapolei - Makakilo	4,071	2,054	50.5	(48.3 - 52.7)
Mililani	1,403	707	50.4	(46.7 - 54.1)
Wahiawā	5,188	2,121	40.9	(39.2 - 42.6)
Wai'anae	5,777	3,336	57.7	(55.7 - 59.7)
Waialua	1,636	646	39.5	(36.5 - 42.5)
Ko'olauloa	2,277	1,185	52.0	(49.0 - 55.0)
Ko'olaupoko	9,865	4,431	44.9	(43.6 - 46.2)
Hawai'i County	14,677	5,008	34.1	(33.2 - 35.0)
Hilo	4,147	2,182	52.6	(50.4 - 54.8)
Puna	3,372	1,700	50.4	(48.0 - 52.8)
Ka'ū	600	152	25.3	(21.3 - 29.3)
South Kona	985	81	8.2	(6.4 - 10.0)
North Kona	3,025	315	10.4	(9.3 - 11.5)
South Kohala	1,556	344	22.1	(19.8 - 24.4)
North Kohala	356	75	21.1	(16.3 - 25.9)
Hāmakuā	628	157	25.0	(21.1 - 28.9)
Maui County	12,412	4,451	35.9	(34.8 - 37.0)
Hāna	201	62	30.8	(23.1 - 38.5)
Makawao	2,859	942	32.9	(30.8 - 35.0)
Wailuku	6,622	2,358	35.6	(34.2 - 37.0)
Lāhainā	1,828	640	35.0	(32.3 - 37.7)
Lāna'i	261	124	47.5	(39.1 - 55.9)
Moloka'i	637	324	50.9	(45.4 - 56.4)
Kaua'i County	5,097	1,789	35.1	(33.5 - 36.7)
Hanalei	470	132	28.1	(23.3 - 32.9)
Kapa'a	1,656	507	30.6	(27.9 - 33.3)
Līhu'e	1,164	443	38.1	(34.6 - 41.6)
Kōloa	1,008	375	37.2	(33.4 - 41.0)
Waimea	791	329	41.6	(37.1 - 46.1)

Source: State of Hawai'i, Department of Health, Office of Health Status Monitoring



Map 4-6: Births to Mothers with Pre-Existing Medical Conditions by Primary Care Service Area

CHAPTER 5: MORBIDITY

This section of the Data Book builds on the success of the developmental indicators used in previous editions. To impact population level changes in rates of chronic disease and the leading causes of death, the primary prevention of chronic disease should start early in life. Morbidity refers to the state of having disease or being unhealthful and can refer to risk factors such as obesity and smoking which are associated with long term disability and chronic disease. Regular physical exams and health screening tests are an important part of preventive health care where comorbidities can be addressed through lifestyle and medical interventions. Preventive health care can help ensure that common, serious diseases and conditions are detected and treated early. The prevention of risk factors and their early identification and control can contribute to improved long term health and decrease the impact of chronic disease. The morbidity indicators based on adult risk factors, using aggregated data from the 2005-2010 Behavioral Risk Factor Surveillance System (BRFSS) unless noted, are defined on the next page.

MORBIDITY INDICATORS

Adults Who Are Obese = Self-reported height and weight measurements consistent with a calculated Body Mass Index (BMI) of 30.0 or greater.

Adults Who Smoke = Self-reported intake of current smoking and at least 100 cigarettes in a lifetime

Adults Who Are Heavy Drinkers = Self-reported intake of greater than one drink per day on average in the past 30 days

Adults with No Physical Activity = Self-report of not participating in any physical activity or exercises during the past month outside of those occurring in activities at work

Adults with Diabetes = Ever told had diabetes by a health care provider

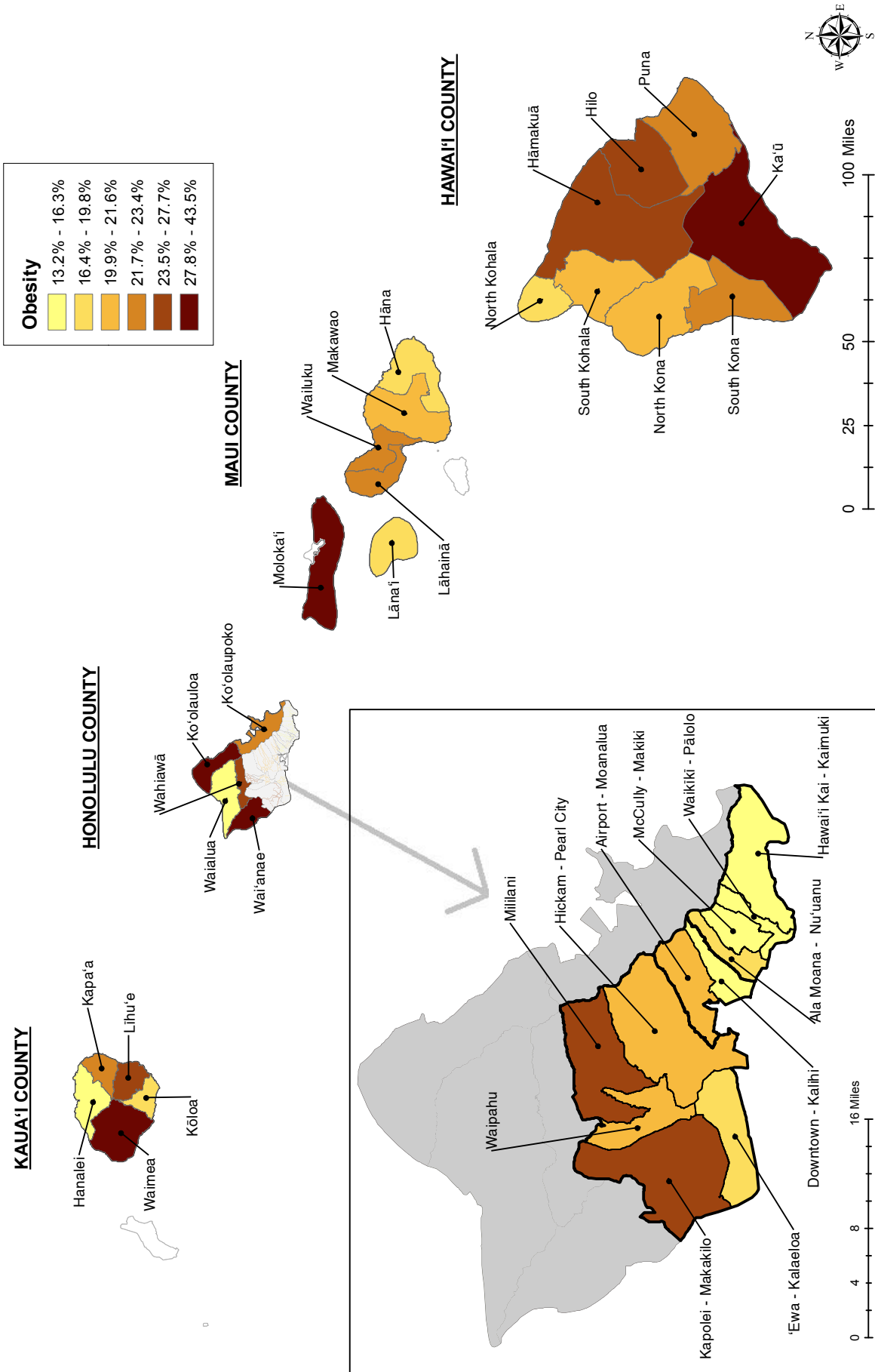
Adults with High Blood Pressure* = Ever told had high blood pressure by a health care provider

* Data from 2005, 2007, and 2009

Table 5-1: Adults Who Are Obese, 2005-2010

Service Area	Annual Adult Population (N)	Number who are Obese (n)	Percent who are Obese (%)	95% Confidence Interval
State of Hawai'i	973,400	213,100	21.9	(21.3 - 22.5)
Honolulu County	687,800	146,600	21.3	(20.5 - 22.1)
East Honolulu	178,100	27,700	15.6	(14.4 - 16.9)
Hawai'i Kai - Kaimuki	57,900	7,700	13.2	(11.3 - 15.4)
Waikiki - Pālolo	28,000	4,600	16.3	(13.5 - 19.7)
McCully - Makiki	45,600	6,900	15.1	(12.9 - 17.6)
Ala Moana - Nu'uuanu	46,600	8,600	18.5	(16.1 - 21.3)
West Honolulu	87,700	15,500	17.7	(15.6 - 19.9)
Downtown - Kalihi	44,500	6,800	15.4	(12.7 - 18.4)
Airport - Moanalua	43,100	8,700	20.1	(17.0 - 23.6)
'Ewa	240,800	53,200	22.1	(20.8 - 23.5)
Hickam - Pearl City	75,100	15,400	20.5	(18.2 - 23.0)
Waipahu	52,900	11,300	21.3	(18.4 - 24.6)
'Ewa - Kalaeloa	34,400	8,400	24.5	(21.0 - 28.5)
Kapolei - Makakilo	32,500	9,000	27.7	(23.9 - 31.8)
Mililani	45,800	9,100	19.8	(17.2 - 22.7)
Wahiawā	23,400	6,400	27.5	(23.2 - 32.2)
Wai'anae	34,000	14,800	43.5	(38.3 - 48.8)
Waialua	10,300	1,400	13.8	(9.7 - 19.4)
Ko'olauloa	14,300	4,300	30.2	(24.3 - 36.9)
Ko'olaupoko	99,100	23,200	23.4	(21.4 - 25.6)
Hawai'i County	129,300	30,500	23.6	(22.4 - 24.8)
Hilo	41,000	10,100	24.6	(22.5 - 26.8)
Puna	19,700	4,500	22.8	(19.8 - 26.0)
Ka'ū	14,100	3,900	27.9	(24.2 - 31.9)
South Kona	8,400	1,900	23.2	(19.0 - 28.0)
North Kona	22,600	4,800	21.3	(18.7 - 24.1)
South Kohala	11,900	2,600	21.6	(18.3 - 25.3)
North Kohala	4,100	800	18.4	(13.3 - 24.9)
Hāmakuā	7,400	1,900	26.2	(20.7 - 32.5)
Maui County	107,400	25,100	23.3	(22.0 - 24.7)
Hāna	1,700	300	19.2	(11.4 - 30.6)
Makawao	33,100	7,100	21.3	(19.1 - 23.8)
Wailuku	50,100	11,600	23.1	(21.1 - 25.3)
Lāhainā	13,400	3,000	22.6	(18.5 - 27.2)
Lāna'i	2,000	400	19.7	(16.9 - 22.8)
Moloka'i	7,100	2,700	37.6	(34.3 - 41.1)
Kaua'i County	47,400	10,500	22.2	(20.4 - 24.1)
Hanalei	5,600	800	14.7	(10.7 - 19.7)
Kapa'a	14,100	3,100	22.0	(19.1 - 25.2)
Līhu'e	10,100	2,500	24.5	(20.5 - 28.9)
Kōloa	10,800	2,100	19.8	(16.1 - 24.0)
Waimea	6,800	2,000	29.5	(24.1 - 35.4)

Source: State of Hawai'i, Department of Health, Behavioral Risk Factor Surveillance System (BRFSS)



Obesity

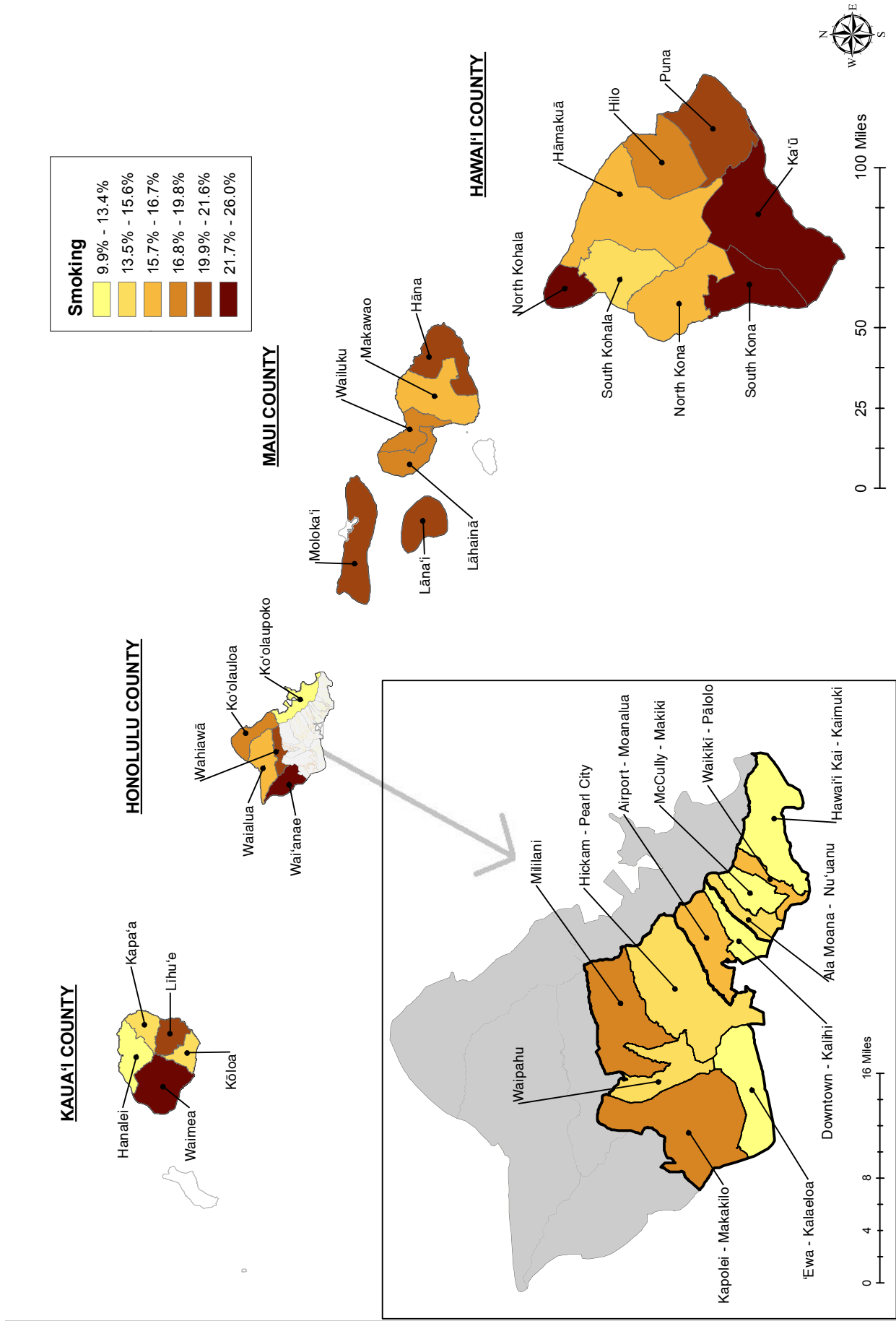
13.2% - 16.3%
16.4% - 19.8%
19.9% - 21.6%
21.7% - 23.4%
23.5% - 27.7%
27.8% - 43.5%

Map 5-1: Adults Who Are Obese by Primary Care Service Area

Table 5-2: Adults Who Smoke, 2005-2010

Service Area	Annual Adult Population (N)	Number who Smoke (n)	Percent who Smoke (%)	95% Confidence Interval
State of Hawai'i	989,300	159,500	16.1	(15.6 - 16.7)
Honolulu County	700,700	107,200	15.3	(14.6 - 16.0)
East Honolulu	181,200	23,400	12.9	(11.8 - 14.1)
Hawai'i Kai - Kaimuki	59,000	5,800	9.9	(8.2 - 11.9)
Waikiki - Pālolo	28,600	4,700	16.6	(13.5 - 20.2)
McCully - Makiki	46,700	6,100	13.0	(11.0 - 15.3)
Ala Moana - Nu'uuanu	46,900	6,700	14.4	(12.0 - 17.1)
West Honolulu	90,200	12,900	14.3	(12.5 - 16.4)
Downtown - Kalihi	45,800	5,700	12.4	(10.0 - 15.3)
Airport - Moanalua	44,300	7,200	16.4	(13.6 - 19.6)
'Ewa	245,600	39,400	16.0	(14.8 - 17.3)
Hickam - Pearl City	77,000	12,000	15.6	(13.5 - 18.0)
Waipahu	53,800	8,200	15.3	(12.8 - 18.3)
'Ewa - Kalaeloa	35,200	7,000	19.8	(16.3 - 23.8)
Kapolei - Makakilo	32,700	5,800	17.9	(14.8 - 21.4)
Mililani	46,700	6,300	13.4	(11.2 - 16.1)
Wahiawā	23,700	5,000	21.0	(17.3 - 25.3)
Wai'anae	34,200	8,900	26.0	(21.8 - 30.8)
Waialua	10,600	1,700	15.9	(11.0 - 22.4)
Ko'olauloa	14,500	2,500	17.0	(12.5 - 22.8)
Ko'olaupoko	100,800	13,500	13.4	(11.8 - 15.1)
Hawai'i County	130,600	25,500	19.6	(18.5 - 20.7)
Hilo	41,500	8,000	19.3	(17.4 - 21.5)
Puna	19,900	4,100	20.7	(17.9 - 23.9)
Ka'ū	14,200	3,700	25.9	(22.5 - 29.7)
South Kona	8,500	2,100	24.2	(20.1 - 29.0)
North Kona	22,700	3,700	16.3	(13.8 - 19.1)
South Kohala	12,100	1,700	13.7	(11.2 - 16.7)
North Kohala	4,100	1,000	25.3	(18.1 - 34.1)
Hāmakuā	7,500	1,300	16.7	(12.1 - 22.7)
Maui County	108,600	18,600	17.2	(16.0 - 18.4)
Hāna	1,700	400	21.6	(13.5 - 32.8)
Makawao	33,500	5,200	15.6	(13.8 - 17.7)
Wailuku	50,600	8,600	17.0	(15.2 - 19.0)
Lāhainā	13,600	2,500	18.3	(14.8 - 22.3)
Lāna'i	2,000	400	20.6	(17.3 - 24.3)
Moloka'i	7,100	1,500	21.1	(18.4 - 24.0)
Kaua'i County	47,800	8,000	16.7	(15.1 - 18.4)
Hanalei	5,700	600	11.0	(8.0 - 15.1)
Kapa'a	14,300	2,200	15.5	(13.2 - 18.2)
Līhu'e	10,100	2,000	20.1	(16.3 - 24.4)
Kōloa	10,800	1,500	14.0	(11.0 - 17.6)
Waimea	6,900	1,600	23.1	(18.3 - 28.8)

Source: State of Hawai'i, Department of Health, Behavioral Risk Factor Surveillance System (BRFSS)

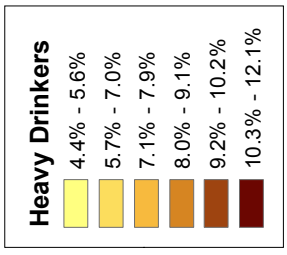


Map 5-2: Adults Who Smoke by Primary Care Service Area

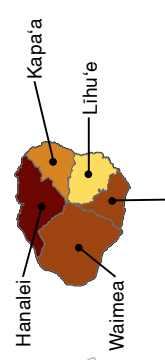
Table 5-3: Adults Who are Heavy Drinkers, 2005-2010

Service Area	Annual Adult Population (N)	Number who are Heavy Drinkers (n)	Percent who are Heavy Drinkers (%)	95% Confidence Interval
State of Hawai'i	975,800	67,700	6.9	(6.6 - 7.3)
Honolulu County	690,500	43,800	6.3	(5.9 - 6.8)
East Honolulu	178,900	10,700	6.0	(5.2 - 6.9)
Hawai'i Kai - Kaimuki	58,200	3,700	6.4	(5.1 - 8.0)
Waikiki - Pālolo	28,300	2,000	7.0	(5.0 - 9.7)
McCully - Makiki	46,200	2,500	5.4	(4.2 - 7.1)
Ala Moana - Nu'uuanu	46,200	2,500	5.4	(4.2 - 7.1)
West Honolulu	88,800	4,900	5.5	(4.3 - 7.0)
Downtown - Kalihi	45,100	2,000	4.4	(3.0 - 6.5)
Airport - Moanalua	43,500	2,900	6.6	(4.8 - 8.9)
'Ewa	241,800	14,600	6.1	(5.3 - 7.0)
Hickam - Pearl City	75,600	4,100	5.4	(4.2 - 6.8)
Waipahu	53,200	2,700	5.0	(3.6 - 7.0)
'Ewa - Kalaeloa	34,400	2,500	7.3	(4.9 - 10.7)
Kapolei - Makakilo	32,100	2,800	8.7	(6.5 - 11.7)
Mililani	46,400	2,600	5.6	(4.1 - 7.7)
Wahiawā	23,600	1,500	6.3	(4.2 - 9.3)
Wai'anae	33,500	3,500	10.4	(7.4 - 14.3)
Waialua	10,200	700	7.1	(4.1 - 12.0)
Ko'olauloa	14,400	1,300	9.1	(6.1 - 13.4)
Ko'olaupoko	99,400	6,600	6.6	(5.6 - 7.9)
Hawai'i County	129,300	11,000	8.5	(7.8 - 9.4)
Hilo	41,300	3,500	8.5	(7.2 - 10.0)
Puna	19,600	1,400	7.3	(5.6 - 9.6)
Ka'ū	14,100	1,200	8.2	(6.1 - 10.9)
South Kona	8,400	900	10.6	(7.8 - 14.3)
North Kona	22,300	2,100	9.2	(7.6 - 11.0)
South Kohala	12,000	900	7.9	(6.2 - 10.0)
North Kohala	4,100	400	10.2	(5.7 - 17.8)
Hāmakuā	7,500	600	8.6	(5.0 - 14.4)
Maui County	107,200	8,700	8.1	(7.3 - 8.9)
Hāna	1,700	200	10.2	(4.3 - 22.2)
Makawao	33,100	2,400	7.3	(6.0 - 8.8)
Wailuku	49,900	3,700	7.5	(6.4 - 8.8)
Lāhainā	13,500	1,300	9.8	(7.3 - 12.9)
Lāna'i	2,000	200	11.7	(9.0 - 15.1)
Moloka'i	7,000	800	11.4	(9.3 - 13.9)
Kaua'i County	47,200	4,100	8.7	(7.6 - 10.1)
Hanalei	5,700	700	12.1	(9.1 - 15.9)
Kapa'a	14,100	1,200	8.4	(6.4 - 10.9)
Līhu'e	10,000	600	5.8	(3.9 - 8.8)
Kōloa	10,700	1,000	9.5	(7.0 - 12.7)
Waimea	6,800	700	9.7	(6.6 - 14.0)

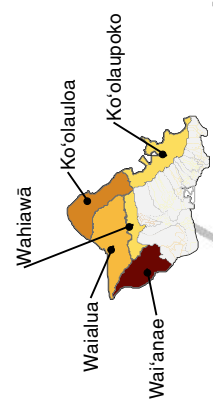
Source: State of Hawai'i, Department of Health, Behavioral Risk Factor Surveillance System (BRFSS)



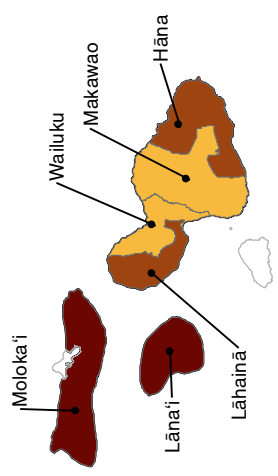
KAUAI COUNTY



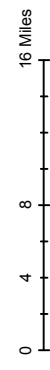
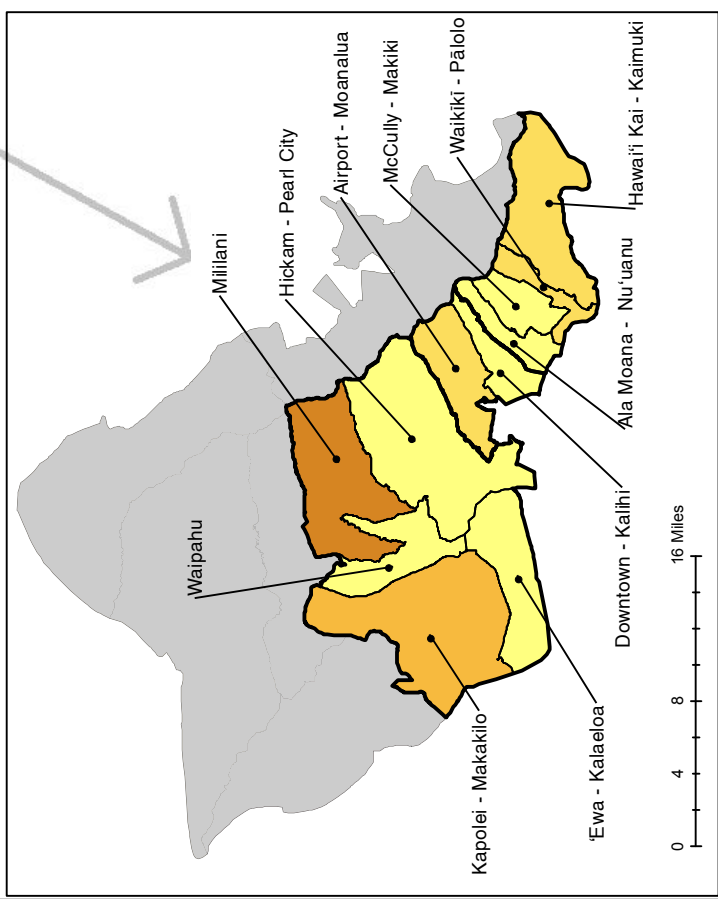
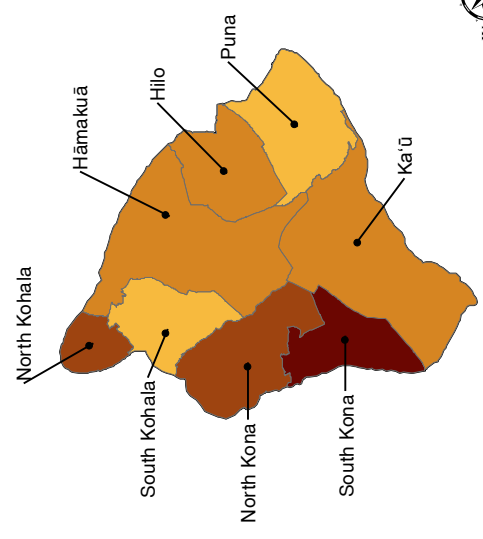
HONOLULU COUNTY



MAUI COUNTY



HAWAII COUNTY

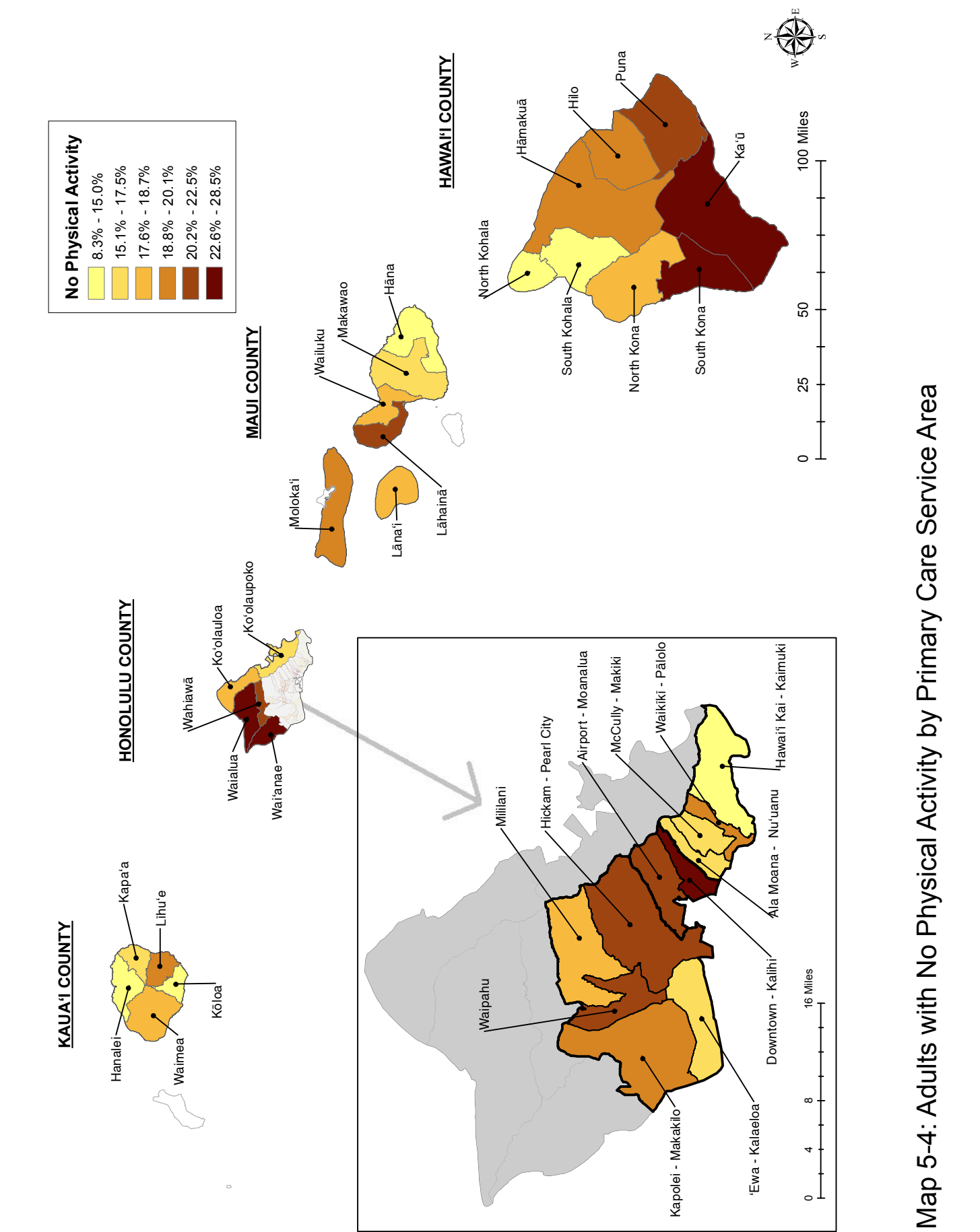


Map 5-3: Adults Who are Heavy Drinkers by Primary Care Service Area

Table 5-4: Adults with No Physical Activity, 2005-2010

Service Area	Annual Adult Population (N)	Number with No Physical Activity (n)	Percent with No Physical Activity (%)	95% Confidence Interval
State of Hawai'i	992,600	190,600	19.2	(18.7 - 19.8)
Honolulu County	702,800	137,200	19.5	(18.8 - 20.2)
East Honolulu	182,000	30,600	16.8	(15.7 - 18.0)
Hawai'i Kai - Kaimuki	59,100	8,600	14.6	(12.7 - 16.8)
Waikiki - Pālolo	28,800	5,600	19.5	(16.6 - 22.7)
McCully - Makiki	47,000	8,200	17.5	(15.3 - 19.9)
Ala Moana - Nu'uuanu	47,100	8,200	17.3	(15.1 - 19.8)
West Honolulu	90,300	22,500	25.0	(22.6 - 27.5)
Downtown - Kalihi	45,900	13,100	28.5	(25.1 - 32.1)
Airport - Moanalua	44,300	9,400	21.2	(18.1 - 24.7)
'Ewa	246,100	48,800	19.8	(18.6 - 21.1)
Hickam - Pearl City	77,200	15,600	20.3	(18.2 - 22.5)
Waipahu	53,800	12,100	22.5	(19.7 - 25.6)
'Ewa - Kalaeloa	35,400	7,100	20.1	(16.9 - 23.8)
Kapolei - Makakilo	32,900	6,100	18.6	(15.5 - 22.2)
Mililani	46,700	7,800	16.7	(14.3 - 19.3)
Wahiawā	23,900	5,200	21.9	(18.2 - 26.1)
Wai'anae	34,500	8,700	25.2	(21.3 - 29.6)
Waialua	10,600	2,700	25.2	(18.9 - 32.7)
Ko'olauloa	14,500	2,600	18.2	(13.2 - 24.5)
Ko'olaupoko	100,900	16,100	16.0	(14.3 - 17.8)
Hawai'i County	131,000	25,800	19.7	(18.6 - 20.8)
Hilo	41,700	8,100	19.5	(17.8 - 21.4)
Puna	20,000	4,200	21.2	(18.5 - 24.1)
Ka'ū	14,300	3,300	23.2	(19.5 - 27.3)
South Kona	8,500	2,100	24.3	(19.7 - 29.5)
North Kona	22,700	4,200	18.4	(16.0 - 21.1)
South Kohala	12,100	1,800	14.6	(12.0 - 17.6)
North Kohala	4,100	600	14.7	(10.3 - 20.6)
Hāmakuā	7,500	1,500	19.6	(14.9 - 25.4)
Maui County	109,000	19,700	18.1	(16.9 - 19.3)
Hāna	1,700	200	12.6	(6.5 - 22.9)
Makawao	33,600	5,400	16.1	(14.1 - 18.3)
Wailuku	50,900	9,500	18.7	(16.9 - 20.6)
Lāhainā	13,700	2,800	20.4	(16.4 - 25.1)
Lāna'i	2,000	400	18.4	(15.7 - 21.5)
Moloka'i	7,200	1,400	20.1	(17.6 - 22.9)
Kaua'i County	48,100	7,700	16.1	(14.6 - 17.7)
Hanalei	5,700	500	8.3	(5.9 - 11.6)
Kapa'a	14,400	2,400	16.7	(14.2 - 19.5)
Līhu'e	10,200	2,000	19.8	(16.3 - 23.7)
Kōloa	10,900	1,600	15.0	(12.0 - 18.7)
Waimea	6,900	1,200	17.7	(13.9 - 22.2)

Source: State of Hawai'i, Department of Health, Behavioral Risk Factor Surveillance System (BRFSS)

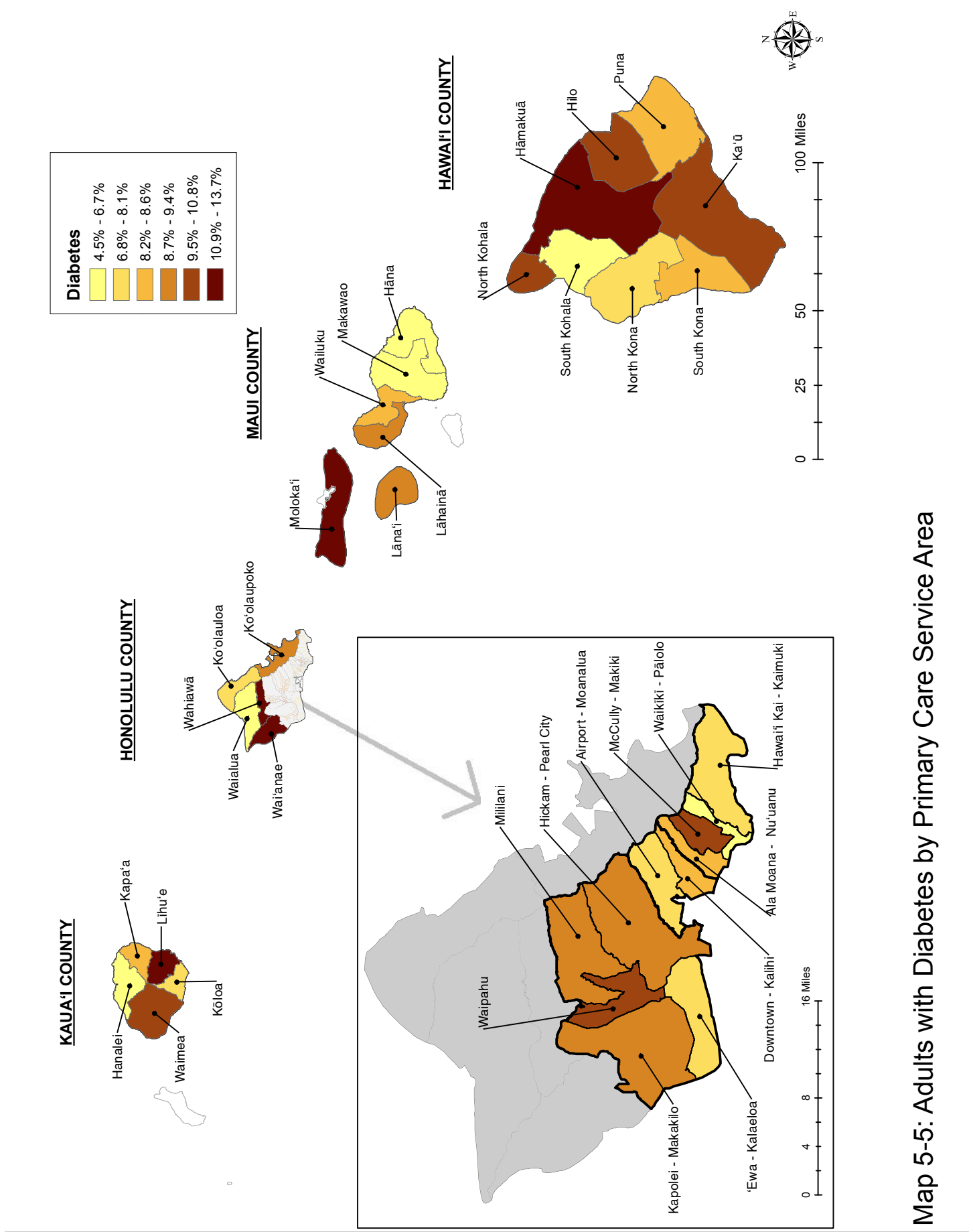


Map 5-4: Adults with No Physical Activity by Primary Care Service Area

Table 5-5: Adults with Diabetes, 2005-2010

Service Area	Annual Adult Population (N)	Number with Diabetes (n)	Percent with Diabetes (%)	95% Confidence Interval
State of Hawai'i	991,900	87,500	8.8	(8.5 - 9.2)
Honolulu County	702,300	62,900	9.0	(8.5 - 9.4)
East Honolulu	181,900	15,100	8.3	(7.5 - 9.2)
Hawai'i Kai - Kaimuki	59,100	4,600	7.8	(6.4 - 9.5)
Waikiki - Pālolo	28,800	1,900	6.7	(5.1 - 8.6)
McCully - Makiki	46,900	4,600	9.8	(8.2 - 11.8)
Ala Moana - Nu'uuanu	47,100	3,900	8.3	(6.7 - 10.1)
West Honolulu	90,300	7,000	7.8	(6.5 - 9.2)
Downtown - Kalihi	45,900	3,900	8.6	(6.8 - 10.8)
Airport - Moanalua	44,300	3,100	7.0	(5.4 - 9.0)
'Ewa	245,900	23,000	9.4	(8.5 - 10.2)
Hickam - Pearl City	77,100	7,200	9.4	(8.0 - 11.0)
Waipahu	53,800	5,800	10.8	(8.9 - 13.1)
'Ewa - Kalaeloa	35,400	3,200	9.0	(7.0 - 11.5)
Kapolei - Makakilo	32,900	3,000	9.1	(7.0 - 11.7)
Mililani	46,700	3,800	8.1	(6.6 - 10.0)
Wahiawā	23,900	2,700	11.2	(8.8 - 14.3)
Wai'anae	34,500	4,700	13.7	(11.1 - 16.7)
Waialua	10,600	600	6.0	(3.5 - 9.9)
Ko'olauloa	14,500	1,000	6.9	(4.5 - 10.5)
Ko'olaupoko	100,900	8,800	8.7	(7.6 - 10.1)
Hawai'i County	130,900	11,500	8.8	(8.2 - 9.5)
Hilo	41,600	4,200	10.2	(9.0 - 11.5)
Puna	20,000	1,700	8.3	(6.8 - 10.2)
Ka'ū	14,300	1,400	9.5	(7.6 - 12.0)
South Kona	8,500	700	8.6	(6.4 - 11.5)
North Kona	22,700	1,600	7.2	(5.8 - 8.9)
South Kohala	12,100	600	5.2	(3.9 - 6.9)
North Kohala	4,100	400	10.5	(6.9 - 15.5)
Hāmakuā	7,500	800	11.0	(7.8 - 15.4)
Maui County	108,900	8,800	8.0	(7.3 - 8.8)
Hāna	1,700	100	6.1	(2.9 - 12.5)
Makawao	33,600	2,200	6.5	(5.4 - 7.8)
Wailuku	50,800	4,200	8.3	(7.2 - 9.5)
Lāhainā	13,600	1,300	9.3	(6.9 - 12.4)
Lāna'i	2,000	200	9.2	(7.6 - 11.2)
Moloka'i	7,100	800	11.5	(9.5 - 13.8)
Kaua'i County	48,000	4,200	8.7	(7.8 - 9.8)
Hanalei	5,700	300	4.5	(2.7 - 7.5)
Kapa'a	14,400	1,200	8.5	(6.9 - 10.5)
Līhu'e	10,200	1,200	11.9	(9.6 - 14.6)
Kōloa	10,800	800	7.7	(6.0 - 9.8)
Waimea	6,900	700	9.8	(7.2 - 13.1)

Source: State of Hawai'i, Department of Health, Behavioral Risk Factor Surveillance System (BRFSS)

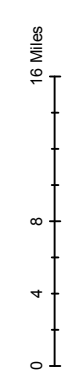
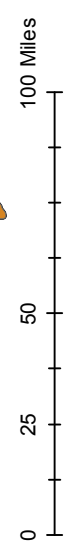
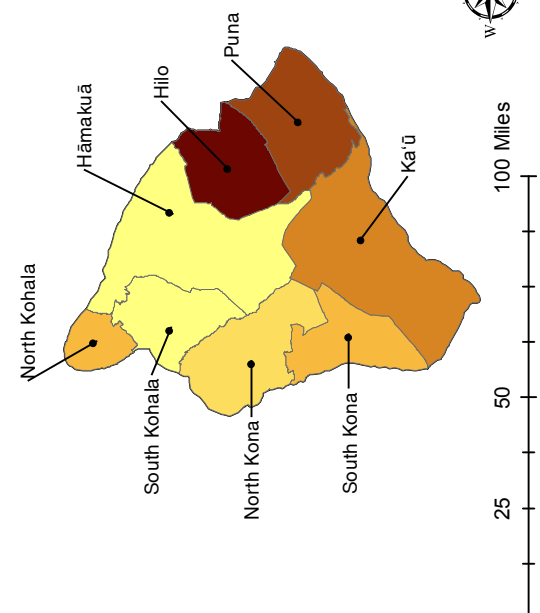
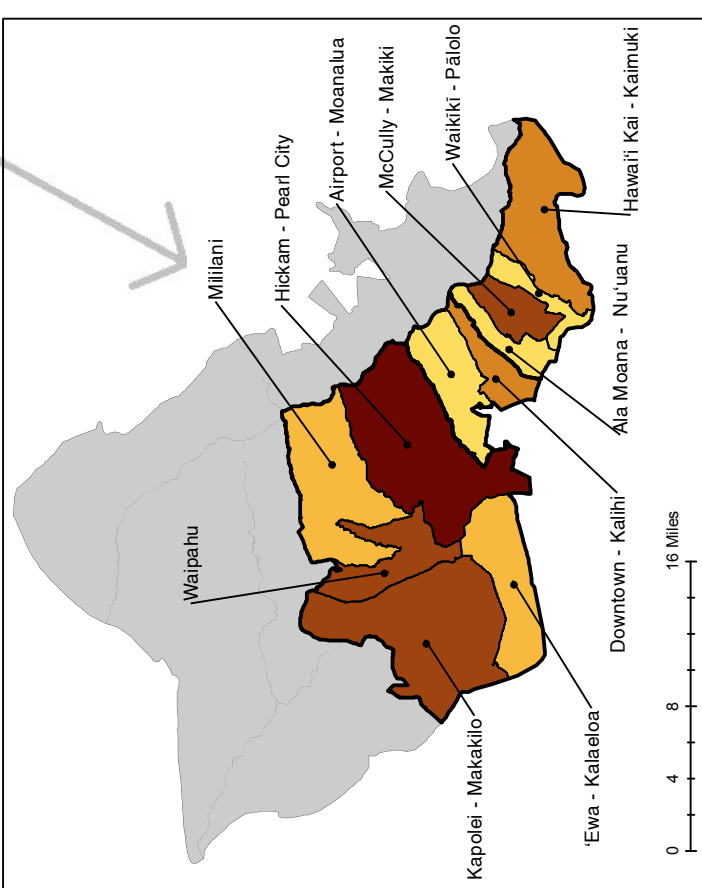
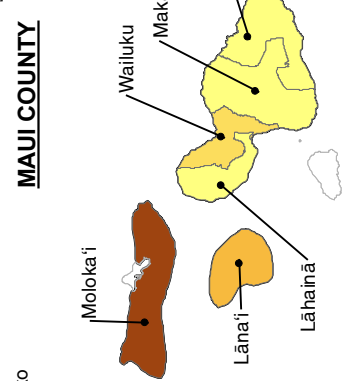
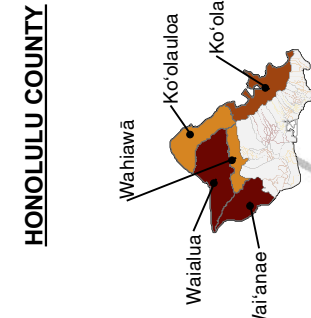
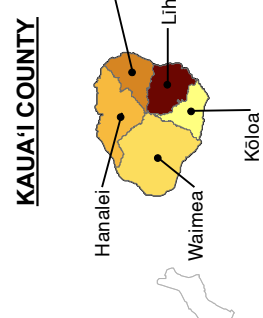
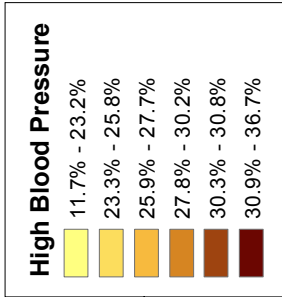


Map 5-5: Adults with Diabetes by Primary Care Service Area

Table 5-6: Adults with High Blood Pressure, 2005, 2007, 2009

Service Area	Annual Adult Population (N)	Number with High Blood Pressure (n)	Percent with High Blood Pressure (%)	95% Confidence Interval
State of Hawai'i	988,700	280,700	28.4	(27.5 - 29.3)
Honolulu County	702,700	203,600	29.0	(27.9 - 30.1)
East Honolulu	183,000	50,700	27.7	(25.8 - 29.7)
Hawai'i Kai - Kaimuki	61,700	18,600	30.2	(26.8 - 33.8)
Waikiki - Pālolo	28,100	6,900	24.7	(20.6 - 29.4)
McCully - Makiki	47,500	14,400	30.3	(26.4 - 34.6)
Ala Moana - Nu'uuanu	45,700	10,700	23.5	(20.3 - 27.1)
West Honolulu	90,700	24,000	26.5	(23.5 - 29.7)
Downtown - Kalihi	46,700	13,200	28.3	(24.1 - 32.9)
Airport - Moanalua	44,000	10,800	24.6	(20.4 - 29.2)
'Ewa	244,500	71,800	29.4	(27.4 - 31.4)
Hickam - Pearl City	76,000	23,500	30.9	(27.5 - 34.6)
Waipahu	55,800	17,200	30.8	(26.4 - 35.5)
'Ewa - Kalaeloa	33,900	10,300	30.4	(25.3 - 36.0)
Kapolei - Makakilo	31,600	8,200	26.0	(20.9 - 31.8)
Mililani	47,100	12,600	26.8	(23.0 - 31.1)
Wahiawā	25,800	7,500	29.1	(23.5 - 35.4)
Wai'anae	33,500	10,900	32.6	(26.6 - 39.1)
Wai'alua	9,900	3,500	35.4	(25.9 - 46.2)
Ko'olauloa	13,900	4,000	28.8	(21.9 - 37.0)
Ko'olaupoko	101,400	31,200	30.8	(28.0 - 33.7)
Hawai'i County	129,300	36,600	28.3	(26.8 - 29.9)
Hilo	40,200	13,000	32.5	(29.6 - 35.4)
Puna	19,300	5,800	30.3	(26.1 - 34.8)
Ka'ū	14,500	4,100	28.2	(23.6 - 33.3)
South Kona	8,400	2,300	27.7	(22.3 - 33.9)
North Kona	22,600	5,700	25.1	(21.7 - 28.9)
South Kohala	12,800	2,900	22.3	(18.4 - 26.7)
North Kohala	4,200	1,100	26.8	(18.8 - 36.7)
Hāmakuā	7,200	1,600	22.9	(17.3 - 29.8)
Maui County	107,900	26,700	24.7	(23.1 - 26.5)
Hāna	1,600	200	11.7	(5.8 - 22.1)
Makawao	33,400	7,800	23.2	(20.3 - 26.5)
Wailuku	50,400	13,000	25.8	(23.3 - 28.4)
Lāhainā	13,400	3,000	22.6	(17.9 - 28.0)
Lāna'i	2,000	500	26.7	(22.7 - 31.2)
Moloka'i	7,200	2,200	30.6	(26.3 - 35.2)
Kaua'i County	47,300	13,300	28.0	(25.6 - 30.6)
Hanalei	5,500	1,500	27.4	(21.1 - 34.7)
Kapa'a	14,200	4,000	28.2	(24.2 - 32.5)
Līhu'e	9,300	3,400	36.7	(30.9 - 42.8)
Kōloa	11,000	2,500	22.5	(18.0 - 27.9)
Waimea	7,400	1,900	25.7	(19.1 - 33.5)

Source: State of Hawai'i, Department of Health, Behavioral Risk Factor Surveillance System (BRFSS)



Map 5-6: Adults with High Blood Pressure by Primary Care Service Area

CHAPTER 6: MORTALITY

This section of the Data Book focuses on the distribution of the overall death rate and the four leading causes of death (mortality) in the population. This revision of the Data Book has added the overall crude death and the unintentional injury mortality rate. The International Statistical Classification of Diseases and Related Health Problems (most commonly known by the abbreviation ICD) provides codes to classify disease and a wide variety of signs, symptoms, abnormal findings, complaints, social circumstances and external causes of injury. Almost every health condition is assigned a unique category and given a code. The tenth version, or ICD 10, codes are used systematically in reporting statistics related to mortality by the National Centers for Health Statistics, the World Health Organization, and other entities. This Data Book highlights the four leading causes of death based on the underlying cause of death listed on the death certificate reported by the Office of Health Status and Monitoring of the Hawai'i Department of Health. The data depicted in this chapter are age adjusted except for crude death rate, which is not age adjusted. The total population for each primary care service area and county, based on the 2010 census, was adjusted to the reference 2000 U.S. standard population. The mortality indicators, using aggregated vital statistics data from 2005-2010, and population estimates from the census bureau are defined on the next page.

MORTALITY INDICATORS

$$\text{Crude Death Rate*} = \frac{\text{Number of deaths} * 1,000}{\text{Total population}}$$

$$\text{Diseases of the Heart Mortality Rate} = \frac{\text{Number of persons (ICD 10 code in the range of I00-I09, I11, I13, I20-I51 for the underlying cause of death)} * 100,000}{\text{Total Population}}$$

$$\text{Stroke (Cerebrovascular Disease) Mortality Rate} = \frac{\text{Number of persons (ICD 10 code in the range of I60-I69 for the underlying cause of death)} * 100,000}{\text{Total Population}}$$

$$\text{Cancer (Malignant Neoplasm) Mortality Rate} = \frac{\text{Number of persons (ICD 10 code in the range of C00-C97 for the underlying cause of death)} * 100,000}{\text{Total Population}}$$

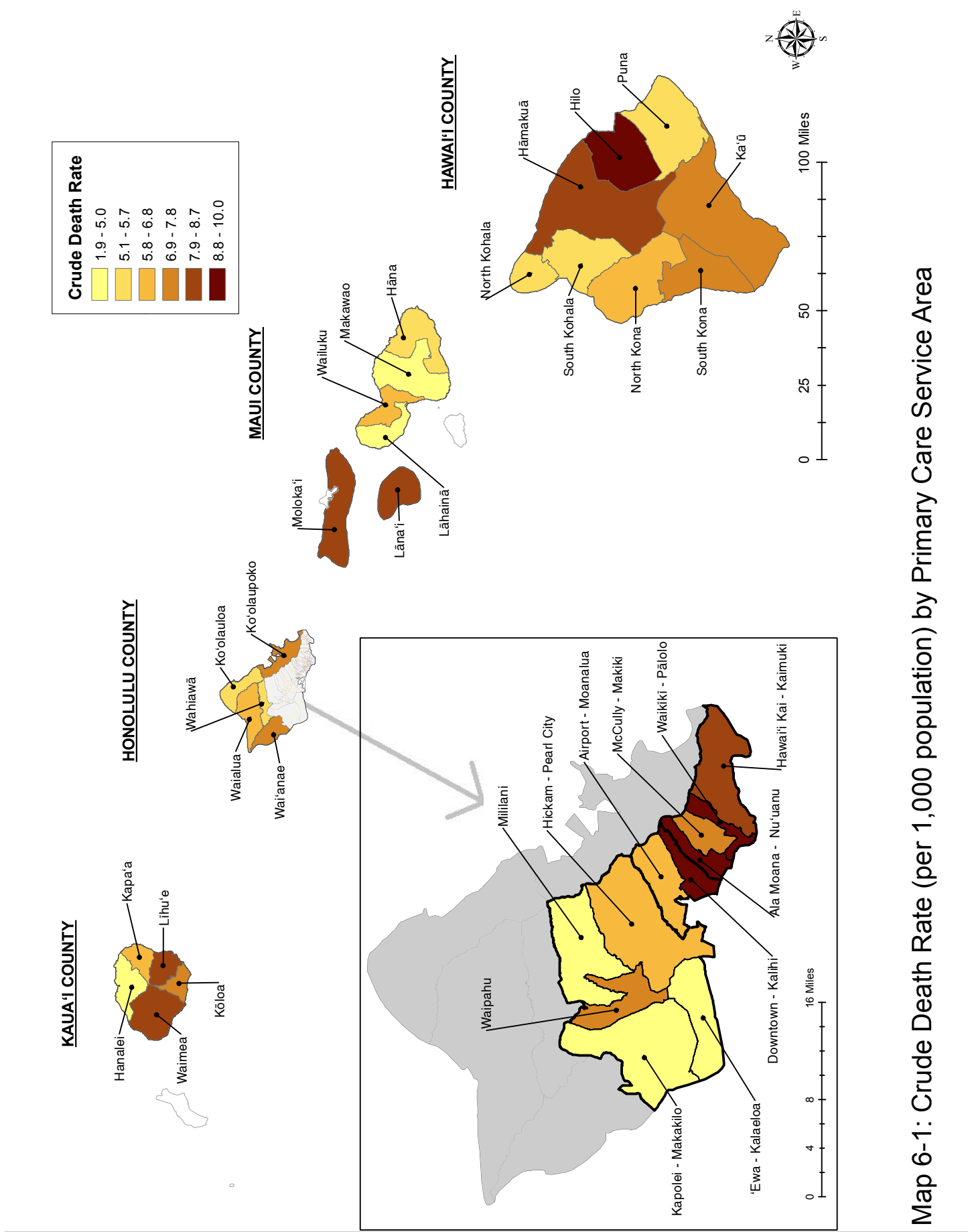
$$\text{Unintentional Injury Mortality Rate} = \frac{\text{Number of persons (ICD 10 code in the range of V01-X59, Y85-Y86 for the underlying cause of death)} * 100,000}{\text{Total Population}}$$

* Not Age Adjusted.

Table 6-1: Crude Death Rate, 2005-2010

Service Area	Annual Total Population (N)	All Deaths (n)	Crude Death Rate (per 1,000)	95% Confidence Interval
State of Hawai'i	1,360,301	55,839	6.8	(6.8 - 6.9)
Honolulu County	953,207	39,242	6.9	(6.8 - 6.9)
East Honolulu	255,009	13,195	8.6	(8.5 - 8.8)
Hawai'i Kai - Kaimuki	70,638	3,685	8.7	(8.4 - 9.0)
Waikiki - Pālolo	52,489	2,918	9.3	(8.9 - 9.6)
McCully - Makiki	60,510	2,809	7.7	(7.5 - 8.0)
Ala Moana - Nu'uuanu	71,372	3,783	8.8	(8.6 - 9.1)
West Honolulu	135,080	6,038	7.4	(7.3 - 7.6)
Downtown - Kalihi	69,010	3,669	8.9	(8.6 - 9.1)
Airport - Moanalua	66,070	2,369	6.0	(5.7 - 6.2)
'Ewa	323,767	10,238	5.3	(5.2 - 5.4)
Hickam - Pearl City	95,025	3,817	6.7	(6.5 - 6.9)
Waipahu	74,760	3,478	7.8	(7.5 - 8.0)
'Ewa - Kalaeloa	54,207	1,222	3.8	(3.5 - 4.0)
Kapolei - Makakilo	46,972	1,113	3.9	(3.7 - 4.2)
Mililani	52,803	608	1.9	(1.8 - 2.1)
Wahiawā	41,216	1,296	5.2	(5.0 - 5.5)
Wai'anae	48,519	2,126	7.3	(7.0 - 7.6)
Waialua	13,046	500	6.4	(5.8 - 6.9)
Ko'olauloa	21,406	652	5.1	(4.7 - 5.5)
Ko'olaupoko	115,164	4,985	7.2	(7.0 - 7.4)
Hawai'i County	185,079	7,967	7.2	(7.0 - 7.3)
Hilo	50,927	3,051	10.0	(9.6 - 10.3)
Puna	45,326	1,535	5.6	(5.4 - 5.9)
Ka'ū	8,451	377	7.4	(6.7 - 8.2)
South Kona	9,997	432	7.2	(6.5 - 7.9)
North Kona	37,875	1,366	6.0	(5.7 - 6.3)
South Kohala	17,627	558	5.3	(4.8 - 5.7)
North Kohala	6,322	212	5.6	(4.8 - 6.3)
Hāmakuā	8,554	420	8.2	(7.4 - 9.0)
Maui County	154,834	5,632	6.1	(5.9 - 6.2)
Hāna	2,291	78	5.7	(4.4 - 6.9)
Makawao	41,887	1,224	4.9	(4.6 - 5.1)
Wailuku	77,758	3,127	6.7	(6.5 - 6.9)
Lāhainā	22,508	678	5.0	(4.6 - 5.4)
Lāna'i	3,135	157	8.3	(7.0 - 9.7)
Moloka'i	7,255	345	7.9	(7.1 - 8.8)
Kaua'i County	67,091	2,998	7.4	(7.2 - 7.7)
Hanalei	7,828	228	4.9	(4.2 - 5.5)
Kapa'a	20,992	852	6.8	(6.3 - 7.2)
Līhu'e	14,683	768	8.7	(8.1 - 9.3)
Kōloa	14,086	661	7.8	(7.2 - 8.4)
Waimea	9,332	479	8.6	(7.8 - 9.3)

Source: State of Hawai'i, Department of Health, Office of Health Status Monitoring; U.S. Department of Commerce, U.S. Census Bureau, Population Estimates

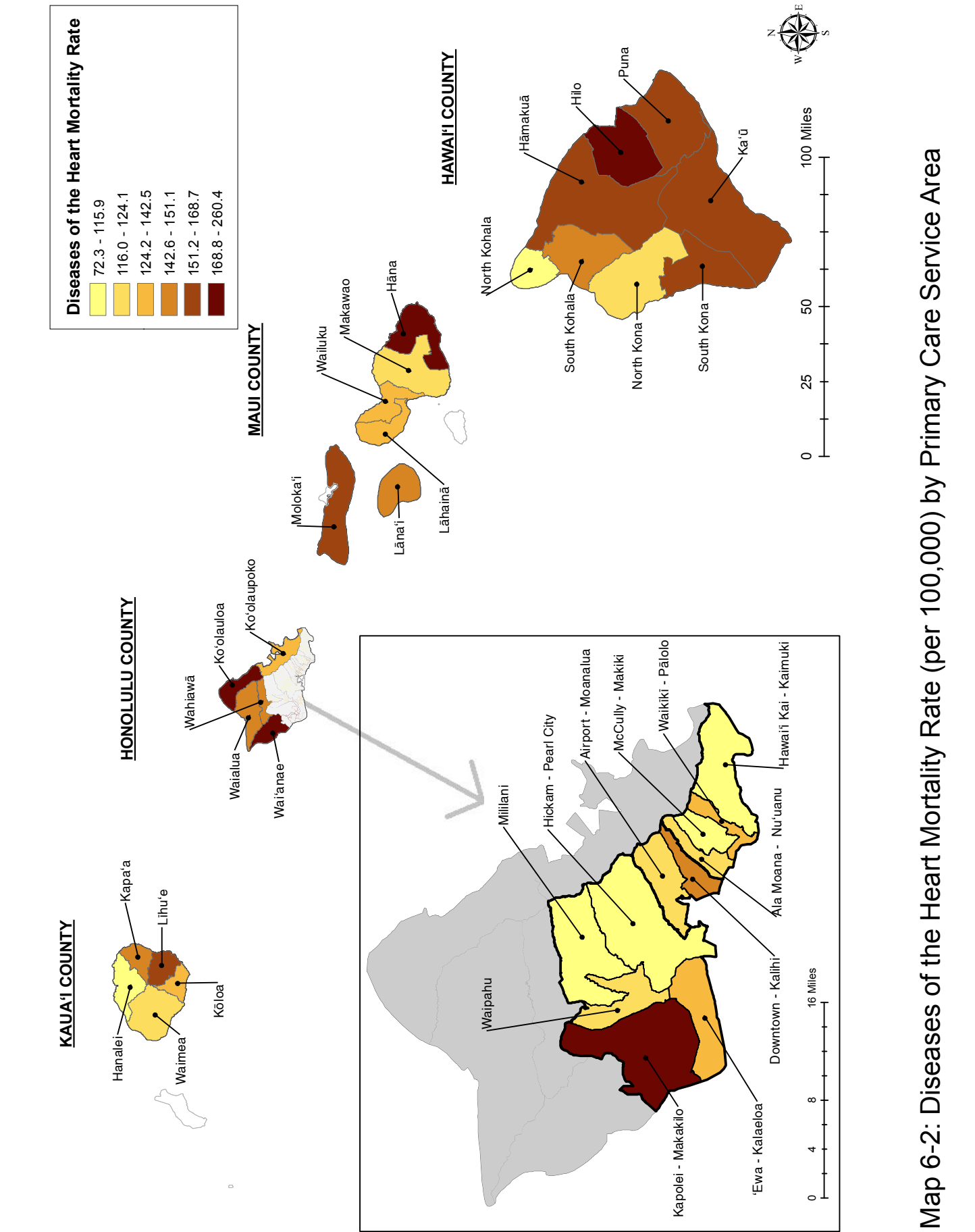


Map 6-1: Crude Death Rate (per 1,000 population) by Primary Care Service Area

Table 6-2: Diseases of the Heart Mortality Rate, 2005-2010

Service Area	Annual Total Population (N)	Number of Deaths Due to Diseases of the Heart (n)	Age Adjusted Death Rate (per 100,000)	95% Confidence Interval
State of Hawai'i	1,360,301	13,400	135.2	(133.0 - 137.5)
Honolulu County	953,207	9,325	131.5	(128.8 - 134.2)
East Honolulu	255,009	3,068	114.4	(110.4 - 118.5)
Hawai'i Kai - Kaimuki	70,638	845	97.4	(90.8 - 104.0)
Waikiki - Pālolo	52,489	680	126.7	(117.2 - 136.2)
McCully - Makiki	60,510	661	115.8	(107.0 - 124.7)
Ala Moana - Nu'uuanu	71,372	882	122.5	(114.4 - 130.6)
West Honolulu	135,080	1,482	133.6	(126.8 - 140.4)
Downtown - Kalihi	69,010	934	144.6	(135.3 - 153.9)
Airport - Moanalua	66,070	548	119.4	(109.4 - 129.4)
'Ewa	323,767	2,499	132.0	(126.8 - 137.2)
Hickam - Pearl City	95,025	867	113.8	(106.2 - 121.4)
Waipahu	74,760	890	190.9	(178.3 - 203.4)
'Ewa - Kalaeloa	54,207	328	122.3	(109.0 - 135.5)
Kapolei - Makakilo	46,972	288	140.4	(124.2 - 156.6)
Mililani	52,803	126	72.3	(59.7 - 84.9)
Wahiawā	41,216	294	151.1	(133.8 - 168.4)
Wai'anae	48,519	578	260.4	(239.2 - 281.6)
Waialua	13,046	115	148.2	(121.1 - 175.3)
Ko'olauloa	21,406	163	170.4	(144.2 - 196.6)
Ko'olaupoko	115,164	1,087	126.5	(119.0 - 134.1)
Hawai'i County	185,079	2,038	154.8	(148.1 - 161.5)
Hilo	50,927	831	177.5	(165.4 - 189.5)
Puna	45,326	382	158.9	(142.9 - 174.8)
Ka'ū	8,451	96	168.7	(134.9 - 202.4)
South Kona	9,997	113	152.2	(124.1 - 180.2)
North Kona	37,875	290	117.6	(104.1 - 131.2)
South Kohala	17,627	146	149.9	(125.6 - 174.2)
North Kohala	6,322	54	115.9	(85.0 - 146.8)
Hāmakuā	8,554	121	168.3	(138.3 - 198.3)
Maui County	154,834	1,340	137.6	(130.2 - 144.9)
Hāna	2,291	29	231.3	(147.1 - 315.5)
Makawao	41,887	303	124.1	(110.1 - 138.0)
Wailuku	77,758	731	142.5	(132.2 - 152.8)
Lāhainā	22,508	163	127.6	(108.0 - 147.2)
Lāna'i	3,135	34	147.6	(98.0 - 197.2)
Moloka'i	7,255	75	155.0	(119.9 - 190.1)
Kaua'i County	67,091	697	136.3	(126.2 - 146.4)
Hanalei	7,828	55	109.1	(80.2 - 137.9)
Kapa'a	20,992	196	144.6	(124.4 - 164.9)
Lihu'e	14,683	198	154.2	(132.7 - 175.6)
Kōloa	14,086	157	129.8	(109.5 - 150.2)
Waimea	9,332	88	119.5	(94.5 - 144.5)

Source: State of Hawai'i, Department of Health, Office of Health Status Monitoring;
U.S. Department of Commerce, U.S. Census Bureau, Population Estimates



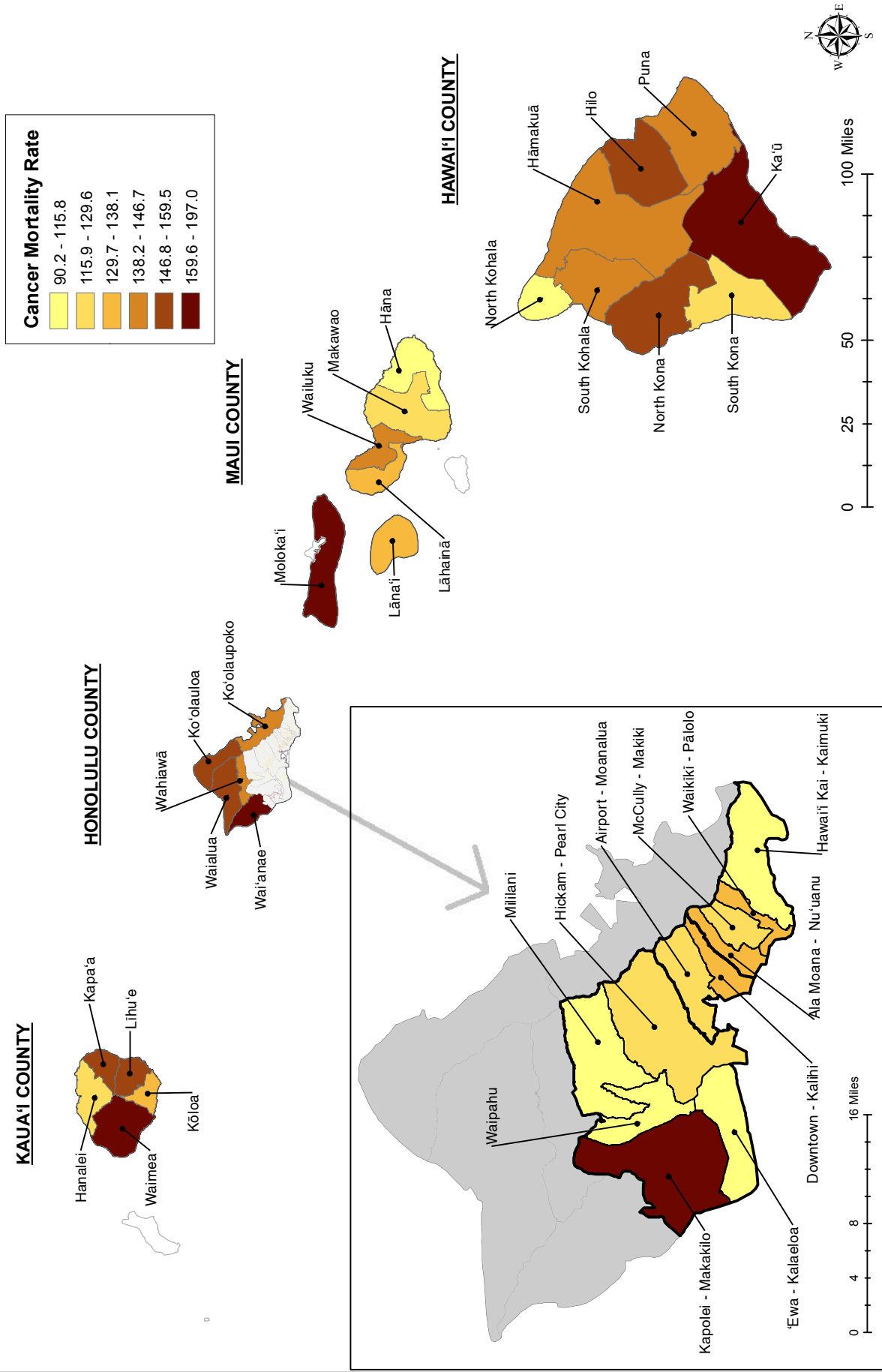
Map 6-2: Diseases of the Heart Mortality Rate (per 100,000) by Primary Care Service Area

Table 6-3: Cancer (Malignant Neoplasm) Mortality Rate, 2005-2010

Service Area	Annual Total Population (N)	Number of Cancer Deaths (n)	Age Adjusted Death Rate (per 100,000)	95% Confidence Interval
State of Hawai'i	1,360,301	12,968	134.7	(132.4 - 137.1)
Honolulu County	953,207	8,983	132.7	(130.0 - 135.5)
East Honolulu	255,009	3,005	124.9	(120.4 - 129.3)
Hawai'i Kai - Kaimuki	70,638	857	113.6	(106.0 - 121.2)
Waikiki - Pālolo	52,489	646	138.1	(127.5 - 148.8)
McCully - Makiki	60,510	607	119.0	(109.5 - 128.5)
Ala Moana - Nu'uuanu	71,372	895	132.6	(123.9 - 141.3)
West Honolulu	135,080	1,308	129.7	(122.7 - 136.8)
Downtown - Kalihi	69,010	762	131.3	(122.0 - 140.6)
Airport - Moanalua	66,070	546	128.3	(117.5 - 139.0)
'Ewa	323,767	2,425	125.6	(120.6 - 130.6)
Hickam - Pearl City	95,025	914	125.5	(117.3 - 133.6)
Waipahu	74,760	782	166.1	(154.4 - 177.7)
'Ewa - Kalaeloa	54,207	288	95.2	(84.2 - 106.2)
Kapolei - Makakilo	46,972	254	115.8	(101.6 - 130.1)
Mililani	52,803	187	91.9	(78.7 - 105.1)
Wahiawā	41,216	264	141.9	(124.8 - 159.0)
Wai'anae	48,519	466	197.0	(179.1 - 214.8)
Waialua	13,046	114	159.5	(130.2 - 188.8)
Ko'olauloa	21,406	153	149.9	(126.2 - 173.7)
Ko'olaupoko	115,164	1,226	146.7	(138.5 - 154.9)
Hawai'i County	185,079	1,908	143.6	(137.2 - 150.1)
Hilo	50,927	656	152.1	(140.5 - 163.8)
Puna	45,326	371	140.8	(126.5 - 155.1)
Ka'ū	8,451	99	168.9	(135.6 - 202.2)
South Kona	9,997	100	129.5	(104.1 - 154.9)
North Kona	37,875	382	148.1	(133.3 - 163.0)
South Kohala	17,627	147	143.1	(120.0 - 166.2)
North Kohala	6,322	56	111.7	(82.4 - 140.9)
Hāmakuā	8,554	95	140.7	(112.4 - 169.0)
Maui County	154,834	1,352	132.7	(125.6 - 139.7)
Hāna	2,291	14	90.2	
Makawao	41,887	319	117.1	(104.2 - 129.9)
Wailuku	77,758	708	138.3	(128.1 - 148.5)
Lāhainā	22,508	179	131.0	(111.8 - 150.1)
Lāna'i	3,135	33	136.9	(90.2 - 183.6)
Moloka'i	7,255	95	177.0	(141.4 - 212.6)
Kaua'i County	67,091	725	145.9	(135.3 - 156.6)
Hanalei	7,828	62	129.6	(97.4 - 161.9)
Kapa'a	20,992	209	147.2	(127.3 - 167.2)
Līhu'e	14,683	177	149.4	(127.4 - 171.4)
Kōloa	14,086	153	136.9	(115.2 - 158.6)
Waimea	9,332	124	173.1	(142.7 - 203.6)

Source: State of Hawai'i, Department of Health, Office of Health Status Monitoring
 U.S. Department of Commerce, U.S. Census Bureau, Population Estimates

Notes: No confidence intervals were computed when the number of events were less than 20. Standardized ratios less than 200 implies that the rates were not significantly higher than those for the State of Hawai'i. See Family Health Outcomes Project (FHOP), Guidelines for Using Federal Data Templates with Small Numbers (1997).



Map 6-3: Cancer (Malignant Neoplasm) Mortality Rate (per 100,000) by Primary Care Service Area

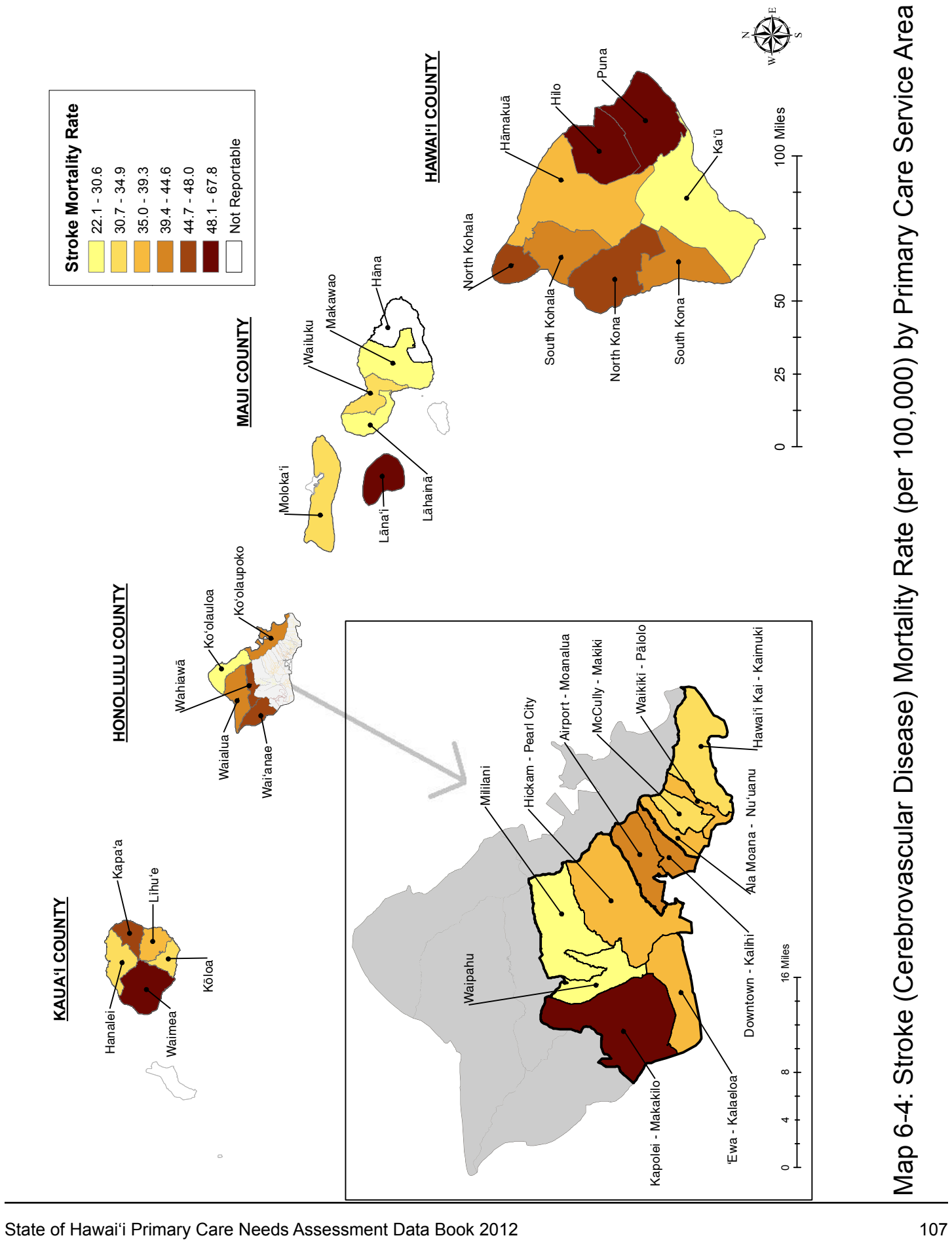
Table 6-4: Stroke (Cerebrovascular Disease) Mortality Rate, 2005-2010

Service Area	Annual Total Population (N)	Number of Stroke Deaths (n)	Age Adjusted Death Rate (per 100,000)	95% Confidence Interval
State of Hawai'i	1,360,301	3,834	38.2	(37.0 - 39.4)
Honolulu County	953,207	2,718	37.7	(36.3 - 39.2)
East Honolulu	255,009	956	34.2	(32.1 - 36.4)
Hawai'i Kai - Kaimuki	70,638	273	31.0	(27.3 - 34.7)
Waikiki - Pālolo	52,489	193	35.5	(30.5 - 40.5)
McCully - Makiki	60,510	213	34.9	(30.2 - 39.6)
Ala Moana - Nu'uuanu	71,372	277	36.5	(32.2 - 40.8)
West Honolulu	135,080	489	44.0	(40.1 - 47.9)
Downtown - Kalihi	69,010	288	44.6	(39.4 - 49.7)
Airport - Moanalua	66,070	201	43.7	(37.7 - 49.8)
'Ewa	323,767	669	35.2	(32.5 - 37.8)
Hickam - Pearl City	95,025	270	35.6	(31.3 - 39.8)
Waipahu	74,760	228	48.2	(42.0 - 54.5)
'Ewa - Kalaeloa	54,207	60	22.1	(16.5 - 27.7)
Kapolei - Makakilo	46,972	73	36.8	(28.4 - 45.3)
Mililani	52,803	38	22.8	(15.5 - 30.0)
Wahiawā	41,216	96	48.0	(38.4 - 57.6)
Wai'anae	48,519	98	46.4	(37.2 - 55.6)
Waialua	13,046	32	39.4	(25.8 - 53.1)
Ko'olauloa	21,406	27	28.2	(17.6 - 38.9)
Ko'olaupoko	115,164	343	39.8	(35.6 - 44.0)
Hawai'i County	185,079	591	45.6	(41.9 - 49.3)
Hilo	50,927	243	49.5	(43.3 - 55.7)
Puna	45,326	103	48.1	(38.8 - 57.4)
Ka'ū	8,451	16	30.2	
South Kona	9,997	30	40.2	(25.8 - 54.6)
North Kona	37,875	109	46.8	(38.0 - 55.6)
South Kohala	17,627	41	42.7	(29.7 - 55.8)
North Kohala	6,322	20	45.0	(25.3 - 64.8)
Hāmakuā	8,554	28	39.3	(24.7 - 53.8)
Maui County	154,834	316	32.0	(28.5 - 35.5)
Hāna	2,291	< 5	NR	
Makawao	41,887	69	30.6	(23.3 - 37.8)
Wailuku	77,758	178	33.6	(28.7 - 38.6)
Lāhainā	22,508	34	26.7	(17.7 - 35.7)
Lāna'i	3,135	16	67.8	
Moloka'i	7,255	17	33.5	
Kaua'i County	67,091	209	40.2	(34.7 - 45.6)
Hanalei	7,828	14	31.0	
Kapa'a	20,992	65	47.1	(35.7 - 58.6)
Līhu'e	14,683	44	35.3	(24.9 - 45.8)
Kōloa	14,086	40	33.6	(23.2 - 44.0)
Waimea	9,332	46	56.4	(40.1 - 72.8)

Source: State of Hawai'i, Department of Health, Office of Health Status Monitoring;

U.S. Department of Commerce, U.S. Census Bureau, Population Estimates

Notes: Rates were not reportable (NR) for areas with less than 5 events. No confidence intervals were computed when the number of events were less than 20. Standardized ratios less than 200 implies that the rates were not significantly higher than those for the State of Hawai'i. See Family Health Outcomes Project (FHOP), *Guidelines for Using Federal Data Templates with Small Numbers* (1997).



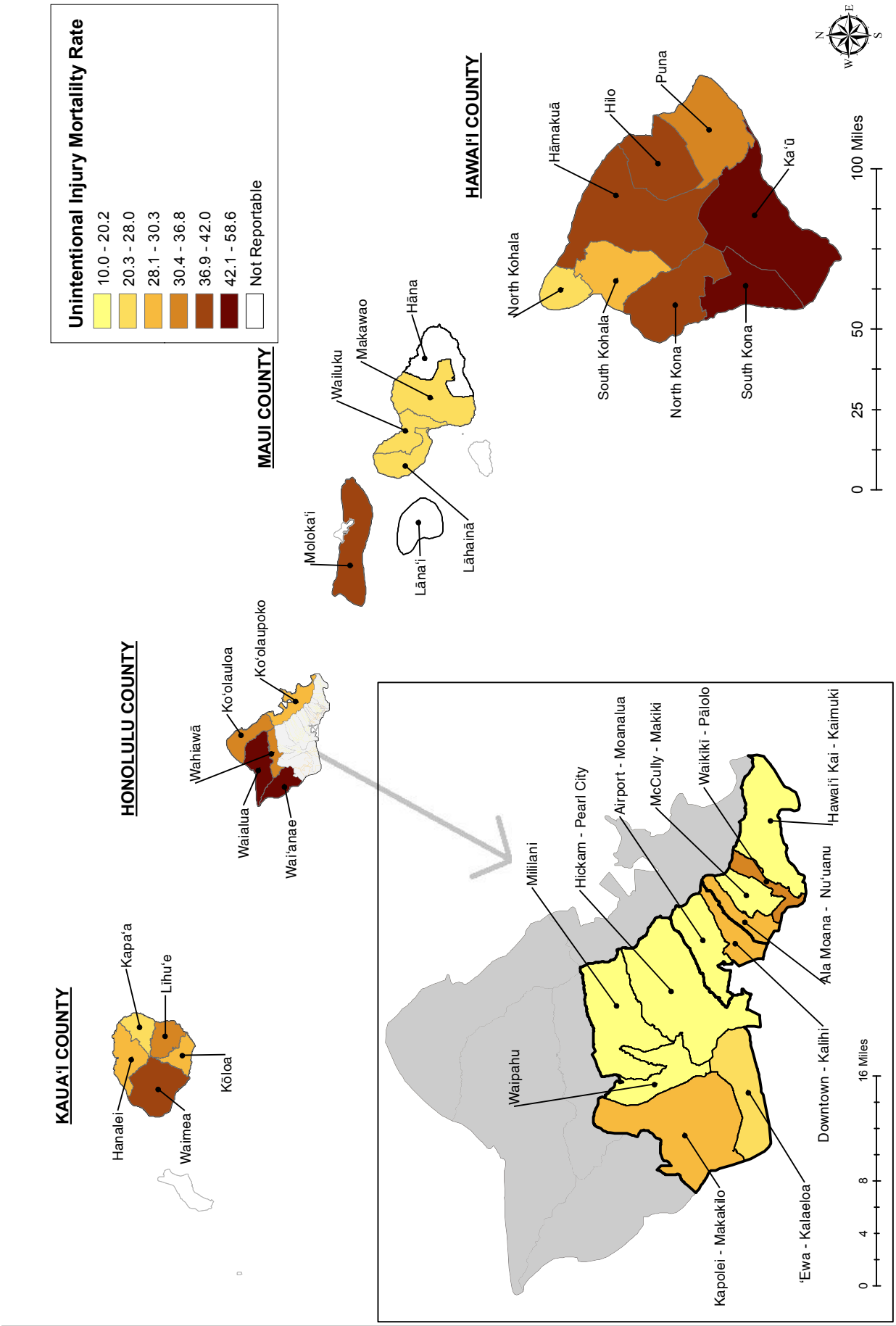
Map 6-4: Stroke (Cerebrovascular Disease) Mortality Rate (per 100,000) by Primary Care Service Area

Table 6-5: Unintentional Injury Mortality Rate, 2005-2010

Service Area	Annual Total Population (N)	Number of Unintentional Injury Deaths (n)	Age Adjusted Death Rate (per 100,000)	95% Confidence Interval
State of Hawai'i	1,360,301	2,529	28.7	(27.6 - 29.9)
Honolulu County	953,207	1,746	27.7	(26.4 - 29.0)
East Honolulu	255,009	525	25.5	(23.3 - 27.6)
Hawai'i Kai - Kaimuki	70,638	129	20.2	(16.7 - 23.7)
Waikiki - Pālolo	52,489	131	33.3	(27.6 - 39.0)
McCully - Makiki	60,510	97	19.7	(15.8 - 23.6)
Ala Moana - Nu'uuanu	71,372	168	30.0	(25.5 - 34.5)
West Honolulu	135,080	228	24.3	(21.2 - 27.5)
Downtown - Kalihi	69,010	145	28.5	(23.9 - 33.2)
Airport - Moanalua	66,070	83	19.8	(15.5 - 24.0)
'Ewa	323,767	405	21.0	(19.0 - 23.1)
Hickam - Pearl City	95,025	124	18.4	(15.2 - 21.6)
Waipahu	74,760	140	29.7	(24.8 - 34.7)
'Ewa - Kalaeloa	54,207	57	19.3	(14.3 - 24.4)
Kapolei - Makakilo	46,972	64	25.7	(19.4 - 32.0)
Mililani	52,803	20	10.0	(5.6 - 14.4)
Wahiawā	41,216	73	33.6	(25.9 - 41.3)
Wai'anae	48,519	152	58.6	(49.3 - 67.9)
Waialua	13,046	43	52.1	(36.6 - 67.7)
Ko'olauloa	21,406	44	36.8	(25.9 - 47.7)
Ko'olaupoko	115,164	226	30.3	(26.3 - 34.2)
Hawai'i County	185,079	428	37.6	(34.1 - 41.2)
Hilo	50,927	131	37.8	(31.4 - 44.3)
Puna	45,326	95	35.7	(28.6 - 42.9)
Ka'ū	8,451	22	44.9	(26.1 - 63.6)
South Kona	9,997	30	48.7	(31.3 - 66.1)
North Kona	37,875	87	39.0	(30.8 - 47.2)
South Kohala	17,627	29	29.5	(18.7 - 40.2)
North Kohala	6,322	9	28.0	
Hāmakuā	8,554	22	37.7	(21.9 - 53.4)
Maui County	154,834	225	24.2	(21.0 - 27.3)
Hāna	2,291	< 5	NR	
Makawao	41,887	56	23.1	(17.1 - 29.2)
Wailuku	77,758	112	23.6	(19.3 - 28.0)
Lāhainā	22,508	31	23.0	(14.9 - 31.1)
Lāna'i	3,135	< 5	NR	
Moloka'i	7,255	19	42.0	
Kaua'i County	67,091	130	30.2	(25.0 - 35.4)
Hanalei	7,828	14	30.3	
Kapa'a	20,992	34	26.1	(17.4 - 34.9)
Līhu'e	14,683	34	30.5	(20.3 - 40.8)
Kōloa	14,086	27	28.8	(18.0 - 39.7)
Waimea	9,332	21	39.0	(22.3 - 55.7)

Source: State of Hawai'i, Department of Health, Office of Health Status Monitoring
 U.S. Department of Commerce, U.S. Census Bureau, Population Estimates

Notes: Rates were not reportable (NR) for areas with less than 5 events. No confidence intervals were computed when the number of events were less than 20. Standardized ratios less than 200 implies that the rates were not significantly higher than those for the State of Hawai'i. See Family Health Outcomes Project (FHOP), *Guidelines for Using Federal Data Templates with Small Numbers* (1997).



Map 6-5: Unintentional Injury Mortality Rate (per 100,000) by Primary Care Service Area

CHAPTER 7: ADULT ORAL HEALTH

This section of the Data Book updates the indicators, based on the Behavioral Risk Factor Surveillance System (BRFSS) survey, for adult oral health and the corresponding index that was first presented in the 2005 edition of the Data Book. Oral health is an essential and integral component of health throughout life. Poor oral health can result in significant illness, disease, and even death. Poor oral health is associated with increased health care costs, increased absenteeism, and decreased productivity. People who do not receive regular professional care can develop oral disease that require complex restorative treatment, lead to tooth loss, and contribute to health problems. Routine dental visits provide an opportunity for early diagnosis, prevention, and treatment of oral disease. The adult oral health indicators use aggregated data from the 2006, 2008, and 2010 BRFSS are defined on the next page.

ADULT ORAL HEALTH INDICATORS

Adults with No Dental Visit Within the Past Year

=

Self-report that their last visit to a dentist or dental clinic for any reason, including visits to specialists such as orthodontists, has been longer than one year ago.

Adults with No Teeth Cleaning Within the Past Year

=

Self-report that their last teeth cleaning by a dentist or dental hygienist has been longer than one year ago.

Adults with Permanent Teeth Removed

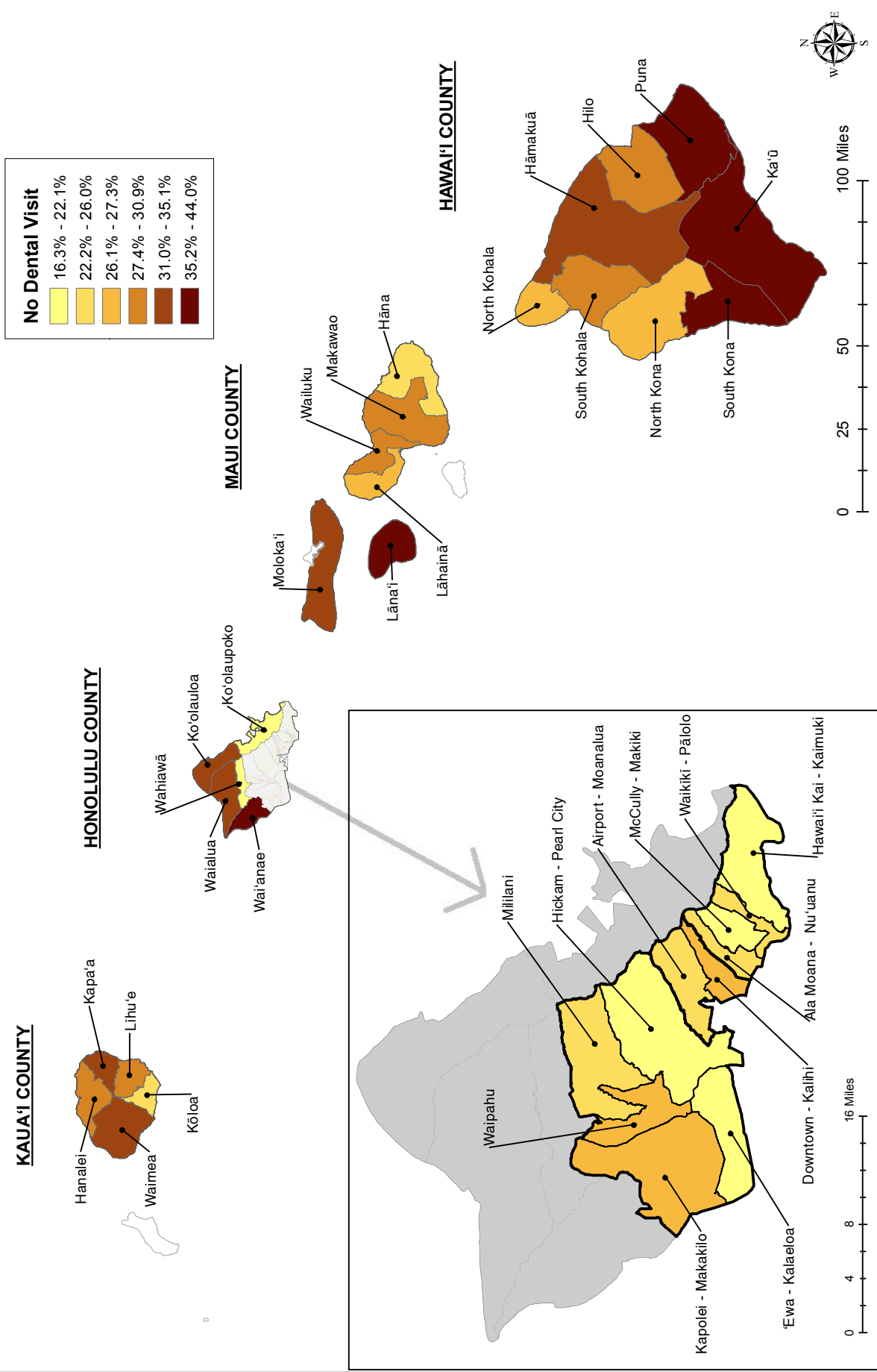
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Self-report of having had permanent teeth removed due to tooth decay or gum disease. Does not include teeth removed due to injury or orthodontia.

Table 7-1: Adults with No Dental Visit Within Past Year, 2006, 2008, 2010

Service Area	Annual Adult Population (N)	Number with No Dental Visit (n)	Percent with No Dental Visit (%)	95% Confidence Interval
State of Hawai'i	995,300	259,500	26.1	(25.2 - 27.0)
Honolulu County	701,900	169,400	24.1	(23.0 - 25.4)
East Honolulu	180,700	38,500	21.3	(19.4 - 23.4)
Hawai'i Kai - Kaimuki	56,500	9,200	16.3	(13.1 - 20.1)
Waikiki - Pālolo	29,500	7,700	26.0	(21.1 - 31.5)
McCully - Makiki	46,300	10,200	22.1	(18.5 - 26.1)
Ala Moana - Nu'uuanu	48,400	11,500	23.7	(19.7 - 28.1)
West Honolulu	89,800	23,400	26.1	(22.7 - 29.9)
Downtown - Kalihi	44,900	12,300	27.3	(22.7 - 32.5)
Airport - Moanalua	44,600	11,200	25.1	(20.1 - 30.8)
'Ewa	247,500	57,600	23.3	(21.4 - 25.3)
Hickam - Pearl City	78,400	16,700	21.4	(18.3 - 24.8)
Waipahu	51,800	13,500	26.0	(21.6 - 31.0)
'Ewa - Kalaeloa	36,800	10,000	27.2	(21.9 - 33.2)
Kapolei - Makakilo	34,100	7,800	22.8	(18.1 - 28.4)
Mililani	46,300	9,600	20.7	(16.8 - 25.3)
Wahiawā	21,900	4,300	19.6	(14.5 - 26.0)
Wai'anae	35,600	15,700	44.0	(36.6 - 51.7)
Waialua	11,300	3,500	31.3	(21.6 - 43.0)
Ko'olauloa	14,800	4,900	33.1	(24.5 - 42.9)
Ko'olaupoko	100,300	21,400	21.3	(18.5 - 24.5)
Hawai'i County	132,800	43,500	32.7	(30.8 - 34.7)
Hilo	43,200	13,300	30.9	(27.6 - 34.4)
Puna	20,700	7,400	35.9	(31.2 - 40.9)
Ka'ū	14,100	6,100	43.3	(37.5 - 49.4)
South Kona	8,600	3,200	37.9	(30.0 - 46.5)
North Kona	22,900	6,200	27.0	(22.8 - 31.6)
South Kohala	11,400	3,300	29.0	(23.4 - 35.4)
North Kohala	4,000	1,100	26.7	(17.9 - 37.9)
Hāmakuā	7,900	2,800	35.0	(26.4 - 44.7)
Maui County	110,100	31,300	28.4	(26.4 - 30.5)
Hāna	1,900	500	24.3	(12.8 - 41.1)
Makawao	33,900	9,600	28.4	(25.0 - 32.1)
Wailuku	51,300	14,400	28.2	(25.1 - 31.5)
Lāhainā	13,900	3,800	27.2	(21.6 - 33.5)
Lāna'i	2,000	800	38.3	(33.0 - 43.9)
Moloka'i	7,100	2,200	31.1	(26.8 - 35.8)
Kaua'i County	48,800	14,900	30.5	(27.7 - 33.6)
Hanalei	5,900	1,800	30.0	(22.8 - 38.5)
Kapa'a	14,600	4,800	32.9	(27.7 - 38.4)
Līhu'e	11,100	3,400	30.3	(24.3 - 37.1)
Kōloa	10,700	2,700	25.1	(19.7 - 31.5)
Waimea	6,400	2,300	35.1	(27.0 - 44.2)

Source: State of Hawai'i, Department of Health, Behavioral Risk Factor Surveillance System (BRFSS)

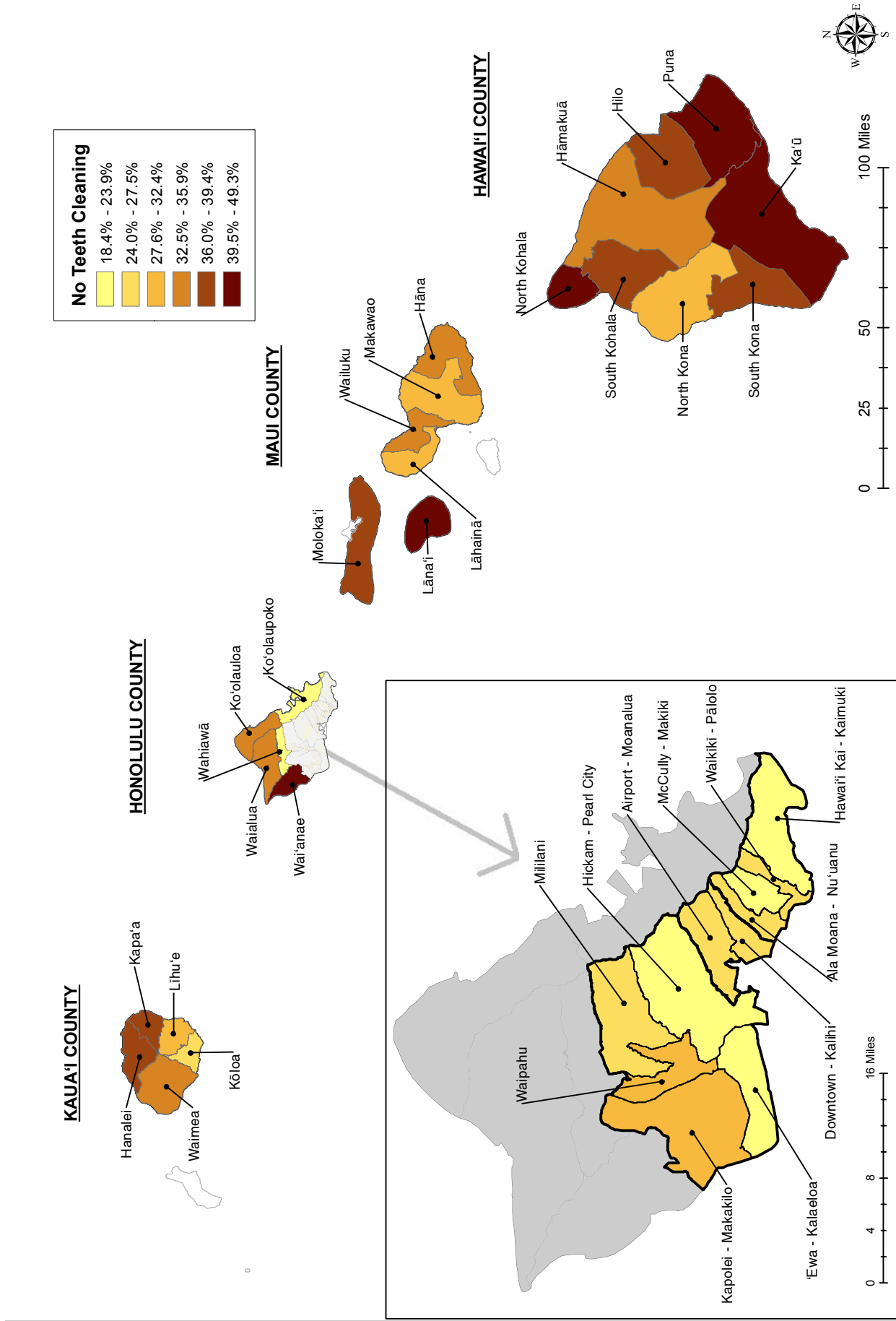


Map 7-1: No Dental Visit Within Past Year by Primary Care Service Area

Table 7-2: Adults with No Teeth Cleaning Within Past Year, 2006, 2008, 2010

Service Area	Annual Adult Population (N)	Number with No Teeth Cleaning (n)	Percent with No Teeth Cleaning (%)	95% Confidence Interval
State of Hawai'i	967,300	277,600	28.7	(27.7 - 29.7)
Honolulu County	682,900	177,600	26.0	(24.8 - 27.3)
East Honolulu	176,100	39,400	22.4	(20.3 - 24.6)
Hawai'i Kai - Kaimuki	55,700	10,200	18.4	(15.0 - 22.3)
Waikiki - Pālolo	28,500	7,400	25.9	(20.9 - 31.6)
McCully - Makiki	45,000	10,100	22.5	(18.8 - 26.6)
Ala Moana - Nu'uuanu	46,900	11,700	24.9	(20.8 - 29.5)
West Honolulu	86,000	23,400	27.3	(23.7 - 31.1)
Downtown - Kalihi	42,200	11,400	27.1	(22.5 - 32.3)
Airport - Moanalua	43,500	12,000	27.5	(22.3 - 33.5)
'Ewa	241,800	61,500	25.4	(23.4 - 27.6)
Hickam - Pearl City	76,700	18,200	23.8	(20.4 - 27.5)
Waipahu	50,200	13,900	27.8	(23.1 - 33.0)
'Ewa - Kalaeloa	35,800	10,500	29.3	(23.9 - 35.5)
Kapolei - Makakilo	33,200	8,000	24.1	(19.2 - 29.7)
Mililani	45,800	10,800	23.7	(19.5 - 28.5)
Wahiawā	21,500	4,800	22.4	(17.0 - 28.9)
Wai'anae	34,000	16,200	47.6	(39.8 - 55.5)
Waialua	10,900	3,600	32.9	(22.8 - 45.0)
Ko'olauloa	14,600	5,200	35.9	(27.0 - 45.8)
Ko'olaupoko	98,000	23,400	23.9	(20.9 - 27.2)
Hawai'i County	128,900	49,000	38.0	(36.0 - 40.0)
Hilo	41,900	15,200	36.3	(32.7 - 40.0)
Puna	20,300	8,900	43.8	(38.8 - 48.9)
Ka'ū	13,700	6,800	49.3	(43.2 - 55.4)
South Kona	7,900	3,100	39.4	(31.9 - 47.4)
North Kona	22,200	6,600	29.5	(25.3 - 34.2)
South Kohala	11,300	4,200	36.8	(30.7 - 43.4)
North Kohala	3,900	1,600	40.0	(28.9 - 52.3)
Hāmakuā	7,500	2,700	35.7	(26.8 - 45.6)
Maui County	106,800	34,900	32.7	(30.5 - 34.9)
Hāna	1,900	600	33.2	(19.4 - 50.7)
Makawao	33,000	10,500	32.0	(28.4 - 35.8)
Wailuku	49,700	16,200	32.6	(29.2 - 36.1)
Lāhainā	13,400	4,200	31.4	(25.5 - 38.1)
Lāna'i	1,900	800	42.7	(37.2 - 48.4)
Moloka'i	6,900	2,500	36.0	(31.4 - 40.9)
Kaua'i County	47,100	15,600	33.2	(30.2 - 36.2)
Hanalei	5,800	2,100	36.9	(29.2 - 45.3)
Kapa'a	14,000	5,100	36.2	(30.9 - 41.8)
Līhu'e	10,800	3,500	32.4	(26.1 - 39.4)
Kōloa	10,400	2,800	26.5	(20.9 - 32.9)
Waimea	6,100	2,200	35.6	(27.7 - 44.3)

Source: State of Hawai'i, Department of Health, Behavioral Risk Factor Surveillance System (BRFSS)

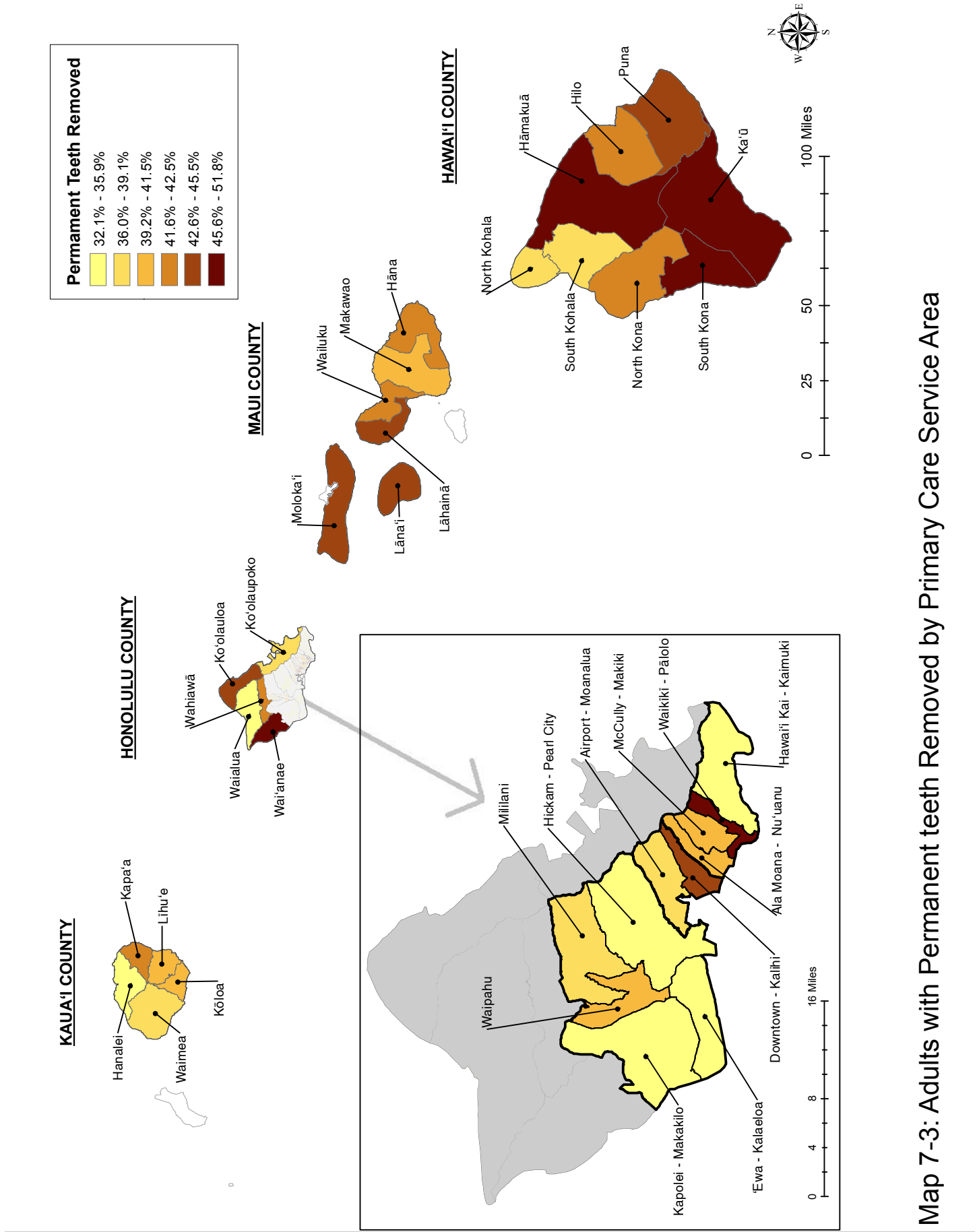


Map 7-2: Adults with No Teeth Cleaning Within Past Year by Primary Care Service Area

Table 7-3: Adults with Permanent Teeth Removed, 2006, 2008, 2010

Service Area	Annual Adult Population (N)	Number with Permanent Teeth Removed (n)	Percent with Permanent Teeth Removed (%)	95% Confidence Interval
State of Hawai'i	995,300	396,700	39.9	(38.9 - 40.8)
Honolulu County	701,900	272,600	38.8	(37.5 - 40.1)
East Honolulu	180,700	69,800	38.6	(36.4 - 40.8)
Hawai'i Kai - Kaimuki	56,500	18,200	32.3	(28.7 - 36.1)
Waikiki - Pālolo	29,500	13,700	46.5	(41.1 - 51.9)
McCully - Makiki	46,300	18,700	40.3	(36.1 - 44.7)
Ala Moana - Nu'uuanu	48,400	19,100	39.5	(35.2 - 44.0)
West Honolulu	89,800	37,100	41.3	(37.6 - 45.2)
Downtown - Kalihi	44,900	19,900	44.4	(39.3 - 49.7)
Airport - Moanalua	44,600	17,100	38.4	(33.0 - 44.2)
'Ewa	247,500	91,000	36.8	(34.7 - 38.9)
Hickam - Pearl City	78,400	27,800	35.5	(32.0 - 39.1)
Waipahu	51,800	21,100	40.8	(35.7 - 46.2)
'Ewa - Kalaeloa	36,800	13,200	35.9	(30.2 - 42.1)
Kapolei - Makakilo	34,100	13,300	39.1	(33.5 - 45.0)
Mililani	46,300	15,500	33.5	(29.2 - 38.1)
Wahiawā	21,900	9,200	42.1	(35.3 - 49.1)
Wai'anae	35,600	17,100	47.9	(40.5 - 55.5)
Waialua	11,300	3,600	32.1	(23.2 - 42.6)
Ko'olauloa	14,800	6,300	42.6	(33.6 - 52.0)
Ko'olaupoko	100,300	38,600	38.4	(35.3 - 41.7)
Hawai'i County	132,800	57,900	43.6	(41.7 - 45.5)
Hilo	43,200	18,200	42.3	(38.9 - 45.7)
Puna	20,700	8,800	42.5	(37.8 - 47.4)
Ka'ū	14,100	7,300	51.8	(45.8 - 57.8)
South Kona	8,600	4,100	47.8	(40.2 - 55.4)
North Kona	22,900	9,600	42.1	(37.8 - 46.4)
South Kohala	11,400	4,400	38.8	(33.1 - 44.9)
North Kohala	4,000	1,500	37.5	(27.3 - 48.9)
Hāmakuā	7,900	3,900	48.9	(39.7 - 58.2)
Maui County	110,100	46,400	42.1	(40.0 - 44.3)
Hāna	1,900	800	42.4	(26.5 - 60.1)
Makawao	33,900	13,400	39.7	(36.0 - 43.5)
Wailuku	51,300	21,800	42.5	(39.1 - 45.9)
Lāhainā	13,900	6,200	44.7	(38.4 - 51.1)
Lāna'i	2,000	900	45.3	(40.0 - 50.8)
Moloka'i	7,100	3,300	45.5	(40.9 - 50.2)
Kaua'i County	48,800	19,500	39.9	(37.1 - 42.8)
Hanalei	5,900	2,100	35.6	(28.8 - 43.0)
Kapa'a	14,600	6,100	41.9	(36.9 - 47.0)
Lihu'e	11,100	4,600	41.5	(35.1 - 48.1)
Kōloa	10,700	4,300	39.9	(33.9 - 46.2)
Waimea	6,400	2,400	36.6	(29.4 - 44.6)

Source: State of Hawai'i, Department of Health, Behavioral Risk Factor Surveillance System (BRFSS)



Map 7-3: Adults with Permanent teeth Removed by Primary Care Service Area

CHAPTER 8: MENTAL HEALTH & SUBSTANCE RELATED ADMISSIONS

This section of the Data Book introduces new indicators related to mental health and substance abuse. Substance use and mental health may contribute to high risk behaviors, worsen existing disease, and result in admissions to hospitals. The burden of mental illness in the United States is among the highest of all diseases, and mental disorders are among the most common causes of disability. Mental health is essential to a person's well-being, healthy family and interpersonal relationships, and the ability to live a full and productive life. Mental health disorders can have harmful and long-lasting effects—including high psychosocial and economic costs—not only for people living with the disorder, but also for their families, schools, workplaces, and communities. Early diagnosis and treatment can decrease the disease burden of mental health disorders as well as associated chronic diseases.¹ In general substance use also has a major impact on individuals, families, and communities. The effects of substance abuse are cumulative, significantly contributing to costly social, physical, mental, and public health problems. These problems include: teenage pregnancy, human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS), other sexually transmitted diseases (STDs), domestic violence, child abuse, motor vehicle crashes, physical fights, crime, homicide, suicide, and chronic diseases.²

The hospital admissions presented includes anyone, regardless of age, in which a mental illness or a substance abuse diagnosis was coded as a primary or secondary diagnoses on any of the up to 20 levels of diagnostic codes reported by the hospitals for each admission is presented. The same hospital admission could occur in multiple indicators in this report if that particular admission had ICD codes from more than one of the disorders listed. The categories used in this report is based on methodology used by the Agency for Healthcare Research and Quality.³ The five most common Mental Illness and Substance Related Disorders from the Hawai'i Health Information Corporation (HHIC) hospitalization data are defined on the next page.

1 US Department of Health and Human Services. Office of Disease Prevention and Health Promotion. Available online at: <http://www.healthypeople.gov/2020/LHI/mentalHealth.aspx>.

2 US Department of Health and Human Services (HHS), Office of Disease Prevention and Health Promotion. Healthy People 2010 midcourse review: Focus area 26, substance abuse [Internet]. Washington: HHS; 2006 [cited 2010 April 12]. Available online at: <http://www.healthypeople.gov/2010/Data/midcourse/pdf/FA26.pdf>

3 Owens P, Myers M, Elixhauser A, Brach C. Care of Adults with Mental Health and Substance Abuse Disorders in U.S. Community Hospitals, 2004- HCUP Fact Book No 10. AHRQ Publication No.)8-0008, January 2007. Available online at: <http://www.adhq.gov/data/hcup/factbk10>.

MENTAL ILLNESS AND SUBSTANCE RELATED INDICATORS

Substance-Related Disorders	=	Alcohol and Drug Related Disorders: ICD-9 code on any of the 20 levels (2910-2915, 2918, 29181, 29189, 2919, 2920, 29211, 29212, 2922, 29281-29284, 29289, 2929, 30300-30303, 30390-30393, 30400-30403, 30410-30413, 30420-30423, 30430-30433, 30440-30443, 30450-30453, 30500-30503, 30540-30543, 30550-30553, 30560-30563, 30570-30573, 30580-30583, 30590-30593, 64830-64834, 65550, 65551, 65553, 76072, 76073, 76075, 7795, 96500-96502, 96509, V6542)
Total Number of Discharges by Service Area		

Mood Disorders	=	Depressive and Bipolar Disorders: ICD-9 code on any of the 20 levels (29600-29606, 29610-29616, 29620-29626, 29630-29636, 29640-29646, 29650-29656, 29660-29666, 2967, 29680-29682, 29689, 29690, 29699, 29383, 3004, 311)
Total Number of Discharges by Service Area		

Delirium/Dementia, Disorders	=	Delirium, Dementia, and Amnesic and Other Cognitive Disorders: ICD-9 code on any of the 20 levels (2900, 29010-29013, 29020-29021, 2903, 29040-29043, 2908, 2909, 2930-2931, 2940, 2941, 29410, 29411, 2948, 2949, 3100, 3102, 3108, 3109, 3310, 3311, 33111, 33119, 3312, 33182, 797)
Total Number of Discharges by Service Area		

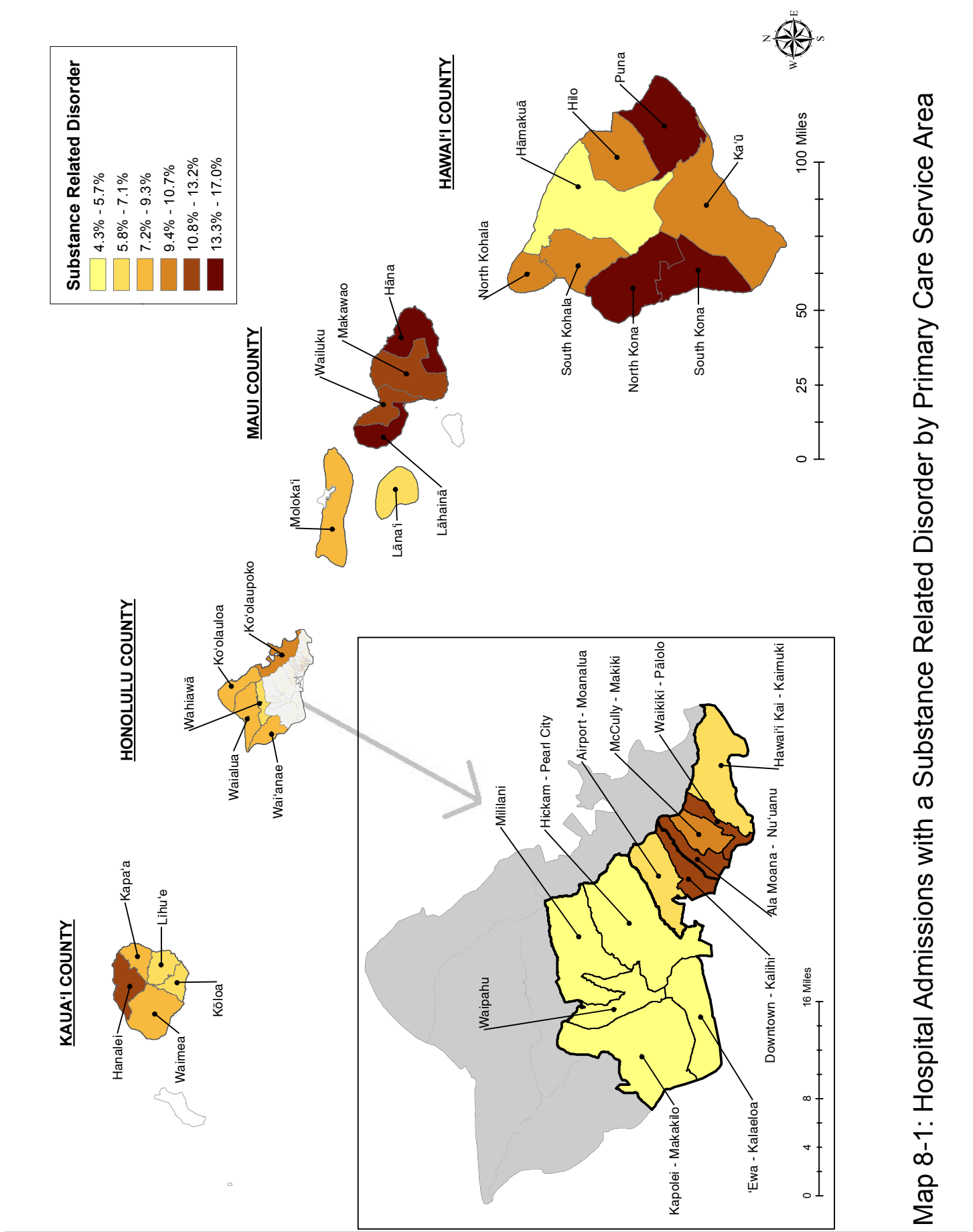
Anxiety Disorders	=	Anxiety Disorders: ICD-9 code on any of the 20 levels (29384, 30000-30002, 30009, 30010, 30020-30023, 30029, 3003, 3005, 30089, 3009, 3080-3084, 3089, 30981, 3130, 3131, 31321, 31322, 3133, 31382, 31383)
Total Number of Discharges by Service Area		

Schizophrenia Disorders	=	Schizophrenia and Other Psychotic Disorders: ICD-9 code on any of the 20 levels (29381, 29382, 29500-29505, 29510-29515, 29520-29525, 29530-29535, 29540-29545, 29550-29555, 29560-29565, 29570-39575, 29580-29585, 29590-29595, 2970-2973, 3978-2984, 2988, 2989)
Total Number of Discharges by Service Area		

Table 8-1: Hospital Admissions with a Substance Related Disorder, 2006-2010

Service Area	Total Hospital Admissions (N)	Number with Substance Related Disorders (n)	Percent with Substance Related Disorders (%)	95% Confidence Interval
State of Hawai'i	650,294	57,715	8.9	(8.8 - 8.9)
Honolulu County	460,221	36,744	8.0	(7.9 - 8.1)
East Honolulu	108,581	11,559	10.6	(10.5 - 10.8)
Hawai'i Kai - Kaimuki	27,676	1,625	5.9	(5.6 - 6.2)
Waikiki - Pālolo	23,279	3,080	13.2	(12.8 - 13.7)
McCully - Makiki	23,827	2,433	10.2	(9.8 - 10.6)
Ala Moana - Nu'uuanu	33,797	4,421	13.1	(12.7 - 13.5)
West Honolulu	72,976	6,354	8.7	(8.5 - 8.9)
Downtown - Kalihi	37,595	4,128	11.0	(10.6 - 11.3)
Airport - Moanalua	35,159	2,172	6.2	(5.9 - 6.4)
'Ewa	145,708	7,152	4.9	(4.8 - 5.0)
Hickam - Pearl City	45,544	2,270	5.0	(4.8 - 5.2)
Waipahu	36,627	1,578	4.3	(4.1 - 4.5)
'Ewa - Kalaeloa	19,253	1,094	5.7	(5.3 - 6.0)
Kapolei - Makakilo	21,396	1,143	5.3	(5.0 - 5.7)
Mililani	22,647	1,021	4.5	(4.2 - 4.8)
Wahiawā	24,590	1,649	6.7	(6.4 - 7.0)
Wai'anae	29,079	2,689	9.2	(8.9 - 9.6)
Waialua	7,060	575	8.1	(7.5 - 8.8)
Ko'olauloa	9,981	907	9.1	(8.5 - 9.7)
Ko'olaupoko	62,097	5,829	9.4	(9.1 - 9.6)
Hawai'i County	87,900	10,059	11.4	(11.2 - 11.7)
Hilo	30,191	3,027	10.0	(9.7 - 10.4)
Puna	17,306	2,305	13.3	(12.8 - 13.9)
Ka'ū	2,703	270	10.0	(8.8 - 11.2)
South Kona	7,400	1,015	13.7	(12.9 - 14.6)
North Kona	13,429	1,855	13.8	(13.2 - 14.4)
South Kohala	10,814	1,155	10.7	(10.1 - 11.3)
North Kohala	2,028	204	10.1	(8.7 - 11.4)
Hāmakuā	4,029	228	5.7	(4.9 - 6.4)
Maui County	68,101	8,134	11.9	(11.7 - 12.2)
Hāna	915	130	14.2	(11.8 - 16.7)
Makawao	17,368	2,133	12.3	(11.8 - 12.8)
Wailuku	36,129	3,965	11.0	(10.6 - 11.3)
Lāhainā	9,209	1,569	17.0	(16.2 - 17.9)
Lāna'i	1,233	77	6.2	(4.9 - 7.6)
Moloka'i	3,247	260	8.0	(7.0 - 9.0)
Kaua'i County	33,983	2,749	8.1	(7.8 - 8.4)
Hanalei	2,805	323	11.5	(10.3 - 12.8)
Kapa'a	10,188	949	9.3	(8.7 - 9.9)
Līhu'e	8,706	614	7.1	(6.5 - 7.6)
Kōloa	6,966	475	6.8	(6.2 - 7.4)
Waimea	5,318	388	7.3	(6.6 - 8.0)

Source: Hawai'i Health Information Corporation (HHIC)

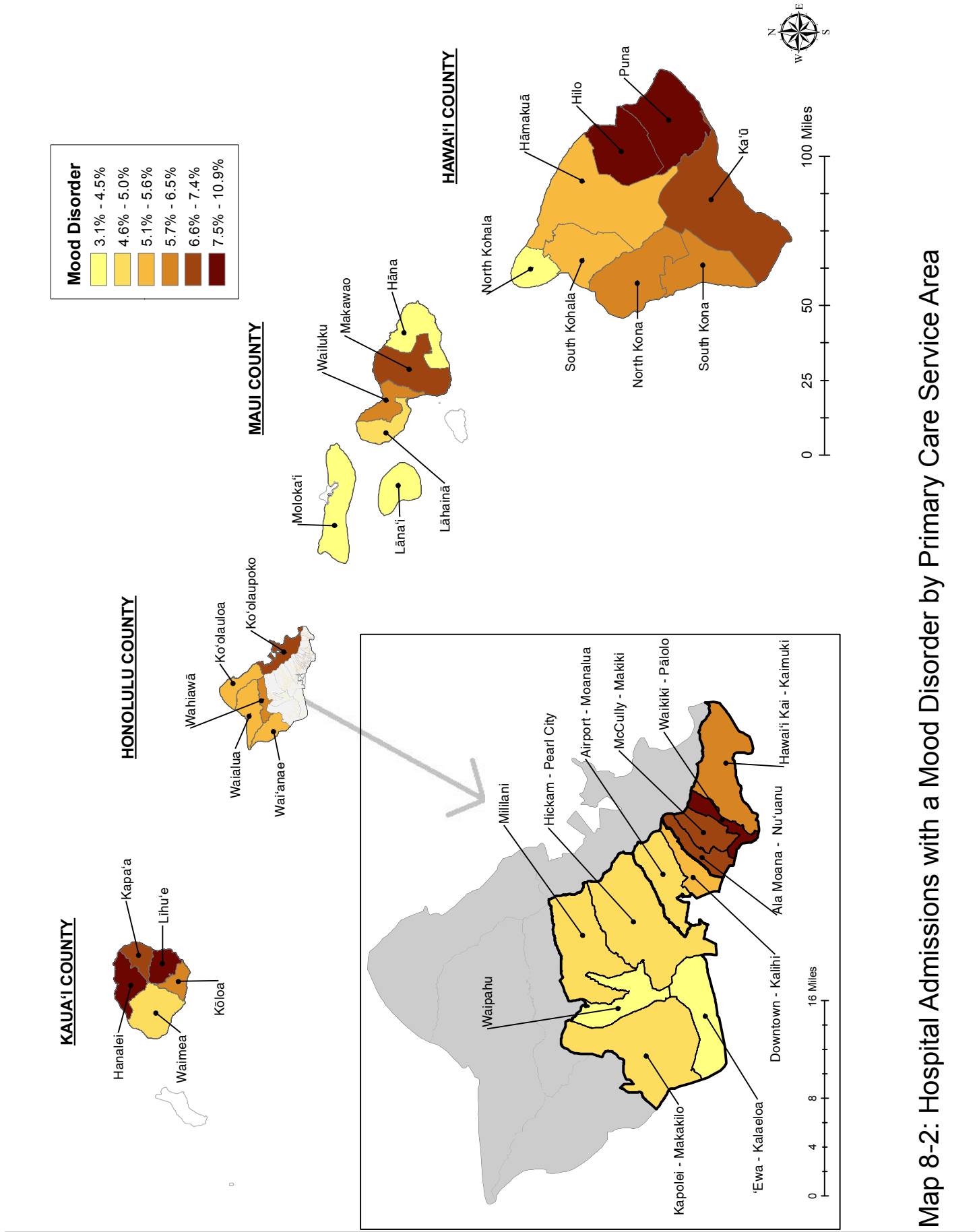


Map 8-1: Hospital Admissions with a Substance Related Disorder by Primary Care Service Area

Table 8-2: Hospital Admissions with a Mood Disorder, 2006-2010

Service Area	Total Hospital Admissions (N)	Number with Mood Disorders (n)	Percent with Mood Disorders (%)	95% Confidence Interval
State of Hawai'i	650,294	39,651	6.1	(6.0 - 6.2)
Honolulu County	460,221	26,355	5.7	(5.7 - 5.8)
East Honolulu	108,581	7,681	7.1	(6.9 - 7.2)
Hawai'i Kai - Kaimuki	27,676	1,742	6.3	(6.0 - 6.6)
Waikiki - Pālolo	23,279	1,795	7.7	(7.4 - 8.1)
McCully - Makiki	23,827	1,645	6.9	(6.6 - 7.2)
Ala Moana - Nu'uuanu	33,797	2,498	7.4	(7.1 - 7.7)
West Honolulu	72,976	3,686	5.1	(4.9 - 5.2)
Downtown - Kalihi	37,595	1,922	5.1	(4.9 - 5.3)
Airport - Moanalua	35,159	1,723	4.9	(4.7 - 5.1)
'Ewa	145,708	6,727	4.6	(4.5 - 4.7)
Hickam - Pearl City	45,544	2,231	4.9	(4.7 - 5.1)
Waipahu	36,627	1,474	4.0	(3.8 - 4.2)
'Ewa - Kalaeloa	19,253	947	4.9	(4.6 - 5.2)
Kapolei - Makakilo	21,396	1,029	4.8	(4.5 - 5.1)
Mililani	22,647	1,017	4.5	(4.2 - 4.8)
Wahiawā	24,590	1,531	6.2	(5.9 - 6.5)
Wai'anae	29,079	1,526	5.2	(5.0 - 5.5)
Waialua	7,060	365	5.2	(4.6 - 5.7)
Ko'olauloa	9,981	551	5.5	(5.1 - 6.0)
Ko'olaupoko	62,097	4,271	6.9	(6.7 - 7.1)
Hawai'i County	87,900	7,009	8.0	(7.8 - 8.2)
Hilo	30,191	2,733	9.1	(8.7 - 9.4)
Puna	17,306	1,885	10.9	(10.4 - 11.4)
Ka'ū	2,703	179	6.6	(5.7 - 7.6)
South Kona	7,400	483	6.5	(5.9 - 7.1)
North Kona	13,429	830	6.2	(5.8 - 6.6)
South Kohala	10,814	583	5.4	(5.0 - 5.8)
North Kohala	2,028	92	4.5	(3.6 - 5.5)
Hāmakuā	4,029	224	5.6	(4.8 - 6.3)
Maui County	68,101	3,983	5.8	(5.7 - 6.0)
Hāna	915	31	3.4	(2.2 - 4.6)
Makawao	17,368	1,198	6.9	(6.5 - 7.3)
Wailuku	36,129	2,158	6.0	(5.7 - 6.2)
Lāhainā	9,209	456	5.0	(4.5 - 5.4)
Lāna'i	1,233	39	3.2	(2.2 - 4.2)
Moloka'i	3,247	101	3.1	(2.5 - 3.7)
Kaua'i County	33,983	2,300	6.8	(6.5 - 7.0)
Hanalei	2,805	223	8.0	(6.9 - 9.0)
Kapa'a	10,188	740	7.3	(6.7 - 7.8)
Lihu'e	8,706	653	7.5	(6.9 - 8.1)
Kōloa	6,966	434	6.2	(5.6 - 6.8)
Waimea	5,318	250	4.7	(4.1 - 5.3)

Source: Hawai'i Health Information Corporation (HHIC)

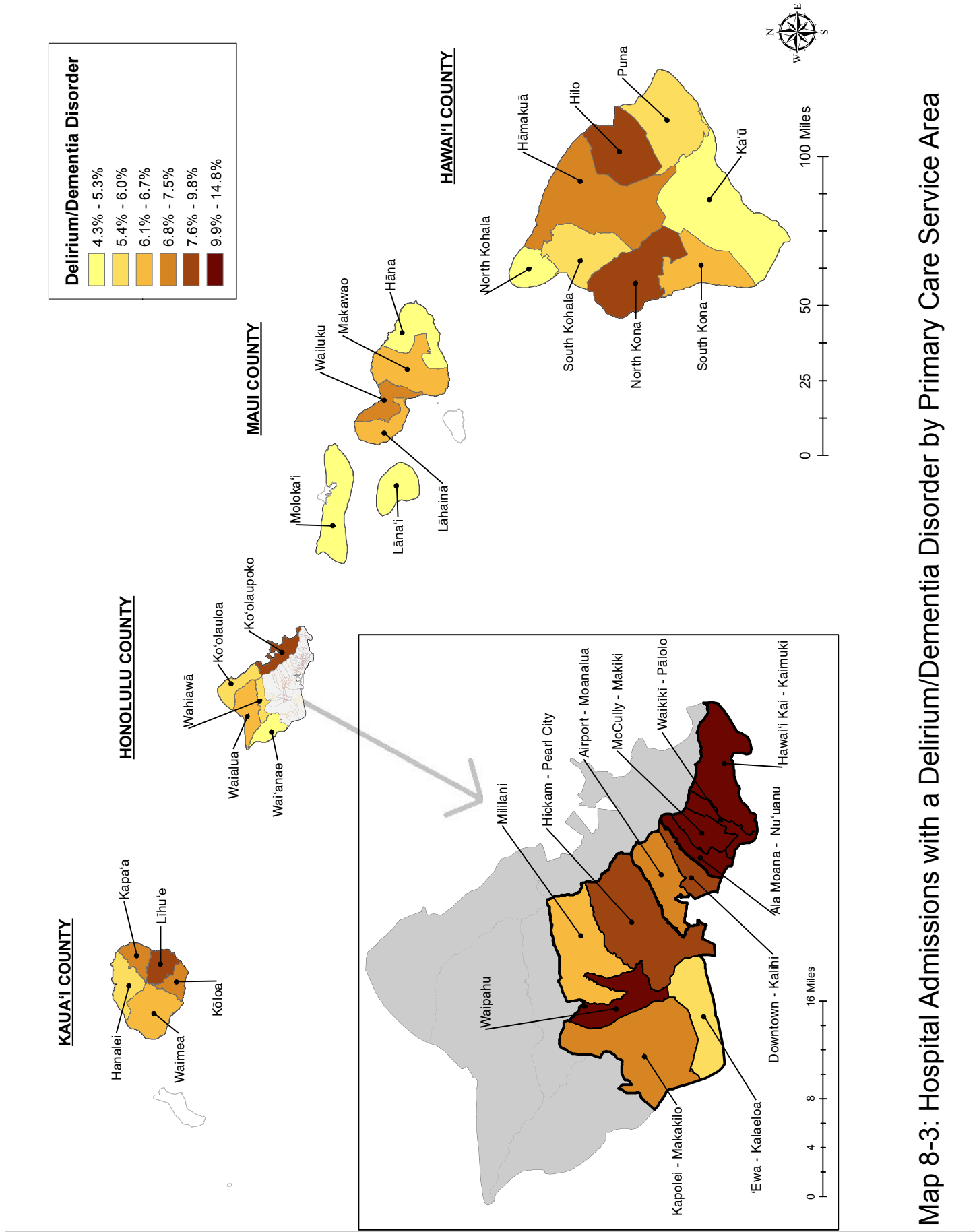


Map 8-2: Hospital Admissions with a Mood Disorder by Primary Care Service Area

Table 8-3: Hospital Admissions with a Delirium/Dementia Disorder, 2006-2010

Service Area	Total Hospital Admissions (N)	Number with Delirium/Dementia Disorders (n)	Percent with Delirium/Dementia Disorders (%)	95% Confidence Interval
State of Hawai'i	650,294	54,790	8.4	(8.4 - 8.5)
Honolulu County	460,221	41,571	9.0	(8.9 - 9.1)
East Honolulu	108,581	13,439	12.4	(12.2 - 12.6)
Hawai'i Kai - Kaimuki	27,676	4,106	14.8	(14.4 - 15.3)
Waikiki - Pālolo	23,279	2,738	11.8	(11.3 - 12.2)
McCully - Makiki	23,827	2,844	11.9	(11.5 - 12.4)
Ala Moana - Nu'uuanu	33,797	3,751	11.1	(10.7 - 11.5)
West Honolulu	72,976	6,238	8.5	(8.3 - 8.8)
Downtown - Kalihi	37,595	3,589	9.5	(9.2 - 9.9)
Airport - Moanalua	35,159	2,627	7.5	(7.2 - 7.8)
'Ewa	145,708	12,370	8.5	(8.3 - 8.6)
Hickam - Pearl City	45,544	4,453	9.8	(9.5 - 10.1)
Waipahu	36,627	3,830	10.5	(10.1 - 10.8)
'Ewa - Kalaeloa	19,253	1,348	7.0	(6.6 - 7.4)
Kapolei - Makakilo	21,396	1,429	6.7	(6.3 - 7.0)
Mililani	22,647	1,296	5.7	(5.4 - 6.0)
Wahiawā	24,590	1,348	5.5	(5.2 - 5.8)
Wai'anae	29,079	1,478	5.1	(4.8 - 5.3)
Waialua	7,060	459	6.5	(5.9 - 7.1)
Ko'olauloa	9,981	590	5.9	(5.4 - 6.4)
Ko'olaupoko	62,097	5,633	9.1	(8.8 - 9.3)
Hawai'i County	87,900	6,268	7.1	(7.0 - 7.3)
Hilo	30,191	2,731	9.0	(8.7 - 9.4)
Puna	17,306	946	5.5	(5.1 - 5.8)
Ka'ū	2,703	121	4.5	(3.7 - 5.3)
South Kona	7,400	492	6.6	(6.1 - 7.2)
North Kona	13,429	1,006	7.5	(7.0 - 8.0)
South Kohala	10,814	589	5.4	(5.0 - 5.9)
North Kohala	2,028	108	5.3	(4.3 - 6.3)
Hāmakuā	4,029	275	6.8	(6.0 - 7.6)
Maui County	68,101	4,408	6.5	(6.3 - 6.7)
Hāna	915	47	5.1	(3.7 - 6.6)
Makawao	17,368	1,080	6.2	(5.8 - 6.6)
Wailuku	36,129	2,499	6.9	(6.6 - 7.2)
Lāhainā	9,209	581	6.3	(5.8 - 6.8)
Lāna'i	1,233	62	5.0	(3.8 - 6.3)
Moloka'i	3,247	139	4.3	(3.6 - 5.0)
Kaua'i County	33,983	2,534	7.5	(7.2 - 7.7)
Hanalei	2,805	167	6.0	(5.1 - 6.9)
Kapa'a	10,188	744	7.3	(6.8 - 7.8)
Lihū'e	8,706	810	9.3	(8.7 - 9.9)
Kōloa	6,966	484	6.9	(6.3 - 7.6)
Waimea	5,318	329	6.2	(5.5 - 6.9)

Source: Hawai'i Health Information Corporation (HHIC)



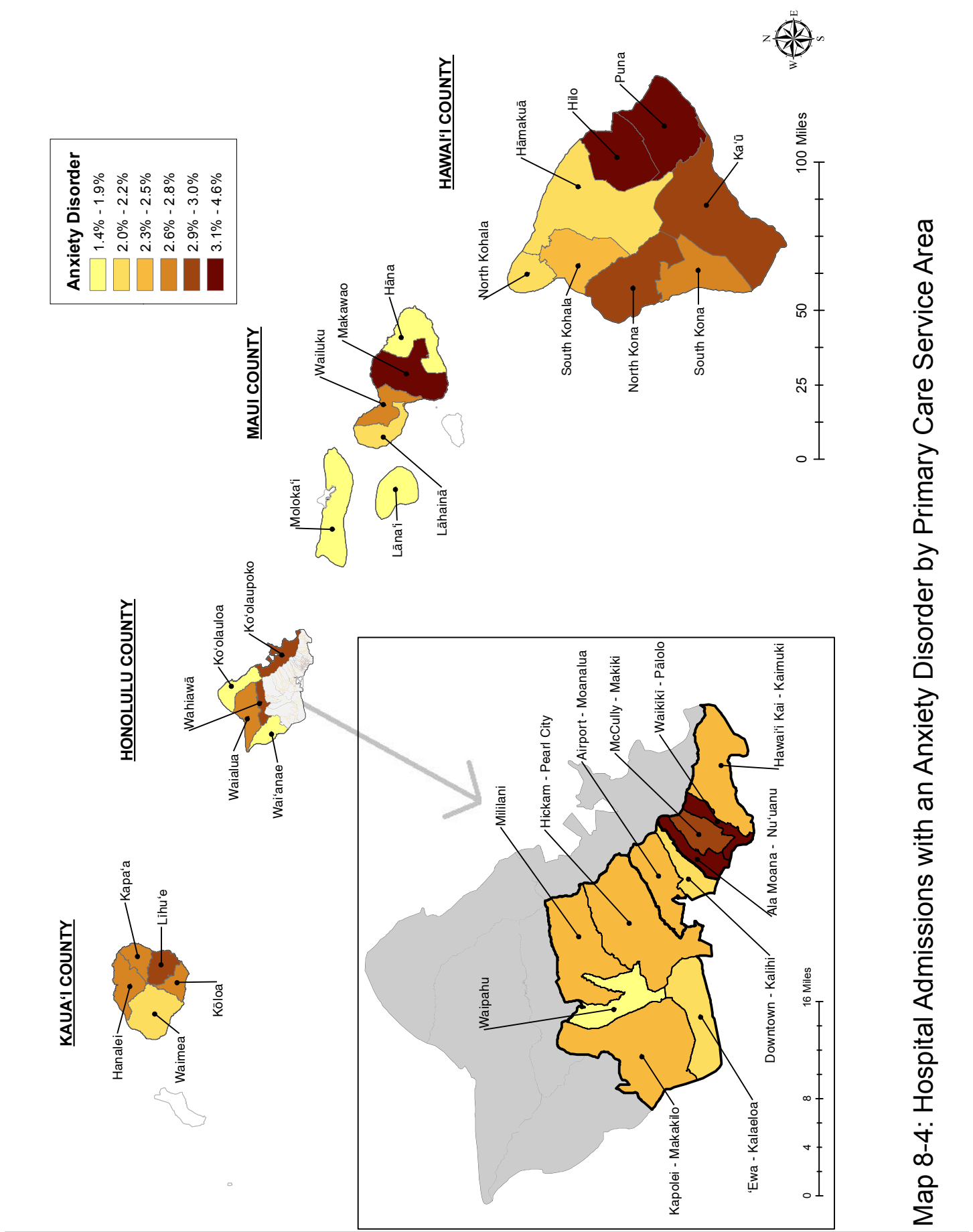
Map 8-3: Hospital Admissions with a Delirium/Dementia Disorder by Primary Care Service Area

Table 8-4: Hospital Admissions with an Anxiety Disorder, 2006-2010

Service Area	Total Hospital Admissions (N)	Number with Anxiety Disorders (n)	Percent with Anxiety Disorders (%)	95% Confidence Interval
State of Hawai'i	650,294	16,960	2.6	(2.6 - 2.6)
Honolulu County	460,221	11,449	2.5	(2.4 - 2.5)
East Honolulu	108,581	3,196	2.9	(2.8 - 3.0)
Hawai'i Kai - Kaimuki	27,676	664	2.4	(2.2 - 2.6)
Waikiki - Pālolo	23,279	799	3.4	(3.2 - 3.7)
McCully - Makiki	23,827	680	2.9	(2.6 - 3.1)
Ala Moana - Nu'uuanu	33,797	1,053	3.1	(2.9 - 3.3)
West Honolulu	72,976	1,645	2.3	(2.1 - 2.4)
Downtown - Kalihi	37,595	793	2.1	(2.0 - 2.3)
Airport - Moanalua	35,159	827	2.4	(2.2 - 2.5)
'Ewa	145,708	3,186	2.2	(2.1 - 2.3)
Hickam - Pearl City	45,544	1,075	2.4	(2.2 - 2.5)
Waipahu	36,627	615	1.7	(1.5 - 1.8)
'Ewa - Kalaeloa	19,253	452	2.3	(2.1 - 2.6)
Kapolei - Makakilo	21,396	526	2.5	(2.2 - 2.7)
Mililani	22,647	497	2.2	(2.0 - 2.4)
Wahiawā	24,590	730	3.0	(2.8 - 3.2)
Wai'anae	29,079	545	1.9	(1.7 - 2.0)
Waialua	7,060	179	2.5	(2.2 - 2.9)
Ko'olauloa	9,981	161	1.6	(1.4 - 1.9)
Ko'olaupoko	62,097	1,797	2.9	(2.8 - 3.0)
Hawai'i County	87,900	2,873	3.3	(3.1 - 3.4)
Hilo	30,191	1,052	3.5	(3.3 - 3.7)
Puna	17,306	790	4.6	(4.2 - 4.9)
Ka'ū	2,703	80	3.0	(2.3 - 3.6)
South Kona	7,400	205	2.8	(2.4 - 3.1)
North Kona	13,429	377	2.8	(2.5 - 3.1)
South Kohala	10,814	246	2.3	(2.0 - 2.6)
North Kohala	2,028	45	2.2	(1.6 - 2.9)
Hāmakuā	4,029	78	1.9	(1.5 - 2.4)
Maui County	68,101	1,737	2.6	(2.4 - 2.7)
Hāna	915	15	1.6	
Makawao	17,368	560	3.2	(3.0 - 3.5)
Wailuku	36,129	898	2.5	(2.3 - 2.6)
Lāhainā	9,209	201	2.2	(1.9 - 2.5)
Lāna'i	1,233	18	1.5	
Moloka'i	3,247	45	1.4	(1.0 - 1.8)
Kaua'i County	33,983	899	2.6	(2.5 - 2.8)
Hanalei	2,805	75	2.7	(2.1 - 3.3)
Kapa'a	10,188	275	2.7	(2.4 - 3.0)
Līhu'e	8,706	252	2.9	(2.5 - 3.3)
Kōloa	6,966	195	2.8	(2.4 - 3.2)
Waimea	5,318	102	1.9	(1.5 - 2.3)

Source: Hawai'i Health Information Corporation (HHIC)

Notes: No confidence intervals were computed when the number of events were less than 20. Standardized ratios less than 200 implies that the rates were not significantly higher than those for the State of Hawai'i. See Family Health Outcomes Project (FHOP), Guidelines for Using Federal Data Templates with Small Numbers (1997).



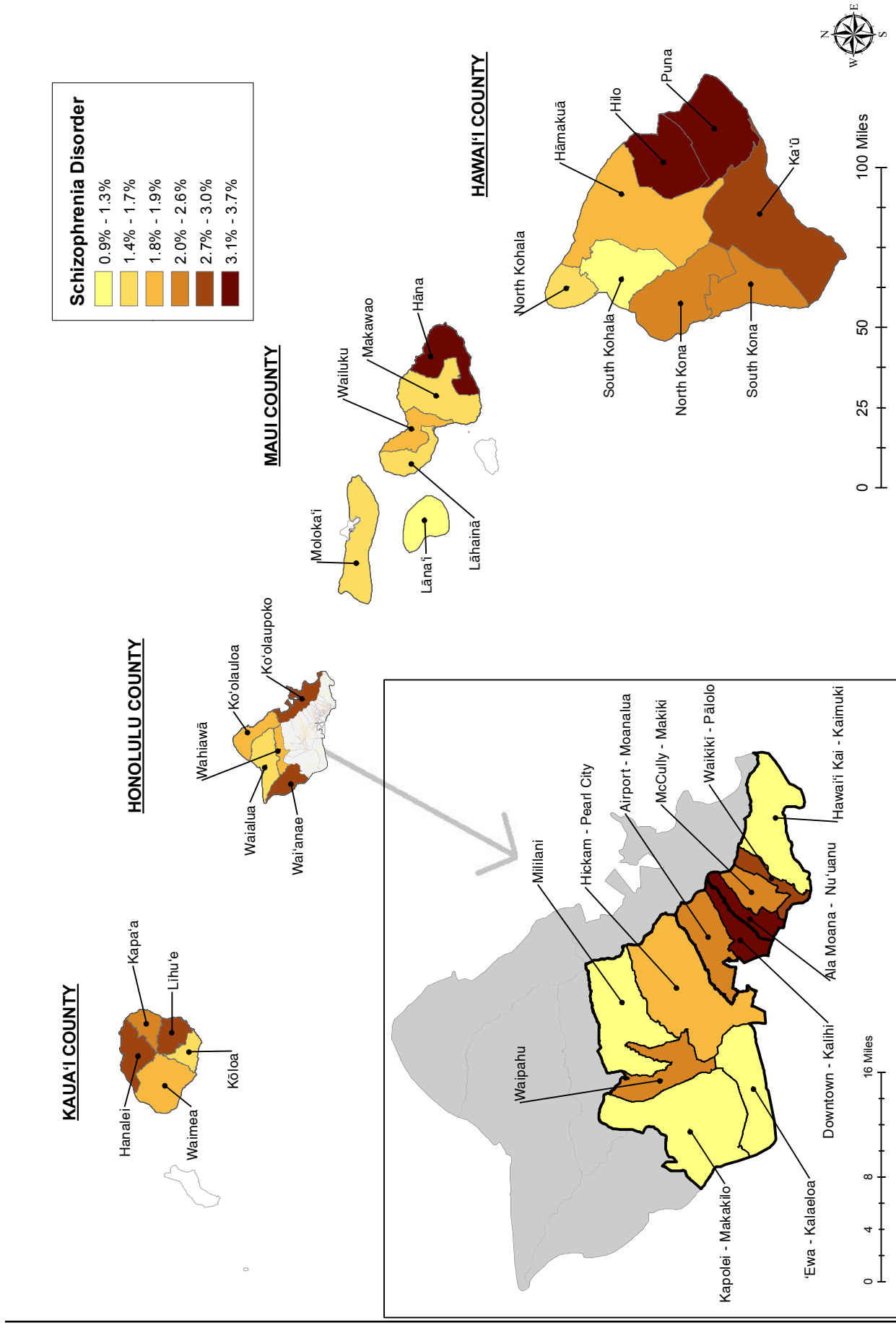
Map 8-4: Hospital Admissions with an Anxiety Disorder by Primary Care Service Area

Table 8-5: Hospital Admissions with a Schizophrenia Disorder, 2006-2010

Service Area	Total Hospital Admissions (N)	Number with Schizophrenia Disorders (n)	Percent with Schizophrenia Disorders (%)	95% Confidence Interval
State of Hawai'i	650,294	14,738	2.3	(2.2 - 2.3)
Honolulu County	460,221	10,506	2.3	(2.2 - 2.3)
East Honolulu	108,581	2,882	2.7	(2.6 - 2.8)
Hawai'i Kai - Kaimuki	27,676	363	1.3	(1.2 - 1.4)
Waikiki - Pālolo	23,279	654	2.8	(2.6 - 3.0)
McCully - Makiki	23,827	625	2.6	(2.4 - 2.8)
Ala Moana - Nu'uuanu	33,797	1,240	3.7	(3.5 - 3.9)
West Honolulu	72,976	1,957	2.7	(2.6 - 2.8)
Downtown - Kalihi	37,595	1,223	3.3	(3.1 - 3.4)
Airport - Moanalua	35,159	714	2.0	(1.9 - 2.2)
'Ewa	145,708	2,419	1.7	(1.6 - 1.7)
Hickam - Pearl City	45,544	776	1.7	(1.6 - 1.8)
Waipahu	36,627	898	2.5	(2.3 - 2.6)
'Ewa - Kalaeloa	19,253	246	1.3	(1.1 - 1.4)
Kapolei - Makakilo	21,396	248	1.2	(1.0 - 1.3)
Mililani	22,647	244	1.1	(0.9 - 1.2)
Wahiawā	24,590	411	1.7	(1.5 - 1.8)
Wai'anae	29,079	804	2.8	(2.6 - 3.0)
Waialua	7,060	103	1.5	(1.2 - 1.7)
Ko'olauloa	9,981	187	1.9	(1.6 - 2.1)
Ko'olaupoko	62,097	1,735	2.8	(2.7 - 2.9)
Hawai'i County	87,900	2,355	2.7	(2.6 - 2.8)
Hilo	30,191	1,057	3.5	(3.3 - 3.7)
Puna	17,306	566	3.3	(3.0 - 3.5)
Ka'ū	2,703	81	3.0	(2.3 - 3.6)
South Kona	7,400	154	2.1	(1.8 - 2.4)
North Kona	13,429	274	2.0	(1.8 - 2.3)
South Kohala	10,814	121	1.1	(0.9 - 1.3)
North Kohala	2,028	29	1.4	(0.9 - 2.0)
Hāmakuā	4,029	73	1.8	(1.4 - 2.2)
Maui County	68,101	1,078	1.6	(1.5 - 1.7)
Hāna	915	31	3.4	(2.2 - 4.6)
Makawao	17,368	249	1.4	(1.3 - 1.6)
Wailuku	36,129	612	1.7	(1.6 - 1.8)
Lāhainā	9,209	128	1.4	(1.1 - 1.6)
Lāna'i	1,233	11	0.9	
Moloka'i	3,247	47	1.4	(1.0 - 1.9)
Kaua'i County	33,983	793	2.3	(2.2 - 2.5)
Hanalei	2,805	80	2.9	(2.2 - 3.5)
Kapa'a	10,188	264	2.6	(2.3 - 2.9)
Lihu'e	8,706	245	2.8	(2.5 - 3.2)
Kōloa	6,966	115	1.7	(1.3 - 2.0)
Waimea	5,318	89	1.7	(1.3 - 2.0)

Source: Hawai'i Health Information Corporation (HHIC)

Notes: No confidence intervals were computed when the number of events were less than 20. Standardized ratios less than 200 implies that the rates were not significantly higher than those for the State of Hawai'i. See Family Health Outcomes Project (FHOP), Guidelines for Using Federal Data Templates with Small Numbers (1997).



Map 8-5: Hospital Admissions with a Schizophrenia Disorder by Primary Care Service Area

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To request additional copies of the Primary Care Needs Assessment Data Book, call (808) 733-8364 or fax (808) 733-8369.

The Primary Care Needs Assessment Data Book is also available on the internet at:
<http://hawaii.gov/health/doc/pcna2012datobook.pdf>

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