

**An Analysis of the Demand
for Primary Care Practitioners in the Medical Service Area of
Kula Hospital and Clinic in Maui County, Hawai'i**



Prepared by:

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Introduction

This report will examine the need for primary care practitioners in the medical service area of Kula Hospital and Clinic in Maui County, Hawai'i. Primary care practitioners include family practice or general medicine physicians, internal medicine physicians, OB/GYN, pediatricians and mid-level primary care practitioners. Specifically, the study will:

1. Illustrate the population of the medical service area (MSA) of Kula Hospital and Clinic;
2. Estimate total office visits and primary care physician office visits in the MSA of Kula Hospital and Clinic; and
3. Estimate the total demand for primary care practitioners in the MSA of Kula Hospital and Clinic based on local usage rates.

No recommendations will be made. The information included in this report is designed to assist local decision-makers in assessing the need and potential for primary care practitioner services

Medical Service Area of Kula Hospital and Clinic

The medical service area (MSA) of Kula hospital and Clinic includes three zip code areas: 69708 Ha'ikū-Pa'uwela, 96768 Makawao, and 96790/96788 Kula/Pukalani. **Figure 1** illustrates these zip code areas. Kula Hospital and Clinic is located in the 96790 zip code. Therefore, it was assumed that 80 percent of the population from that zip code would utilize the primary health care services at the hospital and/or clinic; whereas, 10 percent usage is assumed from zip code 96708 and 50 percent from zip code 96768.

Table 1 presents the 2010 U.S. Census population by age and gender in the Kula MSA. The total population for the MSA was 35,953. **Table 2** presents the estimated number of annual physician office visits by age and gender. For instance, for males under age fifteen, the average number of annual physician office visits is 2.8 visits per year. These data were from the National Ambulatory Health Care Survey: 2010 Summary Tables from the U. S. Department of Health and Human Services.

Table 3 presents the number of annual physician office visits generated in the MSA by zip code. These office visits were estimated by multiplying the 2010 estimated population by age and gender of each zip code by the estimated number of annual physician office visits. Of these total office visits, recent data indicate that 55.5 percent of total physician office visits will be made to practitioners active in primary patient care while the remainder will be made to specialists [3].

Using the office visit data presented in **Table 2**, the population in zip code 96708 will generate 33,432 annual visits. The other zip code areas, 96768 and 96790/96788, will generate 59,043 and 28,371 total office visits, respectively. The 35,953 residents located in the MSA of the Kula Hospital and Clinic will generate an estimated 120,846 total annual physician office visits. The local primary care physician office visits for each zip code were calculated based on the 55.5 percent of total office visits to primary care physicians.

Figure 1
Medical Service Area of Kula Hospital

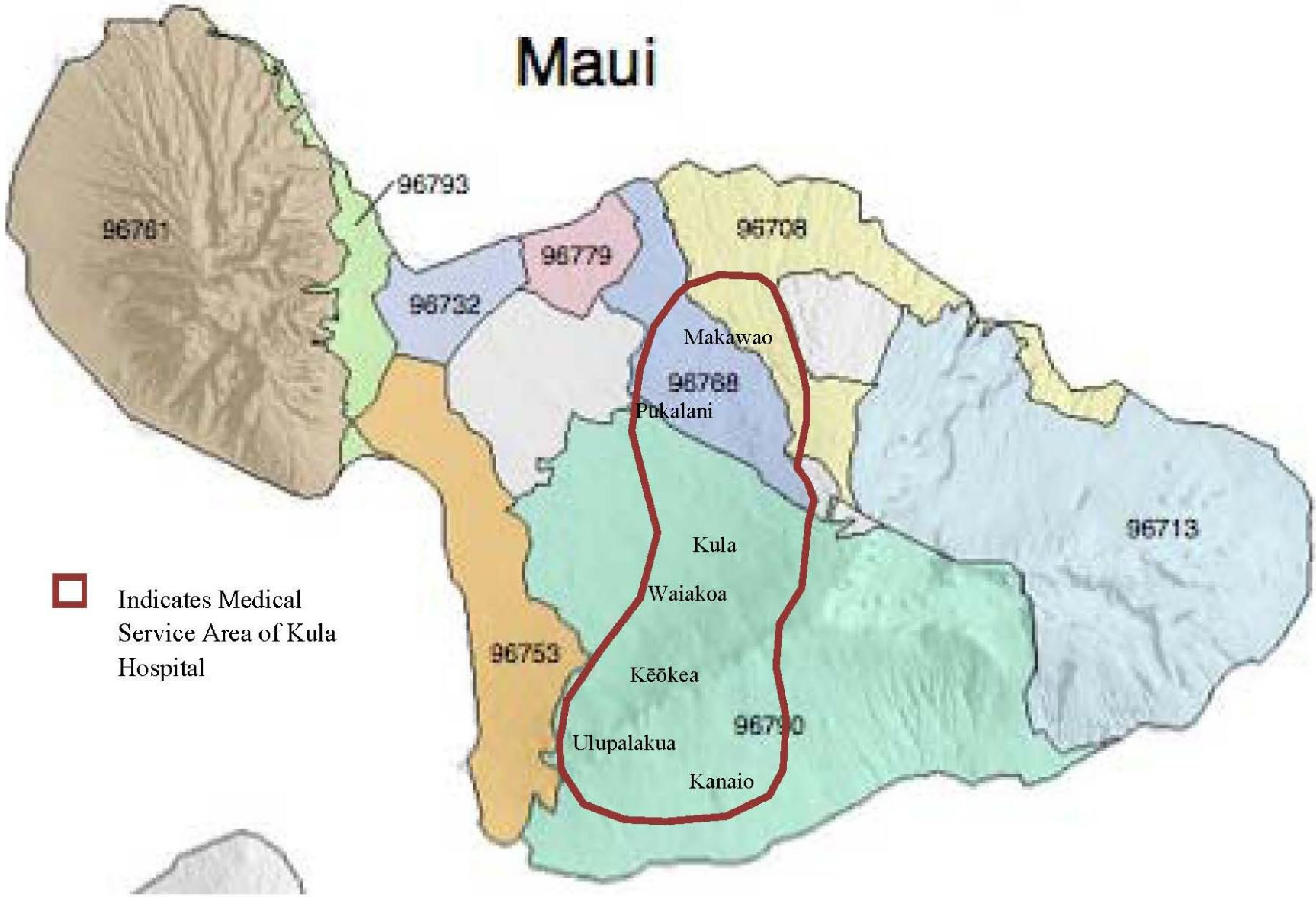


Table 1
Kula Hospital and Clinic Medical Service Area Population by Zip Code Areas, 2010

Age	<u>96708</u>		<u>96768</u>		<u>96790/96788</u>		<u>Medical Service Area</u>		<u>2010</u>
	Male	Female	Male	Female	Male	Female	Male	Female	Total
< 15	1,005	888	1,718	1,666	682	712	3,405	3,266	6,671
15-24	599	476	1,153	1,018	386	392	2,138	1,886	4,024
25-44	1,414	1,426	2,285	2,306	863	906	4,562	4,638	9,200
45-64	1,753	1,707	2,672	2,756	1,499	1,499	5,924	5,962	11,886
65-74	337	281	630	593	351	338	1,318	1,212	2,530
75+	<u>136</u>	<u>198</u>	<u>353</u>	<u>518</u>	<u>189</u>	<u>248</u>	<u>678</u>	<u>964</u>	<u>1,642</u>
Total	5,244	4,976	8,811	8,857	3,970	4,095	18,025	17,928	35,953

SOURCE: U.S. Census, 2010, www.census.gov.

Table 2
Annual Physician Office Visits by Age Group

Age Group	Male Visit Rate ¹	Female Visit Rate ¹
< 15	2.8	2.6
15-24	1.4	2.5
25-44	1.7	3.4
45-64	3.2	4.2
65-74	6.0	6.5
75+	7.6	6.9

¹ Source: U. S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center of Health Statistics, "National Ambulatory Medical Care Survey: 2010 Summary Tables."

Table 3
Annual Primary Care Office Visits Generated in Kula Medical Service Area

Age	Male			Female			Total Visits
	2010 Population ¹	Visit Rate ²	Visits	2010 Population ¹	Visit Rate ²	Visits	
Zip Code 96768							
< 15	1,005	2.8	2,814	888	2.6	2,309	5,123
15-24	599	1.4	839	476	2.5	1,190	2,029
25-44	1,414	1.7	2,404	1,426	3.4	4,848	7,252
45-64	1,753	3.2	5,610	1,707	4.2	7,169	12,779
65-74	337	6.0	2,022	281	6.5	1,827	3,849
75+	136	7.6	<u>1,034</u>	198	6.9	<u>1,366</u>	<u>2,400</u>
Subtotal	5,244		14,723	4,976		18,709	33,432
Local Primary Care Office Visits Per Year (55.5 percent of 33,432)							18,555
Zip Code 96768							
< 15	1,718	2.8	4,810	1,666	2.6	4,332	9,142
15-24	1,153	1.4	1,614	1,018	2.5	2,545	4,159
25-44	2,285	1.7	3,885	2,306	3.4	7,840	11,725
45-64	2,672	3.2	8,550	2,756	4.2	11,575	20,125
65-74	630	6.0	3,780	593	6.5	3,855	7,635
75+	353	7.6	<u>2,683</u>	518	6.9	<u>3,574</u>	<u>6,257</u>
Subtotal	8,811		25,322	8,857		33,721	59,043
Local Primary Care Office Visits Per Year (55.5 percent of 59,043)							32,769
Zip Code 96790/96788							
< 15	682	2.8	1,910	712	2.6	1,851	3,761
15-24	386	1.4	540	392	2.5	980	1,520
25-44	863	1.7	1,467	906	3.4	3,080	4,547
45-64	1,499	3.2	4,797	1,499	4.2	6,296	11,093
65-74	351	6.0	2,106	338	6.5	2,197	4,303
75+	189	7.6	<u>1,436</u>	248	6.9	<u>1,711</u>	<u>3,147</u>
Subtotal	3,970		12,256	4,095		16,115	28,371
Local Primary Care Office Visits Per Year (55.5 percent of 28,371)							15,746

¹Source: U.S Census, 2010, www.census.gov.

²Source: U. S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center of Health Statistics, "National Ambulatory Medical Care Survey: 2010 Summary Tables."

The total number of primary care office visits given various usage rates is presented in **Table 4** for each zip code area in the MSA. The usage levels will not be the same for all zip code areas depending on location of physicians, geographic or transportation barriers and personal preferences. As stated earlier, most, if not all, of the primary care visits from the Kula/Pukalani zip code area (96790/96788) will likely occur at the Kula Hospital and Clinic. The other zip codes could have varied usage levels. For purposes of this study, it was assumed that usage rates were 10 percent for zip code 96708, 50 percent for zip code 96768 and 80 percent for zip code area 96790/96788.

Table 4
Primary Care Office Visits Given Usage by Local Residents
in the Medical Service Area of Kula Hospital and Clinic by Zip Code Areas

	Usage Levels					
	5%	10%	15%	20%	25%	30%
Medical Service Area Zip Code 96708						
Office Visits by Usage Levels	928	1,856	2,783	3,711	4,639	5,567
<hr/>						
	40%	45%	50%	55%	60%	65%
Medical Service Area Zip Code 96768						
Office Visits by Usage Levels	13,108	14,746	16,385	18,023	19,661	21,300
<hr/>						
	75%	80%	85%	90%	95%	100%
Medical Service Area Zip Code 96790/96788						
Office Visits by Usage Levels	11,810	12,597	13,384	14,171	14,959	15,746

A 10% usage level in the primary MSA Zip Code **96708**, 50% in Zip Code **96768**, and 80% in the combined Zip Codes **96790/96788** results in **30,838** total primary care physician office visits for an estimated need of **6.2** Total Primary Care Physicians*

* Based on 5,000 average annual primary care office visits per primary care physician practice.

Utilizing these percents, the three zip code areas of the Kula MSA would have 30,838 total primary care physician visits and could support an estimated 6.2 primary care physicians.

The national average for the number of annual office visits to each primary care physician is 5,000 [3]. Mid-level practitioners could be utilized to replace 0.5 primary care physicians to cover 2,500 primary care office visits each. The table is designed to easily change the percent usage from each of the three zip code areas and predict physician needs.

Another alternative would be to estimate the number of primary care physicians from the Kula/Pukalani zip code area only. This alternative truly identifies the need for physicians in the Kula Hospital and Clinic MSA. Given a 100 percent usage rate, an estimated 15,746 primary care visits could support 3.1 primary care physicians. This clearly demonstrates a significant shortage of physicians in the Kula Hospital and Clinic MSA.

Users of the data will have to choose the most appropriate utilization rates and estimate primary care practitioner needs based on local knowledge. All assumptions and local conditions, including the actual utilization levels must be taken into consideration by local decision-makers before determining if additional practitioners could successfully locate in the MSA of Kula Hospital and Clinic. Again, primary care practitioners include family practice and general medicine physicians, internal medicine physicians, OB/GYN, pediatricians and mid-level primary care practitioners. All of these types of practitioners should be considered when analyzing the primary care practitioner needs in the MSA.

Summary

The analysis above presents the methodology and results for estimating the need for primary care practitioners in the medical service area of Kula Hospital and Clinic, located in Maui County, Hawaii. The actual number of physicians that the MSA of Kula Hospital and Clinic can support will vary based on the locally-determined usage rates. Estimates of these usage rates should be used in conjunction with the current status of the primary care physicians and mid-level practitioners in the primary MSA to determine the next steps for the community.

Many assumptions have been made in this analysis. These include items that may change, such as the population in the MSA or the delineation of the zip code areas. For example, the percent usage levels of the three zip code areas identified as the primary MSA of Kula Hospital and Clinic may change due to the exit or entry of physicians or mid-level practitioners from nearby communities. Should this occur, revised estimates of office visits should be calculated.

All assumptions should be closely examined by local decision-makers to verify that they reflect local conditions. If additional local data are available, these data should be utilized to derive the most realistic conclusion possible for the local community.

References

- [1] Doeksen, G.A., Miller, K.A., Shelton, P.J., and Miller, D.A., "Family Medicine – A Systematic Approach to the Planning and Development of a Community Practice," University of Oklahoma Health Sciences Center, 1990.
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- [3] U. S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center of Health Statistics, "National Ambulatory Medical Care Survey: 2008 Summary Tables.