

# **Frontier Extended Stay Clinic Project: Report on 36 Months of Data**

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## Executive Summary

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The Alaska Frontier Extended Stay Clinic (FESC) Consortium contracted with the Alaska Center for Rural Health – Alaska’s AHEC, UAA (ACRH) for evaluating the Alaska Frontier Extended Stay Clinic Demonstration Project. ACRH agreed to assess the impact of the FESC Project at the five participating clinics from the following four perspectives:

1. Impact on staffing,
2. Impact on clinical services,
3. Impact on quality/disposition, and
4. Impact on finance.

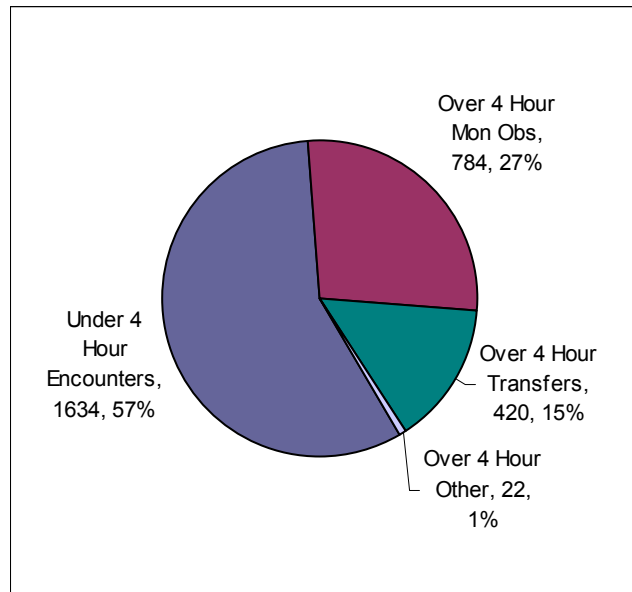
The first perspective, staffing, was assessed through in-person, qualitative interviews at each clinic close to the commencement of data collection and approximately each year thereafter. The last three perspectives were (and continue to be) assessed using quantitative data for each FESC encounter, collected by the clinics and transmitted to ACRH via an on-line data tracking system—the Clinical Outcome Log. Reports documenting the impact on staffing and finance have been provided separately.

The five participating clinics are Alicia Roberts Medical Center (ARMC) in Klawock, Alaska; Cross Road Medical Center (CRMC) in Glennallen, Alaska; Iliuliuk Family Health Services (IFHS) in Unalaska, Alaska; Inter-Island Medical Center (IIMC) in Friday Harbor, Washington; and the Haines Medical Center (HMC) in Haines, Alaska.

This report presents an analysis and discussion of the quantitative data of impact on clinical services for all five participating clinics. For the purposes of this report, the data for a total of 1,226 FESC encounters (greater than or equal to four hours) and 1,634 encounters of less than four hours were analyzed (see Figure ES1), representing the total encounters between September 15, 2005, and September 14, 2008, for ARMC, CRMC, IIMC, and IFHS; and between September 15, 2006, and September 14, 2008, for HMC (which entered the project later than the others). Thus, the data set for each clinic includes two or three years of encounters, capturing important seasonal variations, such as fishing season in Unalaska and tourist season in Friday Harbor and Glennallen. Each clinic reported the following total number of FESC encounters: ARMC, 323; CRMC, 259; IFHS, 474; IIMC, 50; and HMC, 120 (for its two years).

As we gather more data, patterns and trends among the five clinics emerge. With respect to some variables, aggregated data are useful. However, there were some impacts on clinical services driven by access to transfer options, geographic location, and age of the population served which display unique characteristics for some of the clinics.

**Figure ES1. Type of Encounters at FESC Sites Over Three Data Years**



Over the entire data collection period, the mean length of project FESC encounters was 8.8 hours—9.0 hours for monitoring and observations and 8.4 hours for transfers. Time descriptors for FESC encounters were familiarly similar from clinic to clinic.

CRMC was characterized by longest mean encounters for overall FESC encounters at 11.6 hours. Looking between monitoring and observation and transfers, this longer mean is driven by their monitoring and observation encounters that have a mean of 13.6 hours. The longest transfer mean—10.9 hours—was at IFHS.

The remaining clinics—ARMC, IIMC, and HMC—have overall FESC monitoring and observation and transfer means within 1.5 hours of each other.

**Table ES1. Overall FESC, Monitoring and Observation, and Transfer Encounters Means in Hours by FESC Site**

FESC Sites	Overall	Monitoring and Observation	Transfer
ARMC	7.4	7.8	6.9
IIMC	7.7	5.2	6.7
HMC	5.7	7.2	7.9
CRMC	11.6	13.6	6.8
IFHS	8.8	7.8	10.9

However, when looking at median encounter lengths—which reduce the “statistical noise” of long outliers such as those caused by prolonged weather delays—we see that all clinics were generally able to diagnose, classify, stabilize, and, when necessary, medevac patients rather quickly. In comparing the median hours for all FESC monitoring and observation and transfer encounters, you can see they are within 12 minutes of each other (overall FESC encounters, 6.0 hours; monitoring and observation encounters, 6.2 hours; and transfer encounters, 6.0 hours).

**Table ES2. Overall FESC, Monitoring and Observation, and Transfer Encounter Medians in Hours Over Three Years**

All FESC Encounters	Monitoring and Observation	Transfer
6.0	6.2	6.0

While monitoring and observations accounted for 64% of the project’s overall encounters, this varied slightly in two clinics: 68% at CRMC and 68% at IFHS. Smaller percentages of monitoring and observation encounters were noted at IIMC and HMC—58% and 40%, respectively. IIMC’s smaller percentage is due, in part, to the number and variety of methods available to transfers patients to tertiary-care facilities

All of the clinics experienced many after-hours FESC encounters. Distribution of encounter types in all clinics, however, did not vary appreciably between those occurring during regular operating hours and those occurring after hours, showing that patient classification and treatment decisions were not associated with the timing of the FESC encounter. Over the three data years, 45% of the project’s encounters commenced after hours, with 55.6% at CRMC, 48.0% at ARMC, 49.2% at HMC, 24.0% at IIMC, and 37.3% at IFHS. Thus, all clinics experienced a substantial FESC workload falling to their after-hours/on-call staff. Interestingly, all clinics had a significantly lower percentage of their encounters commence after hours in year two as in year one, but that percentage rose in year three.

The five most frequent diagnoses at discharge for FESC encounters were cardiovascular (14%), gastrointestinal (13%), injury (12%), substance abuse (9%), and pneumonia/bronchitis (8%), accounting for 56% of all diagnoses. Cardiovascular, gastrointestinal, and injury were among the top five discharge diagnoses for monitoring and observation and transfer encounters.

Monitoring and observations occasionally required medevac when a patient’s condition unexpectedly worsened or did not improve as expected (9% of all monitoring and observations, n=29). While 43% of project FESC patients were transferred, almost half (46%) of overall FESC encounters resulted in discharge of the patient without need for either non-urgent follow-up referral or transport.

Predictably, medevac destinations varied with clinic location and geography, with IIMC transporting to multiple, nearby Puget Sound area destinations, IFHS and CRMC moving patients exclusively to Anchorage, ARMC (located in Southeast Alaska) medevacing to multiple sites that included Sitka and Ketchikan as well as Anchorage and Seattle, and HMC transferring primarily to Juneau, Sitka, and Anchorage. Anchorage received 52.7% (n=278) of all medevacs. Only 11% of project medevacs used paid escorts.

Over the three data years, 25.7% of total FESC encounters (315 of 1,226) were eligible for Medicare reimbursement. This varied from clinic to clinic; IFHS, with its large working-age population, had only 12.9%.

**Table ES3. Medicare Eligible Encounters  
as a Percent of FESC Encounters**

<b>FESC Site</b>	<b>Number of Medicare-Eligible Encounters</b>	<b>FESC Encounters</b>	<b>Percent of Medicare-Eligible Encounters</b>
ARMC	110	323	34.1%
CRMC	79	259	30.5%
IFHS	61	474	12.9%
IIMC	21	50	42.0%
HMC	44	120	36.7%
Total	315	1,226	25.7%

CRMC in Glennallen had a high percentage of FESC encounters that were eligible for reimbursement by Medicare or in combination with Medicaid. It appears that the population which utilizes most of the FESC encounters is eligible for Medicare. This is in sharp contrast to IFHS in Unalaska, which had a higher total of FESC encounters than CRMC (IFHS, n=474 and CRMC, n=259). It appears that Unalaska's population has a health status that creates many FESC encounters; however, these patients are too young or do not qualify for Medicare for other reasons.

Looking at the project's overall time descriptors—means, medians, percentages, and frequency distributions—of under four hours and FESC encounters, we are beginning to find similarities between clinics. CRMC and ARMC are two clinics that are showing similar trends, as are IIMC and IFHS. With only two years of operations, the data from HMC are not yet trending with any of the other four clinics. It may represent a third type of FESC clinic. We will know more after we have a third year of information.

FESC clinics anticipate participating in a CMS demonstration project that will reimburse them for Medicare-eligible FESC encounters lasting four or more hours. All five sites reporting during the three project years had enough Medicare-reimbursable encounters and potentially reimbursable time units to receive a meaningful financial boost from these reimbursements. However, IFHS and IIMC had substantially more encounters that

were less than four hours that needed an additional reimbursement mechanism to assist them in recovering an appropriate fee for service.

There were 1,634 encounters that were less than four hours in length. These encounters made up 57% of all encounters at the FESC clinics (1,226 encounters four hours or more plus 1,634 encounters less than four hours). The mean and median for all clinics for three years were within 10 minutes (mean 2.3 hours and median 2.5 hours). Forty-two percent of encounters that were less than four hours occurred after normal clinic hours—three percent less than overall FESC encounters at 45%. Encounters lasting fewer than four hours (61%, n=416) were shown to result in transfers, compared to 34% (n=420) for overall FESC encounters. Thirty-seven percent (n=257) of less-than-four-hour encounters were classified monitoring and observation, compared to 64% (n=784) for FESC encounters overall. The five most frequent chief complaints, accounting for 59% of encounters that lasted fewer than four hours, were the same top five chief complaints of overall FESC encounters differing only in sequence. The five most common diagnoses at discharge for encounters under four hours represent 58% of all diagnoses. Injury topped the list (n=312, 19%), followed by cardiovascular (n=255, 16%).

Comparing the discharge diagnoses of FESC encounters and under-four-hour encounters shows the need for acute care (short-term medical care for serious acute disease or trauma) to be most frequent in encounters under four hours. A large majority of encounters under four hours were transferred (63%, n=1033). Thirty-one percent (n=502) of encounters under four hours were discharged home, meaning they were successfully treated in-clinic and in-community, avoiding a medevac or a follow-up trip to another health facility. Another 5% (n=77) were referred to another health facility for non-urgent follow-up care.

Subsections B, C, D, E, and F present the data specifically for monitoring and observation encounters, transfer encounters, under-four-hour encounters, and a summary of encounters that are potentially reimbursable by Medicare and/or Medicaid. The data collection instrument (Appendix A), data tables for the figures in the report (Appendix B), operating hours for the clinics (Appendix C), and detail tables for Medicare- and Medicaid-eligible units and projected revenue by clinic (Appendix D) are printed in the appendices.

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## I. Definitions/Acronyms

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**After hours.** Outside of the clinic's normal operating hours. This varies by clinic (see Appendix C for a listing of operating hours by FESC clinic site).

**ARMC.** Alicia Roberts Medical Center — the Klawock, Alaska, FESC site.

**CMS.** Center for Medicare and Medicaid Services of the U.S. Department of Health and Human Services. Federal agency overseeing the Medicare and Medicaid programs.

**CRMC.** Cross Road Medical Center — the Glennallen, Alaska, FESC site.

**FESC encounter.** Monitoring and observation, transfer, and other extended-stay encounters are referred to in this report as "FESC encounters." For purposes of this report, patient encounters of four hours or longer are considered FESC encounters.

**HMC.** Haines Medical Center — the Haines, Alaska, FESC site.

**IFHS.** Illiuliuk Family Health Services — the Unalaska, Alaska, FESC site.

**IIMC.** Inter-Island Medical Center — the Friday Harbor, Washington, FESC site.

**Medevac.** The physical transporting of a patient to a tertiary-care facility by airplane, helicopter, boat, motor vehicle, or combination of these transportation methods.

**Mon Ob or Monitoring and Observation encounter.** Prudent clinical judgment determines if a patient with an illness or injury may be treated and discharged within 48 hours. In line with the intention of the project, the services required and provided for the encounter are beyond the purview of a clinic located in a community with a hospital. Occasionally, monitoring-and-observation patients worsen or fail to improve as expected and must be transported. For purposes of this report, monitoring and observation encounters of four hours or more are considered FESC encounters.

**Transfer encounter.** The patient is either awaiting transport that is not immediately available in the community or cannot be transported to an acute-care hospital or critical access hospital (CAH) because of adverse weather conditions or other circumstances which limit or prevent such direct transportation. In such cases, the patient is required to be transferred as soon as possible, once weather or other reasons permit. Wait time can be as little as 1/4 hour, or as long as 3 days. For purposes of this report, transfer encounters of four hours or more are considered FESC encounters.

**"Other" encounter.** Other FESC encounters are those not classified as monitoring and observation or transfers, including patient expired; patient refused medevac; patient left

clinic against medical advice; patient stabilized before transfer to long-term care facility, women's shelter, or incarceration; patient transport denied by the receiving hospital; patient declined medevac and used his/her own transportation; or routine exam detected a condition that required medevac. For purposes of this report, "other" encounters of four hours or more are considered FESC encounters.

**Encounters under four hours.** Criteria that the FESC encounter must meet for potential CMS reimbursement are (1) eligibility for Medicare and (2) an encounter that is 4 or more hours in length. Encounters for Medicare-eligible patients that are under 4 hours in length would not be eligible for reimbursement by Medicare.

## Time Descriptors

**Number.** The number of occurrences of a repeating event per unit of time.

**Mean.** The mean is the sum of the observations divided by the number of observations. The mean is often quoted along with the standard deviation: the mean describes the central location of the data, and the standard deviation describes the spread.<sup>1</sup>

**Median.** A median is described as the number separating the higher half of a sample, a population, or a probability distribution from the lower half. The median of a finite list of numbers can be found by arranging all the observations from lowest value to highest value and picking the middle one. If there is an even number of observations, the median is not unique, so one often takes the mean of the two middle values.<sup>2</sup>

**Standard deviation.** The standard deviation of a collection of numbers is a measure of the dispersion of the numbers from their expected (mean) value.<sup>3</sup>

**Maximum.** The maximum is the highest amount, value, or degree attained or recorded.<sup>4</sup>

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<sup>1</sup> <http://en.wikipedia.org/wiki/Mean>

<sup>2</sup> <http://en.wikipedia.org/wiki/Median>

<sup>3</sup> [http://en.wikipedia.org/wiki/Standard\\_deviation](http://en.wikipedia.org/wiki/Standard_deviation)

<sup>4</sup> <http://dictionary.reference.com/browse/maximum>

## II. Clinic and Community Profiles

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### A. Alicia Roberts Medical Center (ARMC)

#### 1. Demographics

The Alicia Roberts Medical Center (ARMC) is located in the Native village of Klawock on Prince of Wales (POW) Island. POW is the third largest island in the United States. At 135 miles long, 45 miles wide, it encompasses an area of 2,577 square miles—just slightly larger than the state of Delaware.<sup>5</sup> Communities located on POW Island include Coffman Cove, Craig, Hollis, Hydaburg, Kasaan, Klawock, Naukati Bay, Point Baker, Port Protection, Thorne Bay, Waterfall, and Whale Pass.

POW is located approximately 200 air miles south of Juneau and 670 air miles northwest of Seattle. Twelve communities are located on the island, with a combined population of approximately 4,092 residents. The median age of residents in individual communities ranges from a low of 34 in Hollis to a high of 43 in Port Protection. Median household income in the individual communities ranges from a low of 10,938 in Port Protection to a high of \$62,083 in Whale Pass.<sup>6</sup> Thirty-three percent (33%) of island residents identified themselves as Alaska Native/American Indian during the 2000 Census, while the remaining 67% identified themselves as non-Native.

#### 2. Weather, Geography, and Transportation

The 990-mile-long coastline of POW Island is etched with numerous bays and coves. Access to the island is by air or water only. The island is served by the Inter-Island Ferry Authority, which provides direct and indirect ferry service to Wrangell, Petersburg, and Ketchikan. The Klawock Airport provides commercial air service to the mainland. Over 1500 miles of roads, mostly gravel, connect many communities on the island. Areas of steep, forested mountains continue to isolate some of the individual communities on POW from each other. Broad stretches of unprotected ocean waters separate the island from the larger regional medical facilities and hospitals located on the mainland in Juneau, Ketchikan, and Sitka.

Nestled in the Tongass National Forest in Southeast Alaska, POW receives abundant rainfall—between 60 and 220 inches of precipitation annually. The climate is generally cool and moist, resembling climate patterns of the Pacific Northwest. Winter temperatures on Prince of Wales typically range from the mid 30s to low 50s.<sup>7</sup> Daylight

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<sup>5</sup> Wikipedia. Located at: [http://en.wikipedia.org/wiki/Prince\\_of\\_Wales\\_Island%2C\\_Alaska](http://en.wikipedia.org/wiki/Prince_of_Wales_Island%2C_Alaska). Accessed September 25, 2006.

<sup>6</sup> Ibid

<sup>7</sup> GORP. Located at: [http://gorp.away.com/gorp/resource/us\\_national\\_forest/ak/prin\\_ton.htm](http://gorp.away.com/gorp/resource/us_national_forest/ak/prin_ton.htm). Accessed September 26, 2006.

on the longest day of the year lasts about 15.5 hours, while the shortest day in winter brings only about 7 hours of daylight.<sup>8</sup>

### **3. Economy Summary**

POW has a mixed cash and subsistence economic base. Fishing, logging, and sawmill operations are important components of the Prince of Wales economy. Commercial salmon fishing and oyster farming are present on the island, as are several hatcheries. The ferry and road system also represent an increasing economic force for island residents. Craig remains the economic center and largest community on Prince of Wales. Timber operations, fishing, fish processing, and government and commercial services offer important employment opportunities.<sup>9</sup> Timber is becoming increasingly important, providing jobs in both logging and ship-loading in the Klawock and Craig areas. Tourism ventures also provide some employment.

Subsistence is an integral part of the POW economy. Surveys by the State of Alaska show that the per-person poundage of subsistence meats harvested annually on the island ranged from 185 pounds per person in Whale Pass to 452 pounds per person in Kasaan. Fifty-five percent (55%) of harvested subsistence foods are fish, including salmon, herring, and halibut. Shellfish, land mammals, plants, and marine mammals are essential parts of the local subsistence lifestyle.<sup>10</sup>

Prince of Wales Island is located in an economically depressed area of the state. In Klawock, the median household income is \$38,839, and 14% of residents live below the poverty level. Unemployment for the Prince of Wales Outer Ketchikan Borough hovers at around 12.6%—significantly higher than the Alaska average of 7.5%.<sup>11</sup>

### **4. Health Services Overview**

The Alicia Roberts Medical Center (ARMC) in Klawock is the largest primary-care provider on POW, and the only medical center providing after-hours emergency care for POW's residents. The clinic is managed by the SouthEast Alaska Regional Health Consortium (SEARHC), a non-profit, Native-administered health consortium serving health care needs

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<sup>8</sup> Prince of Wales Chamber of Commerce. Located at: <http://www.princeofwalescoc.org/climate.html>. Accessed September 26, 2006.

<sup>9</sup> Department of Community and Economic Development, State of Alaska. Located at: [http://www.dced.state.ak.us/dca/AEIS/POW/General/POW\\_General\\_Narrative.htm](http://www.dced.state.ak.us/dca/AEIS/POW/General/POW_General_Narrative.htm). Accessed September 26, 2006.

<sup>10</sup> Department of Community and Economic Development, State of Alaska. Located at: <http://www.dced.state.ak.us/dca/AEIS/AEISMainFrame.cfm?CensusArea=POW&Industry=Subsistence&IndexItem=SubsistenceOverview>. Accessed September 26, 2006.

<sup>11</sup> Department of Community and Economic Development, State of Alaska. Located at: [http://www.dced.state.ak.us/dca/AEIS/POW/General/POW\\_General\\_Narrative.htm](http://www.dced.state.ak.us/dca/AEIS/POW/General/POW_General_Narrative.htm). Accessed October 10, 2006.

of Tlingit, Haida, Tsimshian, and other Native and rural residents of Southeast Alaska in 18 communities.

ARMC began as a Level I clinic staffed with three community health aide/practitioners (CHA/Ps) with services limited to SEARHC's Alaska Native beneficiaries. As mid-level and physician providers began practicing in the clinic, clinical care services expanded, but were still limited to Alaska Native beneficiaries. In 2000, ARMC suddenly became the only provider of emergency and after-hour care on the island, resulting in a large infusion of non-Native patients into the practice. To help expand services to both the Native and non-Native populations, the clinic applied for and was granted status as a federal Community Health Center (CHC). Currently, ARMC offers a wide array of primary-care services, including a moderate complexity laboratory, comprehensive pharmacy, dental services, behavioral health services, and numerous wellness programs.

Patients requiring a higher level of care than what is available on the island are generally transferred to Ketchikan General Hospital or SEARHC Mt. Edgecumbe Hospital in Sitka. Patients may also be transported to the Alaska Native Medical Center (ANMC) in Anchorage, or occasionally to hospitals in Seattle for specialized services.

Travel from Prince of Wales Island to these centers of higher-level medical care is challenging. Access to the island is by air or water. The level of care needed by the patient, the urgency of the situation, the weather at both Klawock and at the receiving hospital, the time of day, and the availability of different modes of transportation all affect the decision about how, where, and when to transport the patient.

Depending on the situation, transportation may be by one of four medevac services, commercial Alaska Airline flight, regular scheduled ferry service to Ketchikan, or combinations thereof. Such travel can constitute serious challenges and expenses for patients and their escorts. Transportation delays for seriously ill or injured patients can be life-threatening.

## **B. Cross Road Medical Centers (CRMC)**

### **1. Demographics**

Glennallen is located at the convergence of the Glenn and Richardson Highways (two major road systems in the eastern sector of Alaska). The Glenn Highway connects Glennallen to Anchorage, 189 miles away; while the Richardson connects Glennallen to Valdez, 120 miles south, and Fairbanks, approximately 300 miles to the north. Valdez, Anchorage, and Fairbanks offer the nearest hospitals to the region.

According to the latest census figures, there are approximately 3,000 people living in the Upper Copper River Basin. The number of people increases dramatically each summer as approximately 50,000 tourists travel through Glennallen, the hub of the Basin. Most

residents of Glennallen are white, Alaska Native, or a combination of the two. According to the 2000 Census, 85% of residents identified themselves as white, 5% as Alaska Native, and 12% as either all or partially Alaska Native.

Within Glennallen itself, the population is fairly young and educated. Approximately 500 residents live within Glennallen itself. The median age of residents is 32.4 years, and 90% of residents over the age of 25 have at least a high school diploma. Forty percent (40%) have a bachelor's degree or higher. The community is almost evenly split between males and females, with 52% male and 48% female.<sup>12</sup>

## **2. Weather, Geography, and Transportation**

The Copper River Basin is bounded by the Talkeetna Mountains on the west, the Alaska Range on the north, the Wrangell-St Elias Range on the east, and the Chugach Range on the south. Winters in Glennallen and the Copper River Basin are generally long, cold, and dark with annual snowfall averaging 39 inches and a total precipitation of 9 inches per year. The mean temperature in Glennallen in January is -10°F (-23°C); in July, it is 56°F (13°C). Temperatures can dip as low as -40°F or -50°F during the coldest days of winter. Daylight lasts a scant five hours during the darkest winter days.

The Glenn/Tok Cutoff and Richardson Highways provide year-round road access to other major road cities in the state. Brenwick's Airport provides public air access, and scheduled services are available. The 2,070 foot turf airstrip is owned and operated by Copper Basin District, Inc. The Gulkana Airport is located 4.3 miles northeast of Glennallen and offers a paved runway with medium intensity runway lighting.

## **3. Economy Summary**

Glennallen is the supply hub of the Copper River region. Local businesses service travelers along the highway system by providing gasoline, food, lodging, and other services. Governmental offices located within Glennallen include the National Park Service's Wrangell-St. Elias Visitor Center, the Bureau of Land Management, the Alaska State Troopers, state highway maintenance, and the Department of Fish and Game. The community also hosts regional services such as a health clinic.<sup>13</sup>

Commercial fishing is a major economic contributor to the Copper River region. Commercial fishermen harvest approximately 1.4 million salmon per year, providing an influx of approximately \$20 million annually to the regional economy. Tribal governments are also a growing segment of the local economy, with seven federally recognized tribal governments located in the upper basin. Under Native self-

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<sup>12</sup> City Data. Located at: <http://www.city-data.com/city/Glennallen-Alaska.html>. Accessed: September 22, 2006.

<sup>13</sup> State of Alaska Community Database. Located at: [http://www.commerce.state.ak.us/dca/commdb/CF\\_BLOCK.htm](http://www.commerce.state.ak.us/dca/commdb/CF_BLOCK.htm). Accessed: September 22, 2006.

determination compacts and contracts, tribal governments provide a variety of health and social services that were formerly provided by state or federal agencies, including education, health care, community safe water, and research which provide numerous local jobs.<sup>14</sup>

Subsistence is also a major economic factor in the region. The harvesting of wild game, fish, birds, berries, eggs, herbs, and plants is integral to the economy. Copper River salmon are the most important component in the subsistence economy. Residents in Chitina harvest about 340 pounds of salmon annually, and residents in Chistochina harvest about 260 pounds.<sup>15</sup>

The Copper River Basin is an economically depressed area with an unemployment rate of 23.5% (compared to the Alaska rate of 7.4% and U.S. rate of 5.8%) and an uninsured rate of 18.5% (compared to 17.3% statewide and 14.6% nationwide). Census data indicate 9.8% of residents live below 100% of Federal Poverty Guidelines (compared to the Alaska rate of 6.7%), and approximately 29% are below 200% (compared to 21.97% for Alaska and 10.1% for the U.S.).

#### **4. Health Services Overview**

Cross Road Medical Center (CRMC) provides medical services to residents throughout the Upper Copper River Basin. CRMC is a faith-based non-profit sub-regional clinic serving the Copper River Basin. The organization began in 1956 as Faith Hospital, the medical ministry of Central Alaska Mission. In 1987, Faith Hospital decertified as a hospital and became CRMC. Even though it is no longer a hospital, CRMC has maintained many hospital-like services. In 2003, CRMC became a Federally Qualified Health Center (FQHC).

CRMC provides access to primary-care services, diagnostic (laboratory and X-ray) services, counseling services, urgent-care services, a pharmacy, and observation services. The facility maintains four hospital-type beds for patients requiring longer observation visits or who are unable to travel to higher-level medical facilities due to weather or other complications. Two of these beds are for general use: one is maintained specifically for cardiac patients and one for obstetric patients.

#### **C. Iliuliuk Family Health Services (IFHS)**

##### **1. Demographics**

Iliuliuk Family and Health Services (IFHS) is a Community Health Center (CHC) located in the City of Unalaska, the 11th largest city in Alaska. Unalaska is situated in the Aleutian

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<sup>14</sup> Copper River Knowledge System. Located at [www.commerce.state.ak.us/dca/AEIS/AEIS\\_Home.htm](http://www.commerce.state.ak.us/dca/AEIS/AEIS_Home.htm). Accessed: September 22, 2006.

<sup>15</sup> Ibid

Islands approximately 800 air miles from Anchorage and 1700 air miles northwest of Seattle. As of the last Census in 2000, there were 4,283 people, 834 households, and 476 families residing in Unalaska.

In addition to its residents, the area boasts a large, fluctuating number of transient workers and fishermen. Seafood companies in Unalaska bring in over 3,000 workers to the area for up to eight months of each year. In addition, the commercial fishing fleets draw an estimated influx of 9,000-10,000 people annually. The fishing and crabbing season from August to May brings the greatest number of seasonal fishery workers.

The 2000 Census painted the picture of the average Unalaska resident as a young male. The average age was 36 years and, for every 100 females, there were 194.8 males. The median household income was \$69,539.

The 2000 Census revealed Unalaska to be a culturally diverse community with a wide variety of ethnic backgrounds. Forty-four percent (44%) of residents were White, 3.7% Black or African American, 7.7% Native American, 30.6% Asian, 0.6% Pacific Islander, 9.3% from other races, and 3.9% from two or more races; 12.9% of the population were Hispanic or Latino of any race.

## **2. Weather, Geography, and Transportation**

The Aleutian Islands, where Unalaska is located, are part of the famed "Ring of Fire," a zone of frequent earthquakes and volcanic eruptions around the Pacific basin. One of those volcanoes, Makushin Volcano, is located on Unalaska where it rises to 6,680 feet above sea level.

Temperatures in Unalaska are fairly mild, with winter temperatures averaging between 25-35°F and summer temperatures averaging between 43-53°F. Annual precipitation is approximately 58 inches. The area is particularly impacted and defined by its winds that gust to an average speed of 17 mph, battering the area year-round.<sup>16</sup> Located in the heart of the North Pacific and Bering Sea fisheries, the area is colorfully referred to by *National Geographic* as "The Cradle of Storms."

Unalaska's airport is visual-flight-only, which means no flights may land after civil twilight. The shortest days in winter last approximately 7 hours. Daily scheduled flights serve the community at the State-owned 3,900' long by 100' wide paved runway. The State Ferry operates bi-monthly from Kodiak between April and October. Unalaska boasts ten docks, with three operated by the State. A refurbished World War II submarine dock offers ship repair services. The International Port of Dutch Harbor serves fishing vessels

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<sup>16</sup> State of Alaska, Department of Economic and Community Development (DECD). Community Database. Located at: [http://www.commerce.state.ak.us/dca/commdb/CF\\_BLOCK.cfm](http://www.commerce.state.ak.us/dca/commdb/CF_BLOCK.cfm). Accessed September 30, 2006.

and shipping, with 5,200 feet of moorage and 1,232 feet of floating dock. The small boat harbor offers slips for 238 boats.

### **3. Economy Summary**

Unalaska is in an economically strategic position for fishing, crabbing, and shipping. Approximately 90% of jobs in the community are estimated to be either directly or indirectly tied to the fishing industry.<sup>17</sup>

The Unalaska/Dutch Harbor port is the largest and busiest fishery port in the nation in terms of the volume of seafood produced. In 2003, the port produced over 900 million pounds of seafood,<sup>18</sup> including king, Dungeness, and tanner crab; red and pink salmon; herring; halibut; and pollock. The port services over 600 vessels including trawlers, long-liners, crab boats, cargo ships, floating factory processors, and cruise ships.

Slightly more than 12% of Unalaska residents live below the poverty level. The unemployment rate for Unalaska is 13.5%.<sup>19</sup>

### **4. Health Services Summary**

IFHS is the only comprehensive medical provider in Unalaska. The clinic incorporated in 1972 and is a freestanding 501(c)(3) non-profit community health center. Located in a 20,000 square foot building, the clinic offers medical, dental, and behavioral health services as well as drug and alcohol programs and wellness programs.

As the only comprehensive medical provider on-island, IFHS providers offer a wide variety of medical services, including:

- Pediatric services
- Prenatal services
- Adult care
- Well-child check-ups
- Treatment and monitoring of acute and chronic illness
- Trauma and critical care

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<sup>17</sup> Alaskan Places. Located at <http://www.alaskan.com/places/unalaska.html>. Accessed September 30, 2006.

<sup>18</sup> Wikipedia. Located at: [http://en.wikipedia.org/wiki/Unalaska%2C\\_Alaska](http://en.wikipedia.org/wiki/Unalaska%2C_Alaska). Accessed September 30, 2006.

<sup>19</sup> Behavioral Health Community Planning Project. Located at: <http://bhplanning.infoinsights.com/unalaska.html>. Accessed October 10, 2006.

## **D. Inter-Island Medical Center (IIMC)**

### **1. Demographics**

The Inter Island Medical Center (IIMC) is located in Friday Harbor on San Juan Island, the second-largest and most populous of the San Juan Islands situated in northwestern Washington state. San Juan Island has a land area of 142.59 km<sup>2</sup> (55.053 sq mi) and a population of 6,822 as of the 2000 census.

The county boasts a population of 14,077 according to the 2000 Census, a nearly 50% growth rate since the previous Census in 1990. During tourist season of June, July and August, the population in the San Juan Islands can double in size.

San Juan County includes 176 named islands and reefs (up to 743 in low tides), of which 60 are inhabited. The four largest islands, and the host of the vast majority of San Juan residents, are served by the Washington Ferry system and include Orcas Island, San Juan Island, Lopez Island, and Shaw Island. Orcas and Lopez Islands each have a community clinic staffed by a primary-care physician. Only San Juan Island has a hospital taxing district to subsidize its medical center and 24/7 physician coverage.

San Juan County residents tend to be older than the U.S. average. The median age in the county is 47—nearly 12 years older than the average resident of the United States or the rest of Washington state. Nearly half of all the residents of San Juan County are over 50 years of age. For every 100 females there are 95 males. For every 100 females age 18 and over, there are 93 males. The median income for a household in the county is \$43,491. Median household income for residents of San Juan Island is \$50,078.

The racial makeup of the county during the 2000 Census was 94.99% White, 0.26% Black or African American, 0.83% Native American, 0.89% Asian, 0.09% Pacific Islander, 0.91% from other races, and 2.04% from two or more races. Two percent (2.4%) of the population was Hispanic or Latino of any race.

### **2. Weather, Geography, and Transportation**

San Juan Island has a fairly moderate climate. The area is protected by a “rain shadow” resulting in drier, sunnier weather than most other areas in the Pacific Northwest. The islands receive approximately 17-19” of precipitation annually, compared to the 38” annually received in Seattle. Temperatures vary from 70° to 80°F in the summer, to winter lows of approximately 30° to 40°F. Fog is often present, especially in the mornings.

The majority of the San Juan Islands are flat, low level islands, with the exception of Mt. Constitution on Orcas Island. The San Juan Archipelago is well-known for its pristine ecosystem, and the coastal areas host diverse marine ecosystems. All of the San Juan

Islands combined give San Juan County 375 miles of saltwater shoreline—more shoreline than any other single county in the United States.

Friday Harbor is connected to the mainland through the Washington State Ferry System. The ferry runs daily between Anacortes, Washington, and Friday Harbor several times daily. In addition, the Washington State Ferry serves three other islands in the county, including Lopez Island, Shaw Island, and Orcas Island. The island is also served by Friday Harbor Airport, which hosts a single 3400-foot by 75-foot runway.

### **3. Economic Summary**

The San Juan Islands have a rich diversity of industries as part of their history. The Western economy started on the island in 1850 when the Hudson Bay Company instituted the first non-Indian settlement on the island, creating fish camps and timber operations. Toward the turn of the 20th century, the island saw the development of limestone quarries, sawmills, salmon canneries, commercial fishing, and farms. A cannery operated on the island until the 1990s. Fishing and farming still occur on the island, but in much smaller amounts.

The current San Juan economy is anchored on the tourism industry. A 2005 study showed that tourism activities generated 1,840 full- and part-time local jobs in the San Juan Islands. Visitors to San Juan County supported the local economy by spending the record amount of \$113.5 million in 2004—a \$7.3 million increase in visitor spending from 2003. Tourism industry earnings generated by travel spending resulted in \$38.7 million.<sup>20</sup>

### **4. Health Services Summary**

IIMC is a designated Level 5 Trauma Center and a federally designated Rural Health Clinic (RHC). IIMC provides comprehensive, family practice-oriented medicine along with 24-hour urgent care. In addition to primary and emergency care services provided by the physician staff, visiting specialists from the mainland rent office space within the clinic and hold scheduled specialty clinics. The visiting specialists provide Obstetrics and Gynecology, Otolaryngology, Audiology, and Podiatry services.

Since 2000, the San Juan Island Medical Center Guild and Inter Island Healthcare Foundation have donated nearly \$300,000.00 in medical and computer equipment to the clinic. The IIMC has an electronic medical record system that allows the most important patient information to be available to the physicians in real time. The clinic equipment includes state-of-the-art diagnostic X-ray, digital ultrasound for vascular studies, mammogram for breast cancer screening and diagnosis, EKG and stress testing for cardiovascular health, bone densitometer to diagnose and reduce the risk of osteoporosis, and a full-service, in-house laboratory.

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<sup>20</sup> Guide to San Juans. Located at: <http://www.guidetosanjuans.com/index.cfm?action=archive05>. Accessed October 3, 2006.

The IIMC facility is nearly 10,000 square feet with 7 exam rooms, a Critical Care/Observation Room that contains two beds, a surgery suite for trauma, a procedure room that can double as an observation bed, 2 exam rooms reserved for the visiting specialists, and an X-ray room. The digital ultrasound can be moved around and the lab is located in the center of the building.

## **E. Haines Medical Center (HMC)**

The community of Haines was called "Dtehshuh" by the Chilkat Indian people, meaning, "end of the trail." It was historically a trading post for both the Chilkat and Interior Indians. Haines is a stunningly beautiful and sparsely populated community in Southeast Alaska, located 80 air miles northwest of the capital city of Juneau. Haines is a home-rule borough located on a narrow peninsula extending into Lynn Canal between the Chilkoot and Chilkat Rivers.

### **1. Demographics**

The population of Haines is composed of 18.5% Alaska Native people. There are two Indian villages in the area: the Chilkoot in Haines and the Chilkat in Klukwan. The average age in Alaska is 32.4 years. In Haines, the average age is 40.7 years (according to the 2000 census). Haines is a place that many Alaskans, and even people from outside of Alaska, have chosen to retire. Accordingly, there is a higher-than-average Medicare population. Leading causes of death are more age-related than in other FESC locations; heart disease and cancer lead the list.

### **2. Weather, Geography, and Transportation**

Although relatively close to each other, Haines and Juneau are not connected by roads and are separated by 80 miles of high and heavily glaciated coastal mountains, some of the harshest and most challenging geography in the United States. The remoteness of this community and its proximity to larger health facilities located in Juneau, Sitka, and Anchorage pose major barriers to the delivery of care. The only traffic to this community is by boat or small plane. Also, the notorious Southeast weather severely limits access to services outside the communities. These factors combine to create the need for improved levels of care.

Access to Juneau by Haines is available through the Alaska Marine Highway, a 4.5 hour ferry trip (available twice weekly October through April, and once daily during the summer), or by a 40-minute flight in a single- or twin-engine, propeller-driven commuter plane that frequently cannot fly due to poor weather and very short daylight hours in the winter. The flights can only be accomplished during daylight hours because steep mountains throughout the flight path require total visibility. In winter, this means there is no air service before 9:00 a.m. or after 2:45 p.m.

Because of the weather, terrain, and isolation, Haines Clinic frequently provides extended stay services for their patients.

### **3. Economic Summary**

Tourism, health care, government, fishing, and transportation are the primary employers. Many jobs are seasonal. Haines is a major trans-shipment point because of its ice-free, deep-water port and dock as well as year-round road access to Canada and interior Alaska on the Alaska Highway.

### **4. Health Services Summary**

The Haines Medical Center, a Health Resources and Services Administration (HRSA)-funded Community Health Center, serves the 2,207 area residents with comprehensive health services. During 2004, the Haines Medical Center provided 9,835 clinic visits to 455 Alaska Natives and 1,655 non-Natives. At the community's request, SEARHC assumed management of the Lynn Canal Medical Center in 1998. SEARHC now directly administers health-care programs at the Haines Medical Center. The health center has experienced dramatic growth in the past seven years and now provides acute, chronic, and preventive health care as well as 24-hour on-call services for urgent care. An extensive remodel and renovation of the clinic was completed in 2005. The Haines Medical Center provides a range of services to all community residents. Both on-site and itinerant services are available for a wide range of primary health care, preventative health services, and specialty care. Services are provided under a sliding discount program to low-income individuals. Some of the other local providers include a dentist, a physician, and Lynn Canal Counseling. Ambulance and EMS service are provided by the Haines Volunteer Fire Department.

Clinic utilization data suggest that access to health care in Haines improved significantly for both Native and non-Native patients after SEARHC assumed management of the integrated clinic. The number of patient visits increased substantially every year. Between 1999 and 2004, the total number of patient visits increased 130%, from 4,286 visits to 9,853 visits. Utilization by non-Natives increased 153% while visits by Natives increased 84%. The number of unduplicated patients receiving services at the clinic also increased, with a 33% rise during the same period. The count of non-Native patients increased 38%, from 1,198 to 1,655, while the count of Native patients increased 17% from 388 to 455. The average number of visits per patient also increased significantly. Among Natives, the average number of visits was 3.7 per person in 1999, increasing to 5.8 visits per person in 2004. Non-Native patients increased from 2.4 visits in 1999 to 4.4 visits per person in 2004.

### III. Methodology

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Quantitative data for FESC encounters were obtained via an On-line Clinical Outcome Log, which was developed by ACRH in consort with the FESC Consortium Steering Committee and the FESC project's Provider Workgroup.

All data provided in this section were reported by clinic staff to ACRH via the On-line Clinical Outcome Log. Clinics accepted full responsibility for the integrity of the data they submitted. ACRH did not have access to medical records or any other mechanism to corroborate data validity. A copy of the log is printed in Appendix A.

The data for ARMC, CRMC, IFHS, and IIMC represent 36 months of FESC services provided between September 15, 2005, and September 14, 2008. The data for HMC represent 24 months of FESC services provided between September 15, 2006, and September 14, 2008, (the differing start dates result from HMC's later addition to the project). Since the data sets for all clinics represent full, yearly cycles with seasonal variations (e.g., fishing season in Unalaska and tourist seasons in Friday Harbor and Glennallen), they are comparable. For the summary report, data for the second and third data years are presented (either aggregated or by clinic) and, where appropriate, aggregated with or compared to data for the prior years.

Table 1 outlines the respective data years for each participating clinic.

**Table 1. FESC Clinic Data Sets by Project Data Years**

<b>FESC Clinic</b>	<b>First Data Year</b>	<b>Second Data Year</b>	<b>Third Data Year</b>
ARMC	9/15/05 – 9/14/06	9/15/06 – 9/14/07	9/15/07 – 9/14/08
CRMC	9/15/05 – 9/14/06	9/15/06 – 9/14/07	9/15/07 – 9/14/08
HMC	N/A	9/15/06 – 9/14/07	9/15/07 – 9/14/08
IFHS	9/15/05 – 9/14/06	9/15/06 – 9/14/07	9/15/07 – 9/14/08
IIMC	9/15/05 – 9/14/06	9/15/06 – 9/14/07	9/15/07 – 9/14/08

In the tables, charts, and narratives of the Findings and Discussion, "Year 1" designates the first data year; "Year 2" designates the second data year; and "Year 3" designates the third data year.

Raw Outcome Log data were submitted daily via the Internet by the clinics on a Microsoft Access Outcome Log form. The Outcome Log data for the timeframes studied were downloaded into Statistical Package for Social Science (SPSS) for data coding, cleaning, and analysis. Cleaned, analyzed data were then transferred to Microsoft Excel to create the tables and figures presented in this report.

Sites were asked to document the chief complaint at the time of admission to the clinic and the diagnosis at the time of discharge. Providers described their patients' chief

complaints and diagnoses in a fill-in-the-blank format; the researchers, in close consultation with the Provider Workgroup leader, recoded these open-ended answers into closed-ended categories. The answers were placed into a single, "best fit" category rather than into multiple categories.

During the last six months of the most recent data period (3/15/08 to 9/14/08), specific destinations of the medevacs were recorded in the Outcome Log form. If the destination was not recorded, it was classified "unspecified." Prior to this last six months, destinations of medevacs were not specifically captured in the Log and were determined through a manual search of several variables in the raw data. If this search was unable to determine the medevac destination, the destination was classified "unspecified."

The preparation of this report involved the recoding of monitoring and observation encounters in the first- and second-year data. Monitoring and observation encounters that ended as transfers have been recoded as monitoring and observation encounters for all three data periods. The Outcome Log form has been revised to reflect this change.

## IV. Findings

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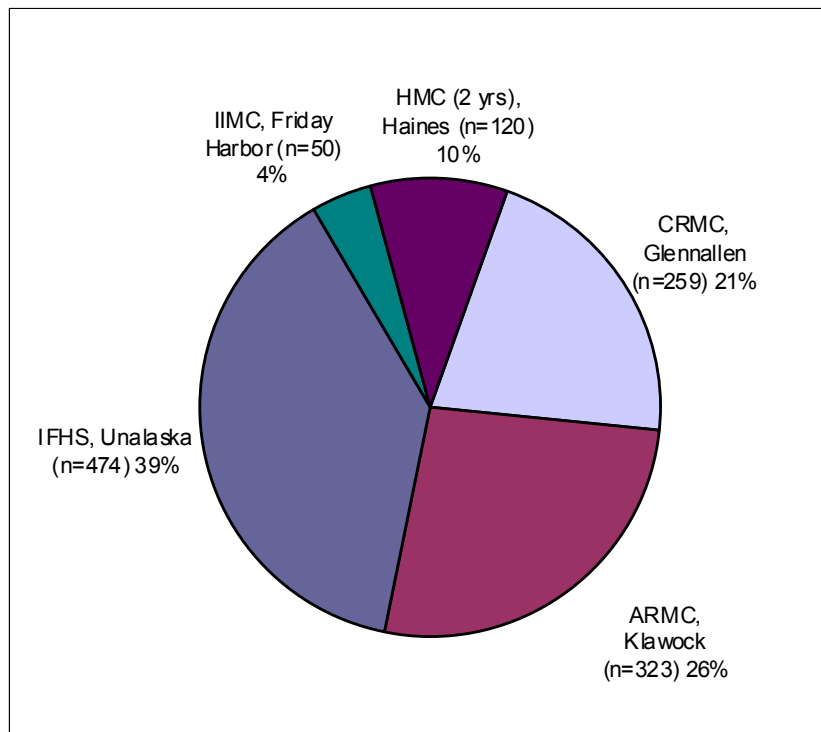
This section presents the combined 36-month data for the FESC encounters for all five participating clinics: (1) Alicia Roberts Medical Center (ARMC) in Klawock, Alaska; (2) Cross Road Medical Center (CRMC) in Glennallen, Alaska; (3) Iliuliuk Family Health Services (IFHS) in Unalaska, Alaska; (4) Inter-Island Medical Center (IIMC) in Friday Harbor, Washington; and Haines Medical Center (HMC) in Haines, Alaska. Aggregated data are presented for the overall project as well as data for each 12-month period by clinic so that clinics may be compared to each other and to the overall project.

### A. FESC Encounters

This subsection examines FESC encounters at the five participating clinics.

Figure 1 shows the distribution of FESC encounters by site and illustrates how the 1,226 encounters reported in the three data years were distributed among the five participating clinics: IFHS in Unalaska (39%, n=474); ARMC in Klawock (26%, n=323); CRMC in Glennallen (21%, n=259); HMC (two data years) in Haines (10%, n=120); and IIMC in Friday Harbor, Washington (4%, n=50).

**Figure 1. Count and Percentage of FESC Encounters by Clinic Over Three Years**



These FESC encounters were broken out into three types: monitoring and observation (Mon Ob),<sup>21</sup> transfer,<sup>22</sup> and other extended stay.<sup>23</sup> FESC patient encounters were four hours or longer in length.

Table 2 (next page) details the time descriptors by data years, for three years combined for each clinic, and for all clinics combined. The number of annual encounters consistently increased at ARMC, while three of the four clinics (CRMC, IFHS, and IIMC) declined between year one and two and then increased in year three to exceed the year-one levels. HMC, with only two years of data, had the exact same number of FESC encounters in both data years.

A 1.7 hour difference existed between the mean and median for all clinics by data year and for all three years, with the smallest standard deviation of 5.5 hours for all clinics in data year two. This reflects the presence of lengthy outliers which, along with the shortest four-hour encounters, produced a wide range in the length of FESC encounters. The maximum encounter length for all clinics over three years was 50 hours, with the minimum of four hours.

Year-to-year variations among the clinics was difficult to interpret as relatively few encounters (short or long) could skew the results. Looking at the cumulative three-year totals by clinic, four of the five FESC clinic sites had differences between their means and medians of 1 to 2.5 hours: ARMC, 1.9 hours; IFHS, 2.5 hours; IIMC, .8 hours; and HMC, 1.5 hours. Only CRMC had a difference of 3.8 hours. This clinic had a larger number of lengthy encounters compared to the other FESC sites. These encounters contributed to both the higher mean and median at CRMC and the wider variability in the range of encounter lengths.

It is important to note that the overall three-year median encounter length was 6.0 hours. In other words, half of the 1,226 encounters were resolved in six hours or less.

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<sup>21</sup> Monitoring and Observation Encounters require prudent clinical judgment to determine if a patient with an illness or injury may be treated and discharged within 48 hours. In line with the intention of the project, the services required and provided for the encounter are beyond the purview of a clinic located in a community with a hospital. Occasionally, monitoring and observation patients deteriorate or fail to improve as expected and must be medevaced. For the purposes of this report, only Monitoring and Observation Encounters of two hours or longer are considered.

<sup>22</sup> Transfer Encounters are when the patient is either awaiting transport that is not immediately available in the community or the patient cannot be transported to an acute-care hospital or Critical Access Hospital (CAH) because of adverse weather conditions or other circumstances which limit or prevent such direct transportation. In such cases, the patient is required to be transferred as soon as possible, once weather or other reasons permit. Wait time can be as little as 1/4 hour, or as long as 3 days.

<sup>23</sup> "Other" FESC Encounters are those that are not classified as monitoring and observation or transfer, including patient expired; patient refused medevac; patient left clinic against medical advice; patient was stabilized before transfer to long-term care facility, women's shelter, or incarceration; patient transport was denied by the receiving hospital; patient declined medevac and used his/her own transportation; a routine exam detected a condition that required a medevac.

**Table 2. All FESC Encounters—Time Descriptors<sup>24</sup>**

	<b>ARMC Klawock</b>	<b>CRMC Glennallen</b>	<b>IFHS Unalaska</b>	<b>IIMC Inter Island</b>	<b>HMC Haines</b>	<b>All FESC Clinics</b>
<b>Year 1</b>						
Number of encounters	83	108	163	18	NA	372
Mean length (hrs)	7.3	11.7	8.4	4.7	NA	8.9
Median length (hrs)	5.0	7.8	6.3	4.6	NA	6.0
Standard deviation (hrs)	6.1	8.7	5.7	0.7	NA	7.0
Maximum (hrs)	48.0	45.0	41.5	6.5	NA	48.0
<b>Year 2</b>						
Number of encounters	103	66	117	9	60	355
Mean length (hrs)	7.4	10.0	7.4	5.8	6.9	7.7
Median length (hrs)	5.5	6.6	6.0	5.5	5.9	6.0
Standard deviation (hrs)	5.3	8.2	4.2	1.3	4.0	5.5
Maximum (hrs)	36.5	44.5	25.5	8.5	24.3	44.5
<b>Year 3</b>						
Number of encounters	137	85	194	23	60	499
Mean length (hrs)	7.6	12.6	9.9	6.6	8.5	9.4
Median length (hrs)	5.5	8.6	6.9	4.9	6.5	6.3
Standard deviation (hrs)	5.5	10.1	7.5	4.7	4.7	7.4
Maximum (hrs)	38.5	46.0	50.0	25.1	21.0	50.0
<b>Three Years Combined</b>				<b>Two Years</b>		
Number of encounters	323	259	474	50	120	1226
Mean length (hrs)	7.4	11.6	8.8	5.7	7.7	8.8
Median length (hrs)	5.5	7.8	6.3	4.9	6.3	6.0
Standard deviation (hrs)	5.6	9.1	6.3	3.3	4.4	6.8
Maximum (hrs)	48.0	46.0	50.0	25.1	24.3	50.0

IFHS and IIMC had an increase in total FESC encounters in year three after a decrease in year two. This increase in FESC encounters occurred at both sites despite decreases in the total clinic encounters. ARMC's increase in FESC encounters in year three may follow the overall increase in clinic encounters they experienced in year three.<sup>25</sup>

<sup>24</sup> See glossary for definitions of time descriptors—number, mean, median, standard deviation, and maximum.

<sup>25</sup> Steering committee meeting, Craig, Alaska, April 31, 2009.

Figure 2 shows that the mean of all FESC encounters by clinic was 86 (7.1 encounters per month). Individual clinic mean annual numbers ranged from 17 for IIMC to 158 for IFHS, which had the highest total number of FESC encounters of any clinic over the three data years at 474 (Table 2).

**Figure 2. Mean Annual Number of FESC Encounters per Clinic Over Three Data Years**

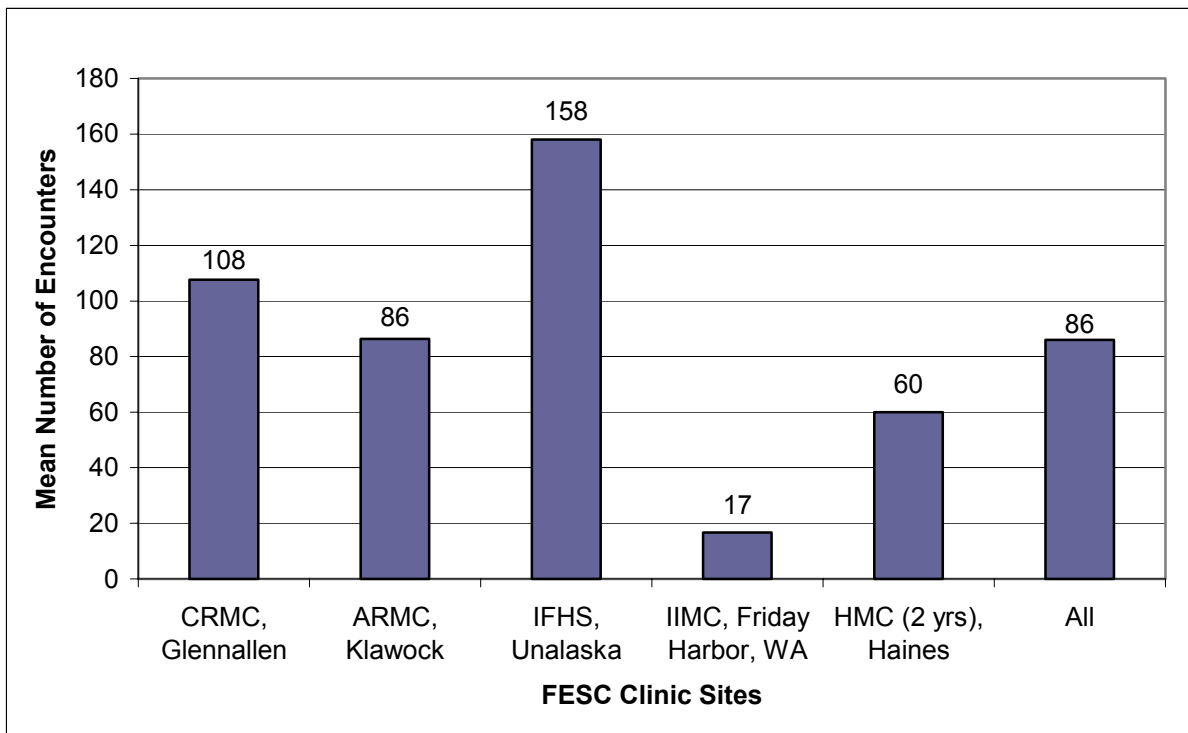
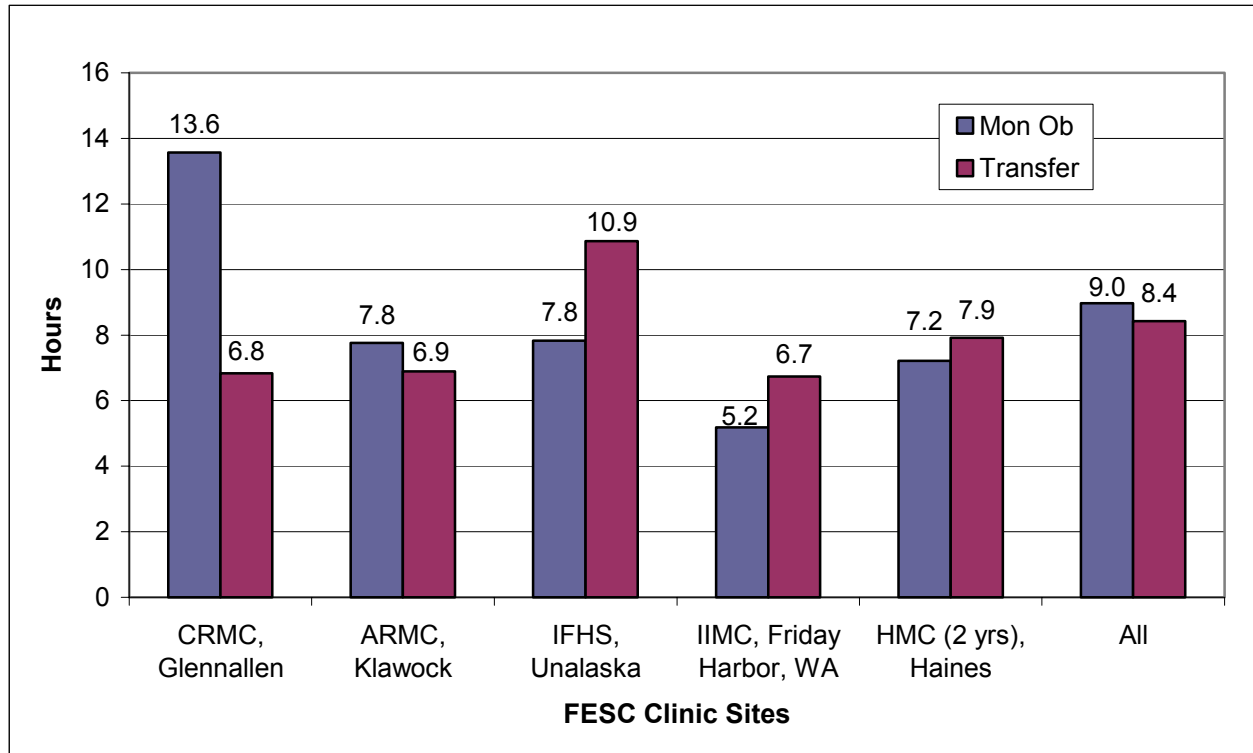


Figure 3 illustrates the mean encounter lengths in hours for the participating clinics by FESC encounter type, as well as the difference between monitoring and observation (Mon Ob) and transfer encounters over three years.

**Figure 3. Mean Length of FESC Encounters by Type Over Three Years**



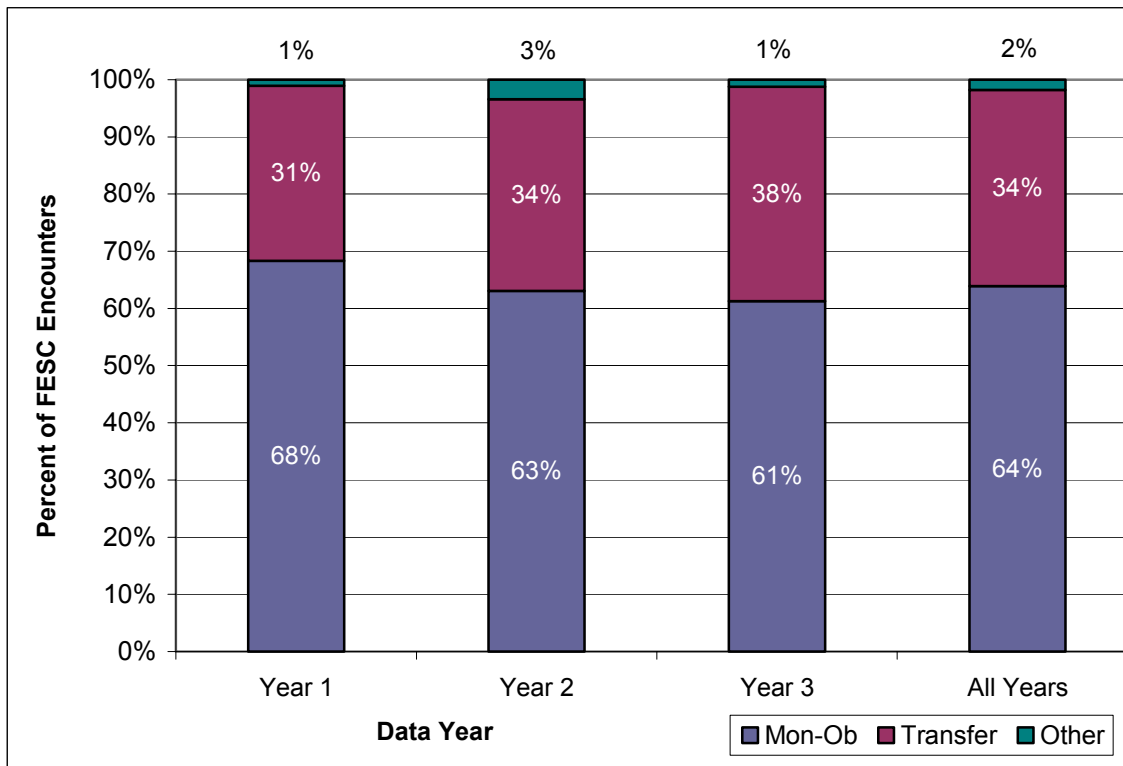
The means for monitoring and observation encounters ranged from 5.2 hours at IIMC to 13.6 hours at CRMC. Means for transfer encounters ranged from 6.8 hours at CRMC to 10.9 hours at IFHS. Monitoring and observation encounters had both shorter and longer mean hours than transfer encounters (5.2 hours monitoring and observation versus 6.8 hours transfer encounters as the shortest and 13.6 hours monitoring and observation versus 10.9 hours transfer encounters as the longest).

CRMC had the greatest difference between monitoring and observation encounters, with the mean hours for monitoring and observation encounters (13.6 hours) being double those for transfer encounters (6.8 hours). The next closest was half of the CRMC means. IFHS had 6.7 mean hours for monitoring and observation encounters and 10.9 hours for transfer encounters.

IIMC and HMC had the smallest differences between these two types of encounters (HMC at .7 hour difference and IIMC at .9 hour difference).

Figure 4 presents the percentage of FESC encounters by type: monitoring and observation, transfer, and other extended stay encounters.

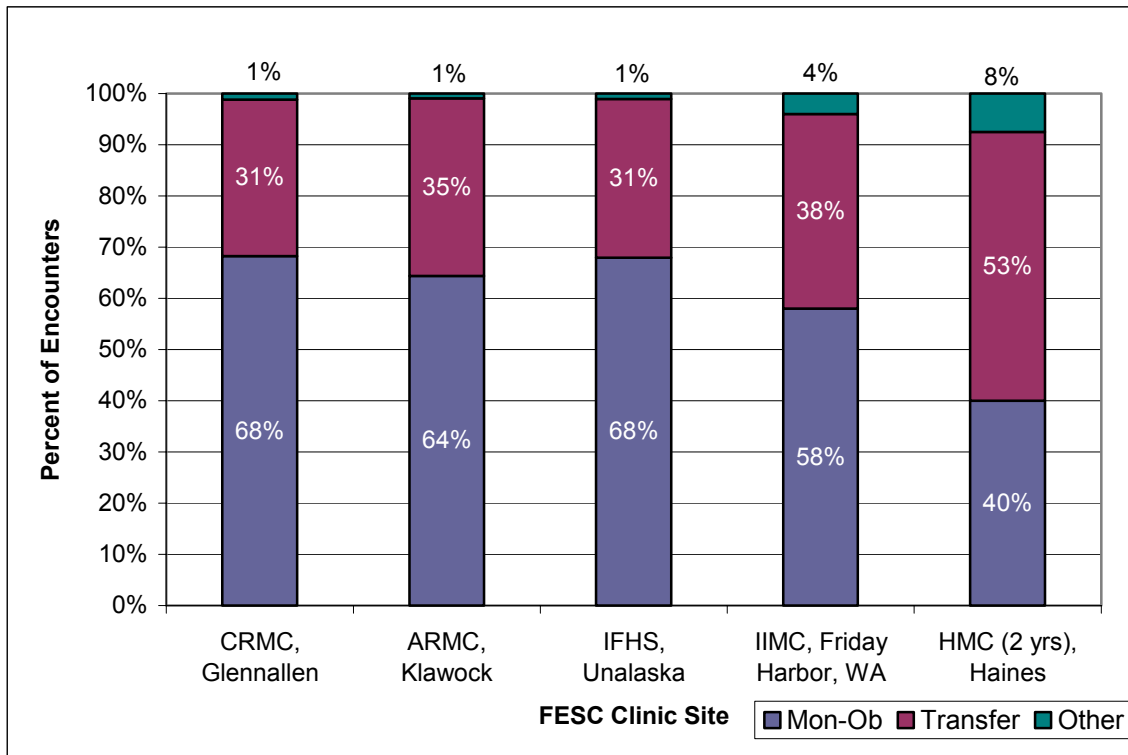
**Figure 4. Percentage of FESC Encounters by Type and Data Year**



Over three years, 64% (n=784) of FESC encounters were designated monitoring and observation (Figure 4); that is, the patient was diagnosed with an illness or injury that prudent clinical judgment determined could be treated and discharged within 4 hours. A little more than one-third (34%) of the 1,226 encounters were designated transfers; that is, a decision was made to medevac (transfer the patient to a facility with a higher level of care). A marginal percentage (2%, n=22) were designated "Other." The monitoring and observation percentage has been decreasing over the three years (68%, 63%, to 61%) with an increase in transfers (31%, 34%, to 38%).

Figure 5 shows the clinic-by-clinic comparisons; CRMC, ARMC, and IFHS had similar percentages of FESC encounter types. Monitoring and observation encounters were 68%, 64%, and 68%, respectively, with transfers at 31%, 35%, and 31%, respectively. Note that CRMC and IFHS have identical percentages for these two encounter types.

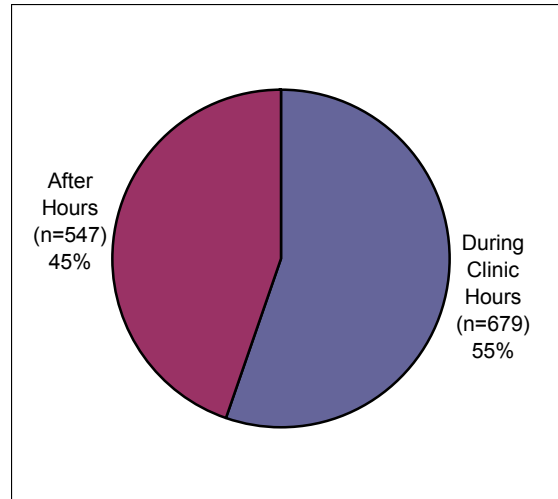
**Figure 5. Percentage of FESC Encounters by Type and Clinic Over Three Years**



Given the multiple factors that converge on the decision to classify a patient as monitoring and observation or transfer (e.g., presenting complaint, diagnosis, provider experience/skills/practices, clinic infrastructure, geographic location, transport resources, weather, etc.), and changes in the patient's condition over the monitoring and observation period, this variable is a key indicator of the conditions unique to each clinic such as location, staff mix, equipment, and other resources to handle FESC encounters.

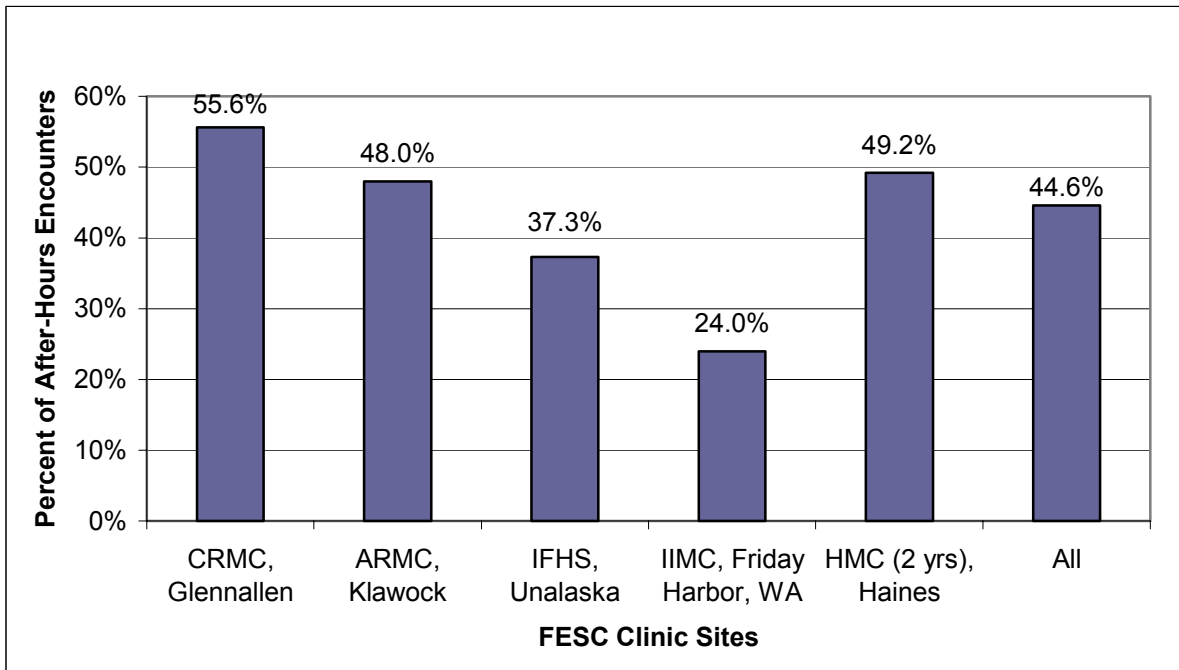
That urgent and extended care occurs 24/7 is demonstrated by Figure 6; nearly half of FESC encounters (45%, n=547) began outside of normal clinic hours. This indicates that a substantial proportion of the FESC workload fell to the on-call or night-shift staff of the clinics. Some long encounters that began during normal clinic hours extended into after-hours, so these numbers tend to under-report the workload falling to after-hours staff. Normal clinic hours varied by FESC site. A table listing operating hours for each clinic is printed in Appendix C.

**Figure 6. Percentage of After-Hours FESC Encounters Over Three Years**



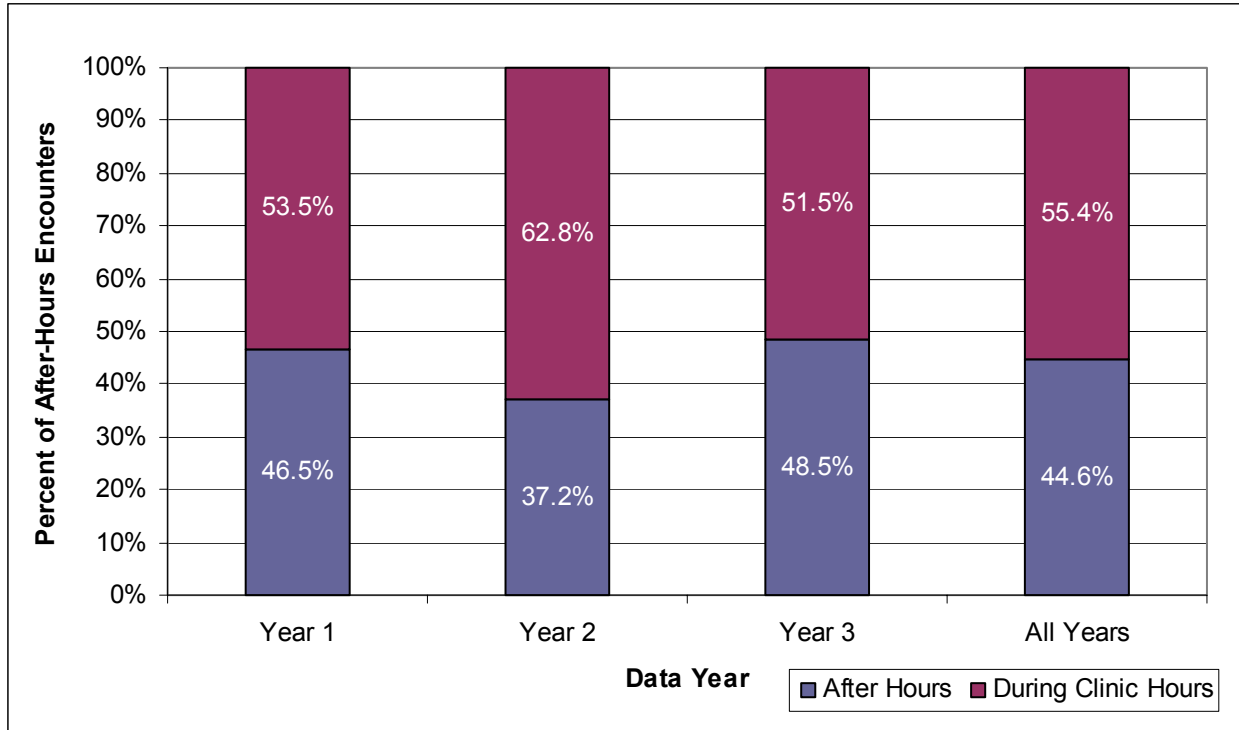
The aggregated three-year percentage of after-hour encounters smoothes over the clinic variability (Figure 7). IIMC in Friday Harbor, Washington had the lowest percentage of after-hour visits. HMC and ARMC, both in Southeast Alaska, were within 2% of their respective percentages (49.2% for HMC and 48% for ARMC). This is close to the overall percentage for all the FESC sites at 44.6% after-hour encounters.

**Figure 7. Percentage of After-Hours FESC Encounters by Clinic Over Three Years**



Looking at yearly variations with all FESC sites in Figure 8, the after-hours encounters declined from year one (46.5%) to year two (37.2%), then increased in year three (48.5%) to slightly above the year-one level.

**Figure 8. Percentage of During- and After-Hours Encounters by Data Year**



Over half (60.5%, n=331) of patients that came in after hours were designated monitoring and observations, and 37.5% (n=205) were designated transfers (Table 3). These FESC encounter classifications apparently were not associated with the timing of the encounters. A patient was not more likely to be a monitoring and observation or transfer if his/her encounter began after hours.

**Table 3. After-Hours Encounter by Type**

Encounter Type	After Hours (n=547)		All (n=1,226)	
	Percentage	Count	Percentage	Count
Monitoring and Observation	60.5%	331	63.9%	784
Transfer	37.5%	205	34.7%	420
Other	2.0%	11	1.8%	22

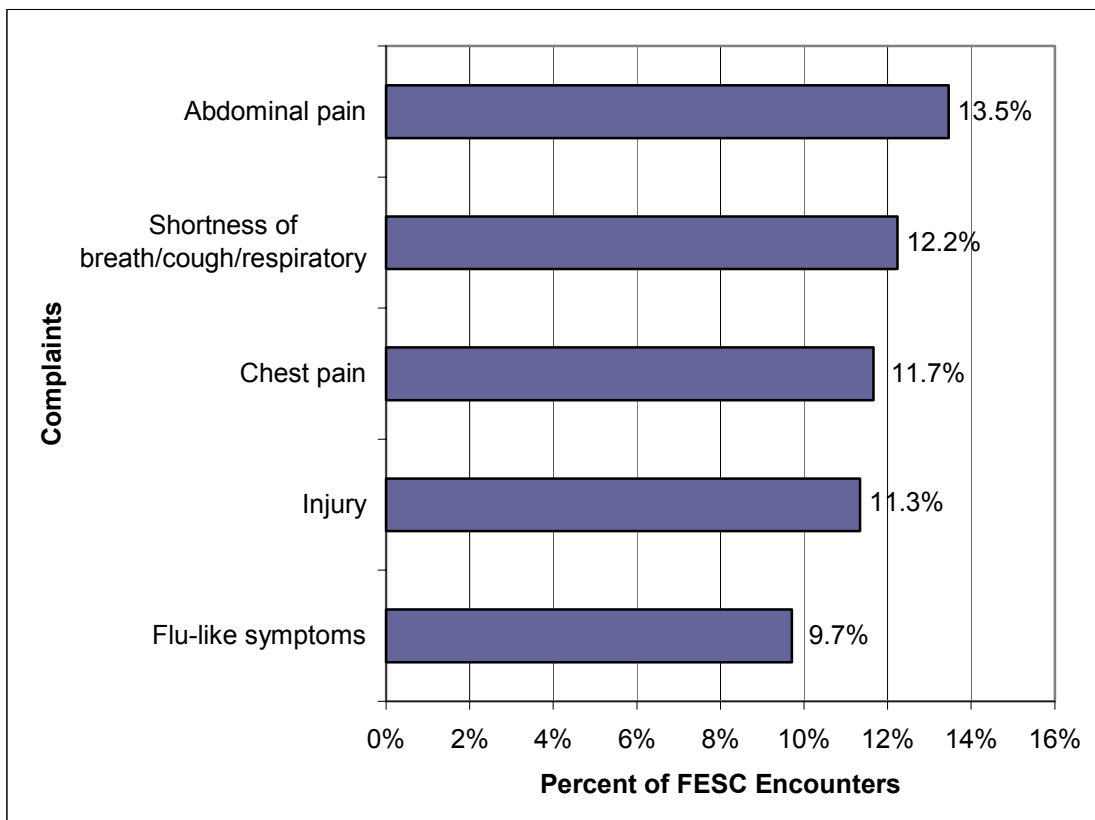
Looking at after-hour encounters by type and clinic, we see common ground among the clinics; the percentage of monitoring and observation and transfer encounters occurring after hours for each clinic by data year did not vary significantly from their overall pattern (Table 4). It appears that each FESC clinic encounter type was not associated with timing of the encounter.

**Table 4. Percentage of After-Hours Encounters by Clinic and Encounter Type over Three Years (n=547)**

FESC Type	ARMC Klawock		CRMC Glennallen		IFHS Unalaska		IIMC Friday Harbor (Two Years)		HMC Haines	
	All (n=323)	After Hrs (n=155)	All (n=259)	After Hrs (n=144)	All (n=474)	After Hrs (n=177)	All (n=50)	After Hrs (n=12)	All (n=120)	After Hrs (n=59)
Mon Ob	64.4%	60.0%	68.3%	69.4%	67.9%	61.6%	58.0%	50.0%	40.0%	39.0%
Transfer	34.7%	39.4%	30.5%	29.2%	31.0%	37.3%	38.0%	33.3%	52.5%	54.2%
Other	0.9%	0.6%	1.2%	1.4%	1.0%	1.2%	4.0%	16.7%	7.5%	7.2%

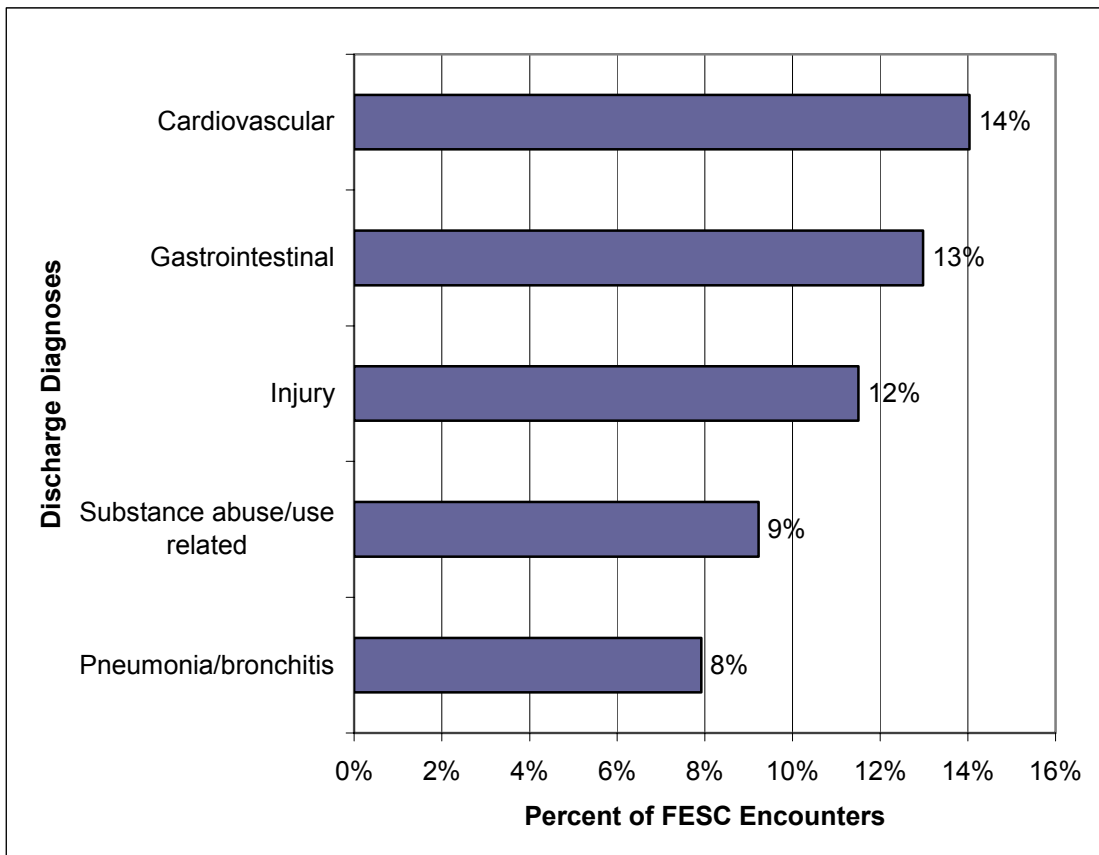
Five chief complaints most frequently reported for FESC encounters over three years are shown in Figure 9. They represented 58% of all chief complaints. Abdominal pain topped the list (n=165, 13.5%) and figured prominently, as this can be symptomatic of a wide variety of conditions, including cardiovascular, respiratory, injury-related, and gastrointestinal. The other four most frequently reported complaints were shortness of breath/cough/respiratory symptoms (12.0%, n=150), chest pain (11.7%, n=143), injury (11.3%, n=139), and flu-type symptoms (nausea, diarrhea, vomiting, etc) (9.7%, n=119). Other less frequently reported chief complaints included dizziness/syncope/confusion (6%, n=76), behavioral/mental health complaints (6%, n=68), and fever (4%, n=50).

**Figure 9. Percentage of FESC Encounters by Five most Frequent Chief Complaints Over Three Years**



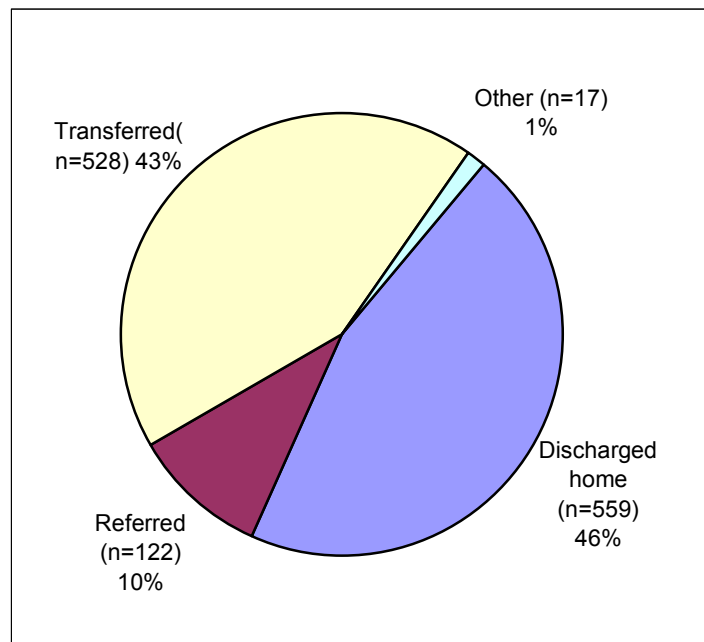
The five most-common diagnoses at discharge for FESC patients are shown in Figure 10, representing 56% of all diagnoses. Note that cardiovascular diagnoses topped the list (14%, n=172), followed closely by gastrointestinal (13%, n=159) and injury (12%, n=141). Rounding out the five most frequent diagnoses were substance abuse (9%, n=113) and pneumonia/bronchitis (8%, n=97). Other less-frequent diagnoses at discharge included respiratory (6%, n=74), renal/urinary (6%, n=73), and hepatic/pancreatic/gallbladder/appendix-related diagnoses (4%, n=46).

**Figure 10. Percentage of FESC Encounters by Five Most Frequent Discharge Diagnoses Over Three Years**



Over three years, 46% of FESC patients (n=559) were discharged home after their FESC encounter without needing either a medevac or non-urgent follow-up referral (Figure 11). Another 43% of the encounters (n=528) were transferred. Ten percent (n=122) were referred to a higher-level health facility for non-urgent follow up. The small "Other" category (1%, n=17) included a variety of dispositions, such as transfer patients who refused medevac; transfers who arranged their own transportation; patients referred to long-term care facilities, prisons, and women's shelters; aborted medevac flights; deceased patients; and patients for whom there were no data.

**Figure 11. Discharge Disposition of FESC Encounters Over Three Years**



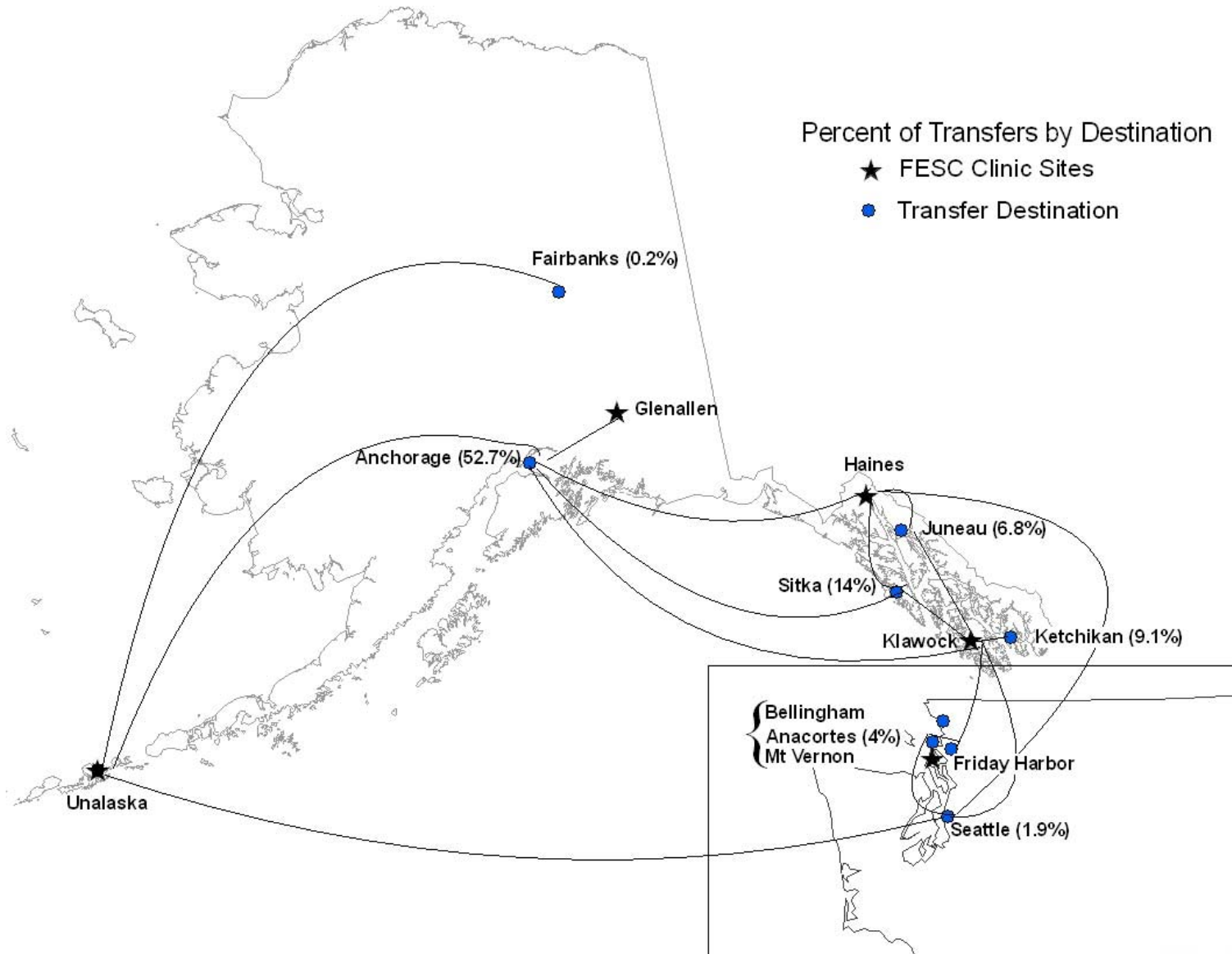
The distribution of medevac destinations for each clinic is highly idiosyncratic, driven by its location, geography, availability of receiving facilities, transportation resources, and weather (Table 5, next page). Note that ARMC had the widest geographical range of destination options, from Anchorage in the north to Seattle in the south, as well as the proximate destinations of Sitka and Ketchikan. ARMC transported primarily to Sitka and Ketchikan, CRMC and IFHS transported to Anchorage, HMC transported to Juneau, and IIMC transported to nearby Anacortes and Bellingham.

**Table 5. Transfer (Medevac) Destination by FESC Clinic Site Over Three Years**

Destination	ARMC (n=144) Klawock		CRMC (n= 90) Glennallen		IFHS (n= 188) Unalaska		IIMC (n=24) Friday Harbor		HMC (n=82) Haines Two Years		All FESC Sites (N=528)	
	n	%	n	%	n	%	n	%	n	%	n	%
Anacortes, Bellingham, Mt Vernon, WA	2	1.39%					19	70.17%			21	4.0%
Anchorage, AK	14	9.72%	82	91.11%	172	91.49%			10	12.20%	278	52.7%
Fairbanks, AK					1	0.53%					1	0.2%
Juneau, AK	1	0.69%							35	42.68%	36	6.8%
Ketchikan, AK	48	33.33%									48	9.1%
Seattle area, WA	4	2.78%			1	0.53%	2	8.33%	3	3.66%	10	1.9%
Sitka, AK	59	40.97%							15	18.29%	74	14.0%
Unspecified/Other	16	11.11%	8	8.89%	14	7.45%	3	12.50	19	23.17%	60	11.4%
<b>TOTAL</b>	<b>144</b>		<b>90</b>		<b>188</b>		<b>24</b>		<b>82</b>		<b>528</b>	

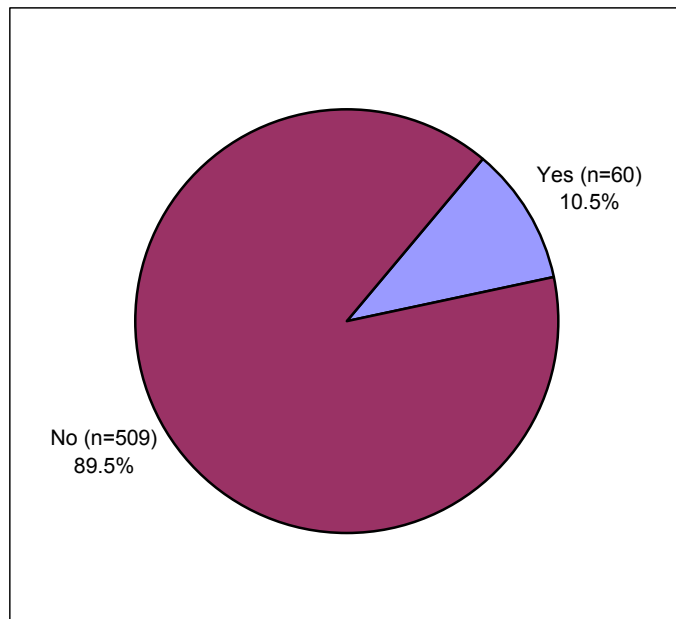
Two thirds of the transfers (medevacs) were sent to Anchorage and Sitka. Anchorage was the destination of a little over half of transfers (52.7%, n=278). These transfers were from ARMC in Klawock, CRMC in Glennallen, IFHS in Unalaska, and HMC in Haines. A distant second was Sitka at 14% of transfers (n=74), primarily receiving encounters from ARMC in Klawock (n=59) and HMC in Haines (n=15) (see Figure 12).

**Figure 12. Percentage of Transfers by Destination**



With more critical patients, or patients needing non-medical support, an escort (e.g., advocates to negotiate cultural barriers) is often needed to assist with transport to the higher-level facility. Paid escorts increase the cost of transport and, thus, the cost of overall care. The large majority of medevacs (89%, n=509) did not use paid escorts (Figure 13), often because the transferring company provided an attendant. Only 11% (n=60) utilized escorts.

**Figure 13. Percentage of FESC Encounters Using a Paid Escort**



## **B. Monitoring and Observation Encounters**

This subsection examines the data for 784 monitoring and observation encounters that were at least four hours in length.

Overall, monitoring and observation encounters decreased in year two but rebounded in year three to a higher number than in year one (Figure 6). The mean and median for all clinics over three years was 9.0 and 6.2 hours, respectively. The higher mean reflects the longer encounter outliers. The largest monitoring and observation encounters occurred in year one at ARMC (48 hours) and CRMC (45 hours). The standard deviation of 6.8 hours overall demonstrates the wide range of monitoring and observation encounters with a minimum of 4 hours and a maximum of 48 hours.

**Table 6. Monitoring and Observation Encounters—Time Descriptors<sup>26</sup>**

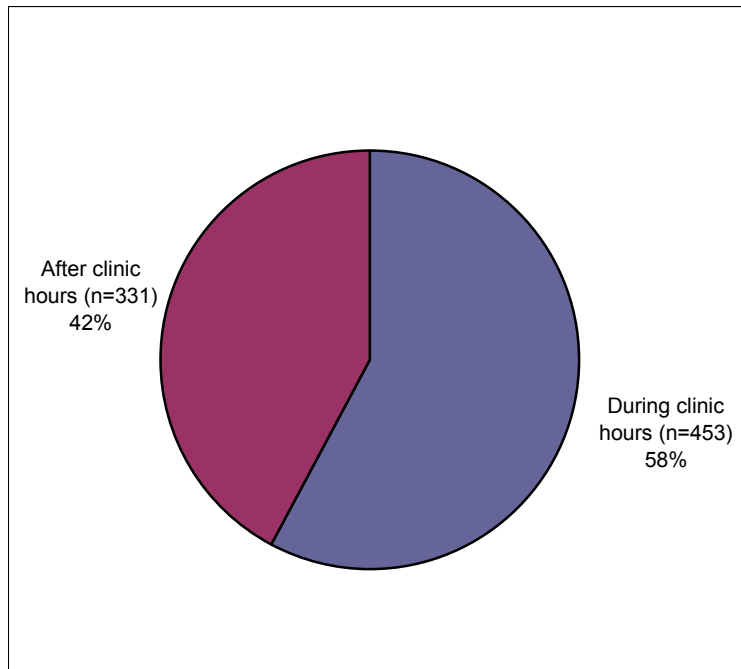
	<b>ARMC Klawock</b>	<b>CRMC Glennallen</b>	<b>IFHS Unalaska</b>	<b>IIMC Friday Harbor</b>	<b>HMC Haines</b>	<b>All FESC Clinics</b>
<b>Year 1</b>						
Number of encounters	67	71	104	12	NA	254
Mean length (hrs)	7.7	14.9	7.6	5.0	NA	9.5
Median length (hrs)	5.0	14.0	6.0	5.0	NA	6.3
Standard deviation (hrs)	6.7	9.0	4.6	0.7	NA	7.4
Maximum (hrs)	48.0	45.0	26.3	6.5	NA	48.0
<b>Year 2</b>						
Number of encounters	61	45	83	7	28	224
Mean length (hrs)	8.0	11.7	7.1	5.5	6.4	8.2
Median length (hrs)	6.0	7.8	5.8	5.5	5.6	6.0
Standard deviation (hrs)	6.0	9.1	3.8	0.8	3.2	6.0
Maximum (hrs)	36.5	44.5	22.5	6.5	18.0	44.5
<b>Year 3</b>						
Number of encounters	80	61	135	10	20	306
Mean length (hrs)	7.6	13.5	8.5	5.2	8.3	9.1
Median length (hrs)	5.5	10.3	5.9	4.9	6.8	6.3
Standard deviation (hrs)	5.4	9.6	5.5	1.0	4.9	6.8
Maximum (hrs)	33.5	41.8	32.2	7.0	20.8	41.8
<b>Three Years Combined</b>					<b>Two Years</b>	
Number of encounters	208	177	322	29	48	784
Mean length (hrs)	7.8	13.6	7.8	5.2	7.2	9.0
Median length (hrs)	5.5	10.8	6.0	5.0	5.8	6.2
Standard deviation (hrs)	6.0	9.3	4.9	0.8	4.0	6.8
Maximum (hrs)	48.0	45.0	32.2	7.0	20.8	48.0

Standing out among the individual clinics was IIMC with a mean of 5.2 hours, median of 5 hours, and a range of 4 to 7 hours. The closeness of the mean and median and narrow range relative to the other FESC clinics, and hence the overall clinic measures, was due to the diversity and frequency of the transport (medevac) options available at this FESC site.

<sup>26</sup> See Glossary for definitions of time descriptors.

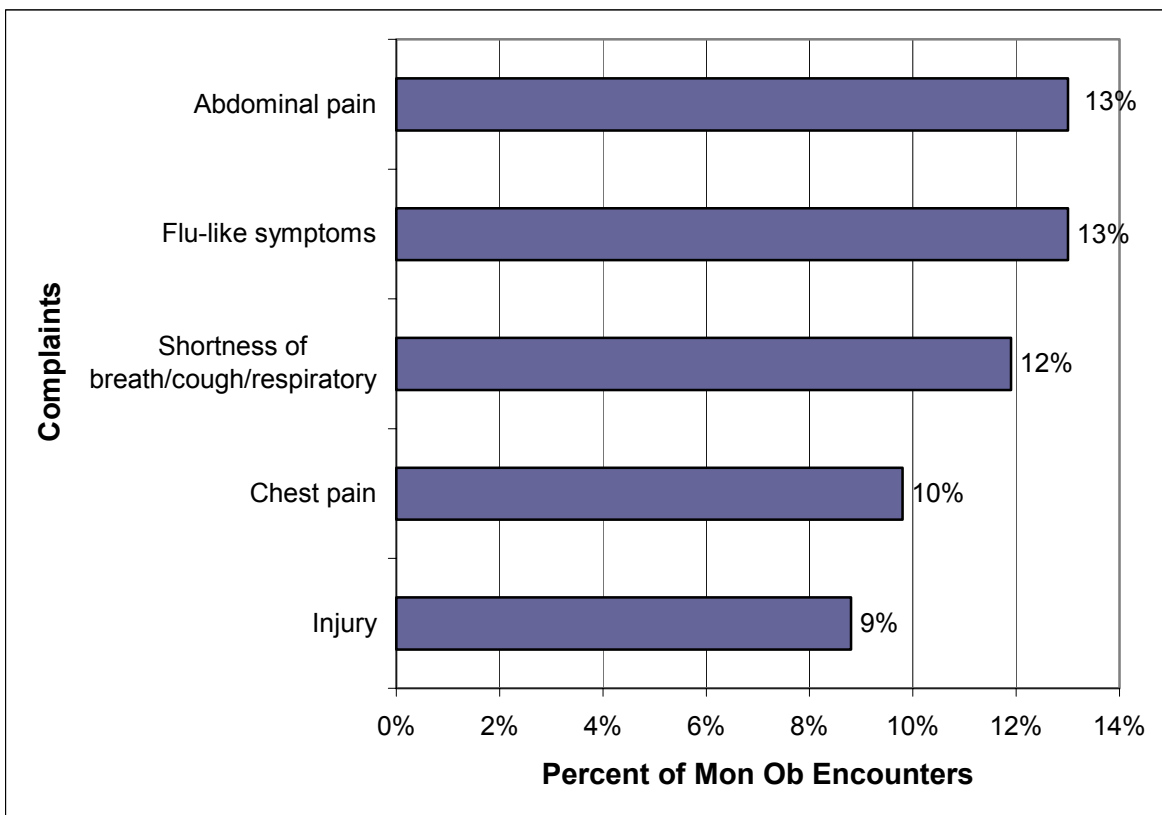
Figure 14 shows that 42% (n=331) of monitoring and observation encounters began outside of normal clinic hours. This percentage is slightly lower than that of all FESC encounters at 45% (see figure 6).

**Figure 14. Percentage of Mon Ob Encounters During and After Clinic Hours Over Three Years**



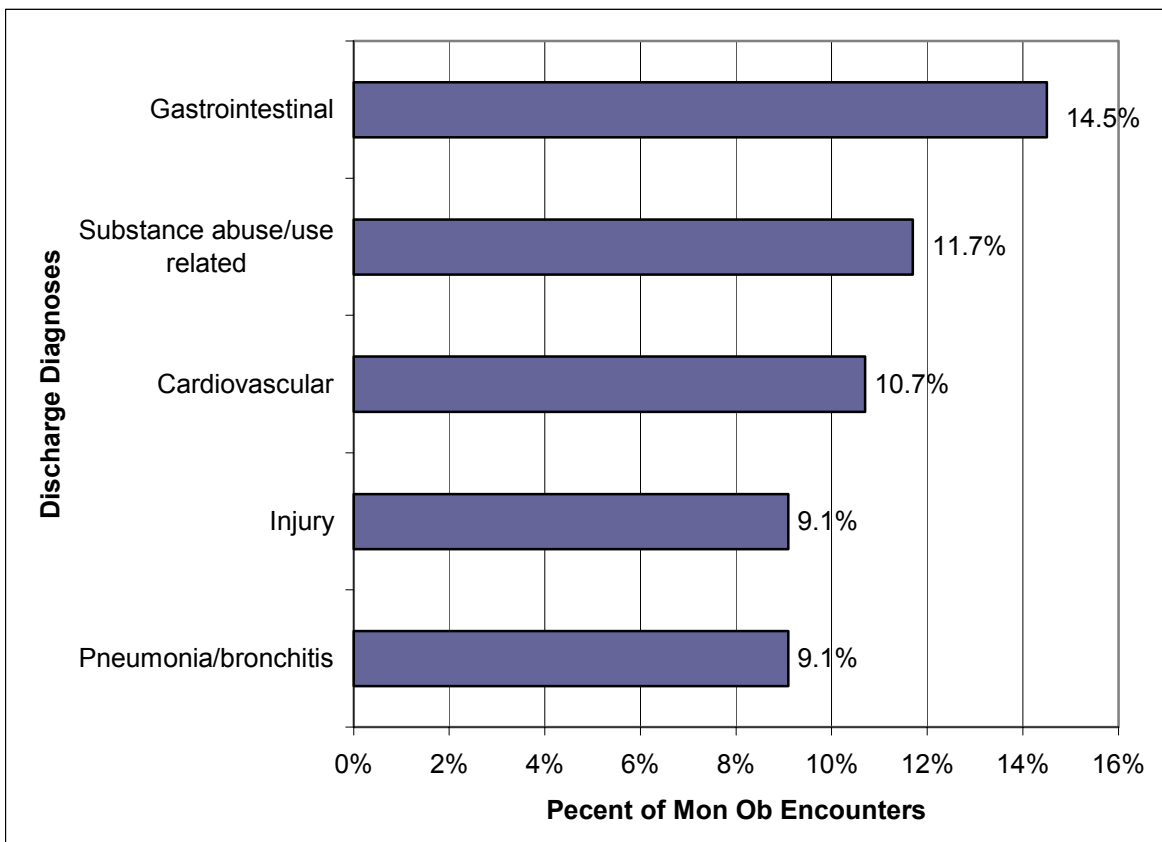
The five most frequent chief complaints of monitoring and observation patients accounted for 60% of all monitoring and observation chief complaints (Figure 15). These were the same top five chief complaints as the overall FESC encounters (see Figure 9), differing only in sequence. Flu-like symptoms (13.0%, n=102) were fifth for all FESC encounters and tied for first for monitoring and observations. Abdominal pain was also the most frequent chief complaint for monitoring and observations (13.0%, n=102) and the overall FESC encounters (13%, n=165). This can be partially attributed to the fact that these are symptoms of conditions that can often be stabilized during a monitoring and observation encounter. Other chief complaints rounding out the top five were injury (9%, n=69), shortness of breath (12%, n=93), and chest pain (10%, n=77). Other, less frequent chief complaints of monitoring and observation patients included dizziness/syncope/ confusion (6%, n=49), behavioral/mental health complaints (6%, n=46), and fever (5%, n=37).

**Figure 15. Percentage of Mon Ob Encounters by Five Most Frequent Chief Complaints Over Three Years**



The five most common diagnoses at discharge for the monitoring and observation patients are shown in Figure 16. These represented 55% of all monitoring and observation diagnoses at discharge and differed only in ranking from the top five diagnoses for the total FESC patient population (see Figure 10). Gastrointestinal diagnoses were by far the most frequent monitoring and observation diagnosis (15%, n=114), followed by substance abuse (12%, n=92), cardiovascular diagnoses (11%, n=84), injury (9%, n=71), and pneumonia/bronchitis (9%, n=71). Other less frequent diagnoses at discharge included renal/urinary diagnoses (6%, n=50), other respiratory diagnoses (5%, n=46), and musculoskeletal (4%, n=28).

**Figure 16. Mon Ob Encounters by Five Most Frequent Discharge Diagnoses Over Three Years**



Looking only at monitoring and observation patients, who are infrequently transported, displays a very different pattern of patient disposition than that of the entire patient population. Figure 17 shows that the large majority of monitoring and observations (74%, n=225) were discharged home, and 15% (n=46) were referred to another health facility for non-urgent follow-up care. Thus, 25% (306 of 1226) of all FESC encounters were treated in-clinic and in-community, avoiding a medevac or a follow-up trip to another health facility. Thus, the clinics had the resources to resolve only a quarter of FESC encounters without incurring the expense and inconvenience of medevacs or long off-island/out-of-area referral visits. However, it is important to remember the expenses related to monitoring and observing a patient, which require additional clinical staff with a higher level of training as well as specialized equipment and supplies to stabilize and improve their conditions. Occasionally, monitoring and observation patients failed to improve as expected, or unexpectedly worsened, requiring a medevac. This occurred with 29 encounters, or 9% of all monitoring and observations.

**Figure 17. Discharge Disposition of Mon Ob Encounters Over Three Years**

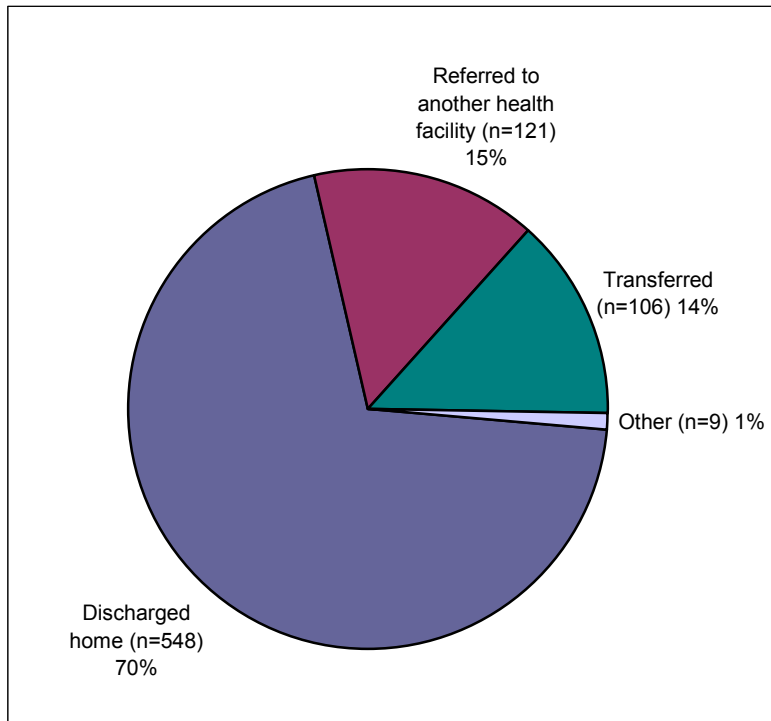
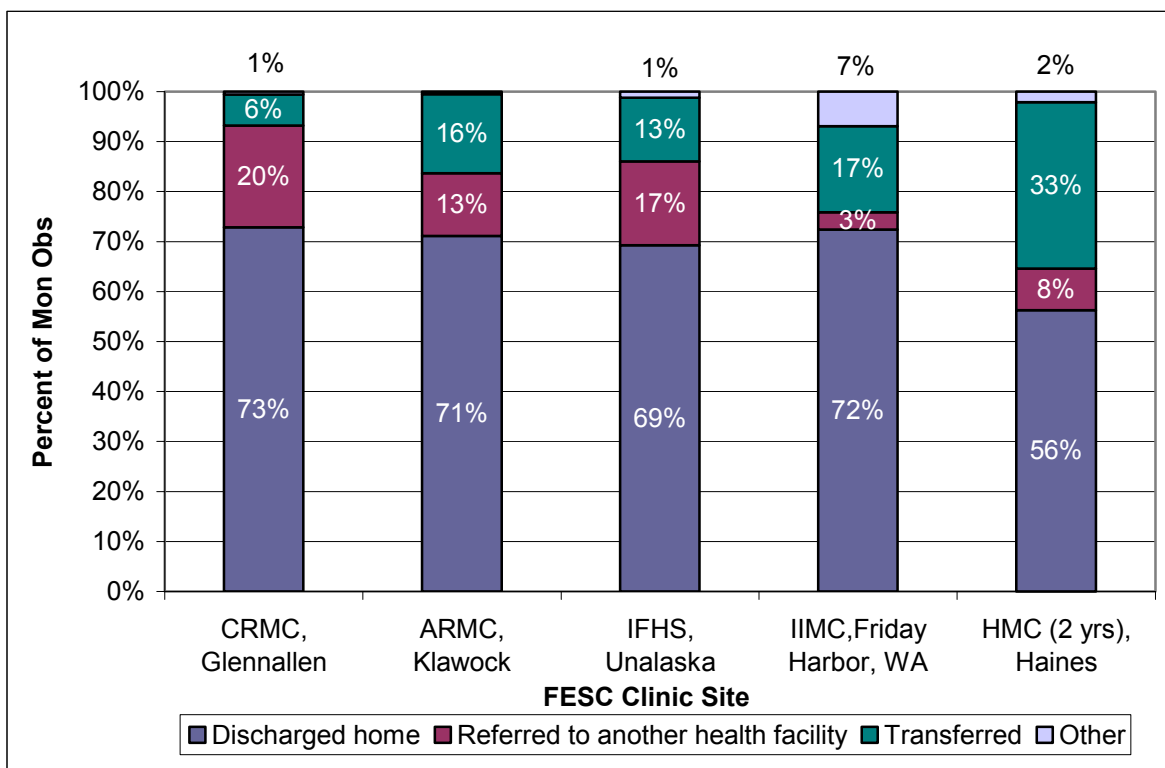


Figure 18 reveals a common trend among the clinics, with all but one clinic reporting similar percentages of monitoring and observations discharged home. HMC was the exception, reporting only 56%, which was a lower percentage when compared to the other FESC sites—CRMC at 73%, ARMC at 71%, IFHS at 69%, and IIMC at 72%.

The percentages of monitoring and observation encounters that were referred to other facilities for non-urgent follow-up care varied widely, ranging from only 3% (IIMC) to 20% (CRMC). Similarly, the percentage that were transferred varied considerably—from only 6% (CRMC) to 33% (HMC).

**Figure 18. Discharge Disposition of Mon Obs by Clinic Over Three Years**



## C. Transfer Encounters

Over the project's three years, 420 of the FESC encounters were designated transfers; that is, the clinics observed and stabilized patients while they awaited transport to a tertiary-care facility (Table 7).

**Table 7. Transfer Encounters—Time Descriptors<sup>27</sup>**

	<b>ARMC Klawock</b>	<b>CRMC Glennallen</b>	<b>IFHS Unalaska</b>	<b>IIMC Friday Harbor</b>	<b>HMC Haines</b>	<b>All FESC Clinics</b>
<b>Year 1</b>						
Number of encounters	16	36	56	6	NA	114
Mean length (hrs)	5.9	5.5	10.0	4.0	NA	7.7
Median length (hrs)	5.5	4.3	6.9	4.0	NA	5.4
Standard deviation (hrs)	2.1	3.7	7.2	0.0	NA	6.0
Maximum (hrs)	12.3	25.5	41.5	4.0	NA	41.5
<b>Year 2</b>						
Number of encounters	39	20	34	1	25	119
Mean length (hrs)	6.5	5.6	8.0	8.5	7.3	7.0
Median length (hrs)	5.0	4.8	6.5	8.5	6.3	5.8
Standard deviation (hrs)	4.1	1.7	5.1	**	4.8	4.3
Maximum (hrs)	22.0	9.5	25.5	8.5	24.3	25.5
<b>Year 3</b>						
Number of encounters	57	23	57	12	38	187
Mean length (hrs)	7.5	10.0	13.4	8.0	8.3	9.8
Median length (hrs)	5.5	6.0	9.0	5.2	6.3	6.5
Standard deviation (hrs)	5.7	11.0	10.1	6.2	4.5	8.2
Maximum (hrs)	38.5	46.0	50.0	25.1	21.0	50.0
<b>Three Years Combined</b>					<b>Two Years</b>	
Number of encounters	112	79	147	19	63	420
Mean length (hrs)	6.9	6.8	10.9	6.7	7.9	8.4
Median length (hrs)	5.1	4.8	7.5	4.3	6.3	6.0
Standard deviation (hrs)	4.8	6.7	8.4	5.2	4.6	6.8
Maximum (hrs)	38.5	46.0	50.0	25.1	24.3	50.0

These transfers made up 34.6% (420 of 1226) of all FESC encounters over the three years. Transfer encounters had a mean length of 8.4 hours and a median length of 6.0 hours (Table 7). This indicates that the clinics required several hours to diagnose, classify, stabilize, and arrange transport in a comparable number of hours regardless of encounter type. However, these hours did compare to those of all FESC encounters, where the mean was 8.8 hours and median 6.0 hours (see Table 2).

<sup>27</sup> See glossary for definition of time descriptors.

The longer mean and median times for transfer encounters were recorded by IFHS in Unalaska, where bad-weather delays affected patient transport. Air travel is Unalaska's only method of patient transfer to tertiary-care facilities. The other four FESC locations have something akin to two methods of transport—with some combination of air, water, and roadways. Haines and Klawock have some ferry service.

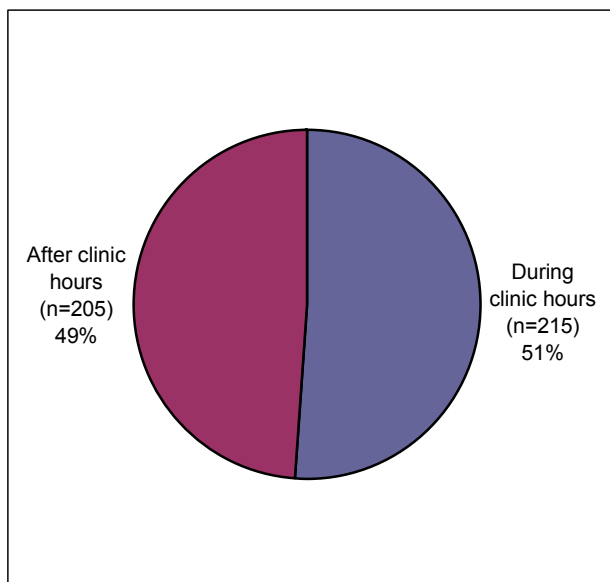
Table 7 also reveals that variations among the time descriptors for transfers among the five clinics were similar to the monitoring and observation encounters, with a standard deviation of 6.8 hours for both. The mean/median lengths of transfer encounters ranged from 8.4/6.0 hours to 9.0/6.2 hours.

IIMC in Friday Harbor, with its many readily available medevac options (plane, helicopter, sheriff's boat, and ferry) and relatively clement weather had similar transfer mean and median hours (6.7 mean and 4.3 median) to CRMC in Glennallen (6.8 mean and 4.8 median) and ARMC in Klawock (6.9 mean and 5.1 median). Even though CRMC was notable for its long monitoring and observation encounters, transfer encounters were shorter than the overall project mean and median hours (8.4 mean and 6.0 median), indicating that the greater overall length of its encounters was attributable to its monitoring and observation encounters, not to its transfers.

IFHS in Unalaska reported the longest mean (10.9 hours) and median (7.5 hours) transfer encounters due to occasional medevac delays caused by bad weather, limited daylight, and unavailability of transport (i.e., waiting for planes to arrive from Anchorage).

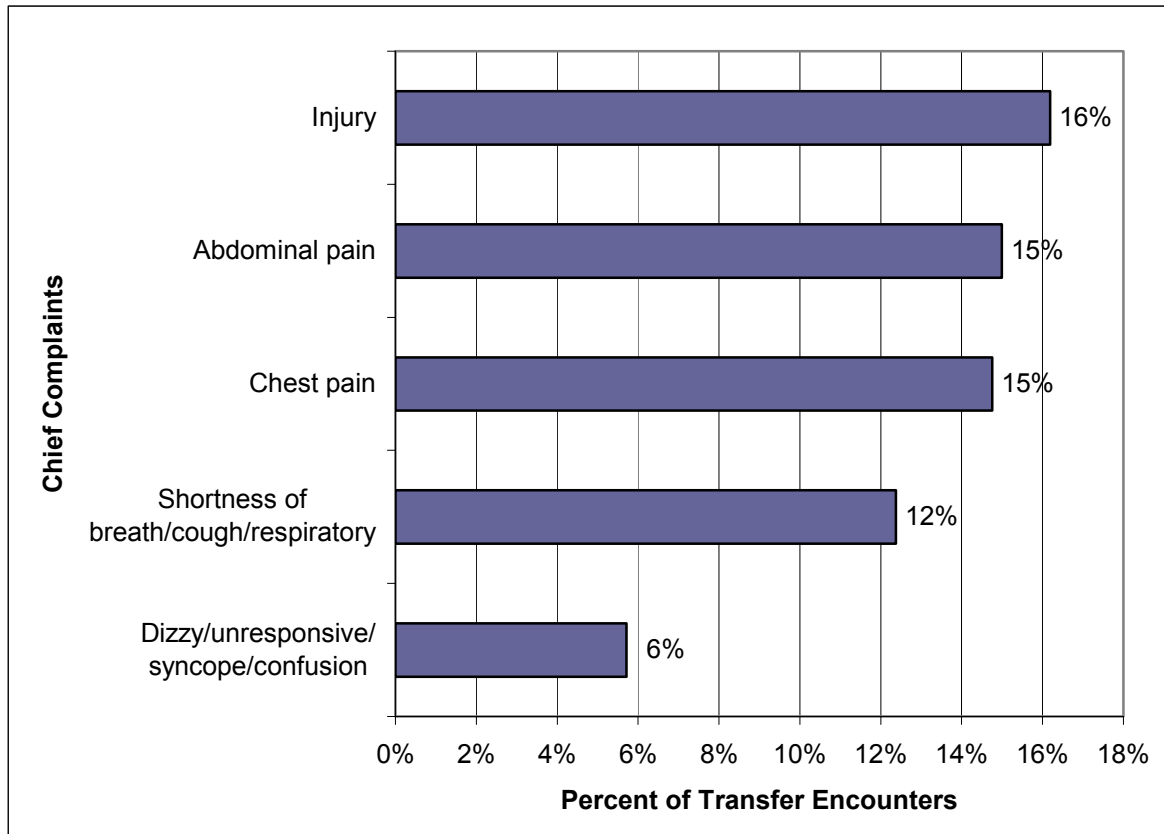
**Figure 19. Percentage of During- and After-Hours Transfer Encounters Over Three Years**

Figure 19 shows that over the three data years, slightly fewer than half of the transfer encounters (49%, n=205) began outside of normal clinic hours—a slightly higher percentage than for the project as a whole (45%, n=547; see Figure 6), and monitoring and observation encounters (42%, n=331; see Figure 13). Since the traumatic events that often necessitate medevacs occur 24/7, it is not surprising to see about half of the transfer encounters beginning after normal clinic hours.



The top five chief complaints at time of admission for transfers are presented in Figure 20. These represented 64% of all chief complaints for the transfer-encounter type category, and differed from the ranking of chief complaints seen for the overall project (see Figure 9) and the monitoring and observation encounters (see Figure 14), both of which featured abdominal pain as the most frequent chief complaint.

**Figure 20. Percentage of Five Most Frequent Chief Complaints of Transfer Encounters Over Three Years**

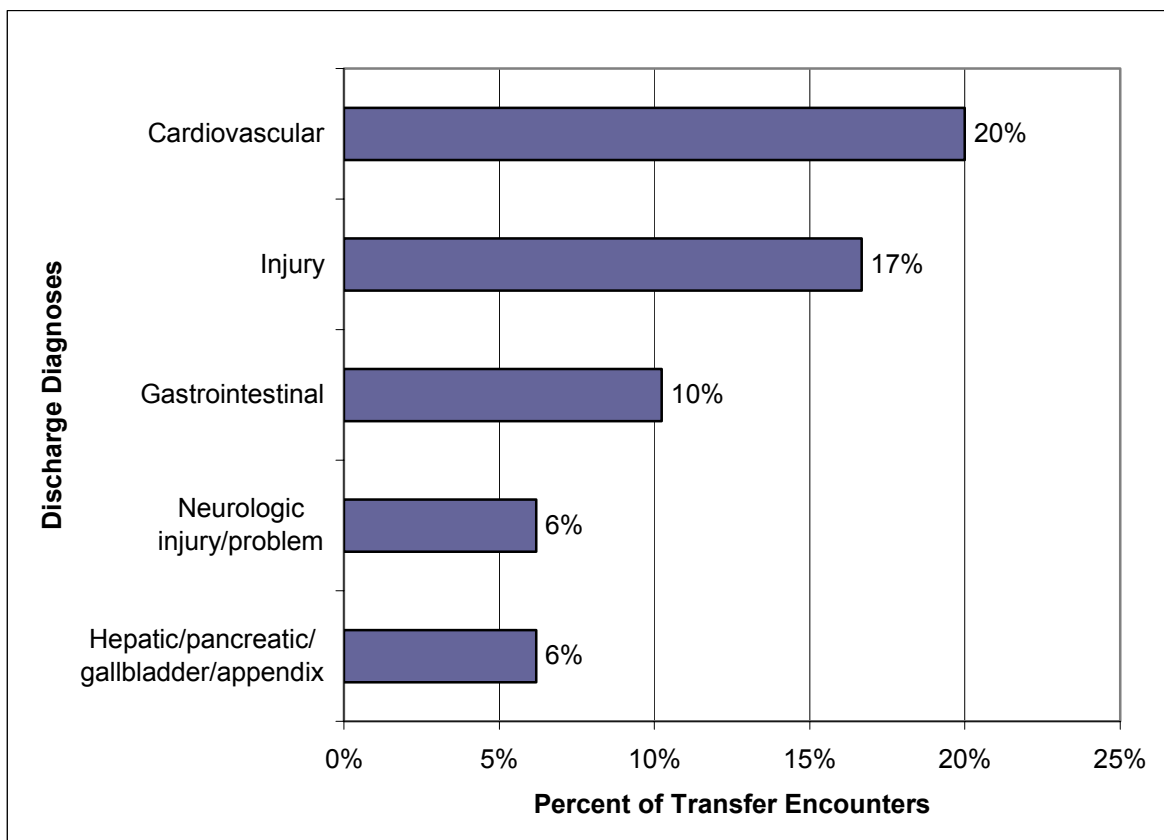


Injury was by far the leading chief complaint for transfer patients (n=68, 16%), followed by abdominal pain (15%, n=63), chest pain (15%, n=62), shortness of breath/cough/respiratory symptoms (12%, n=52), and dizzy/syncope/confusion (6%, n=47). Other less frequent chief transfer complaints included behavioral/mental health (5%, n=24), vomiting/nausea/diarrhea/flu-like symptoms (4%, n=20), fever (3%, n=15), and seizure (3%, n=13).

Figure 21 presents the five most frequent diagnoses at discharge for transfer encounters, representing 59.6% of transfer diagnoses. This pattern was similar to the overall FESC encounter pattern, with cardiovascular diagnoses (20%, n=84) topping the list for transfers and for overall FESC encounters (14%, n=112; see Figure 10 and Appendix B). Cardiovascular ranked second for monitoring and observation encounters (11%, n=35) (see Figure 16).

Injury (17%, n=70) and gastrointestinal (10%, n=43) followed cardiovascular discharge diagnoses for transfers. These three categories made up almost half at (47%) of all transfer-encounter discharge diagnoses over three years. Neurologic (brain) injury/problem (6%, n=26) and hepatic/pancreatic/gallbladder/appendix (6%, n=26) were the other top five diagnoses. Other less frequent diagnoses for transfers included pneumonia/bronchitis (6%, n=25), respiratory diagnoses (6%, n=24), renal/urinary (5%, n=21), and behavioral/mental health (5%, n=20).

**Figure 21. Percentage of Five Most Frequent Discharge Diagnoses of Transfer Encounters Over Three Years**



## D. Medicare-Eligible FESC Encounters

This subsection examines encounters of all FESC types that were potentially eligible by Center for Medicare and Medicaid Services (CMS). The criteria that a FESC encounter must meet for potential CMS reimbursement are (1) eligibility for Medicare and (2) an encounter that is four or more hours in length. Encounters for Medicare-eligible patients under four hours in length would not be eligible for Medicare reimbursement. "Medicare-eligible" and "Medicare-reimbursable" also include patients who are eligible for Medicaid.

Figure 22 shows that 245 (or 20%) of all FESC encounters (1226) were potentially eligible for Medicare reimbursement from CMS, and an additional 70 (or 6%) of encounters were potentially eligible for both Medicare and Medicaid.

**Figure 22. Percentage of FESC Encounters by Medicare/Medicaid Eligibility Over Three Years**

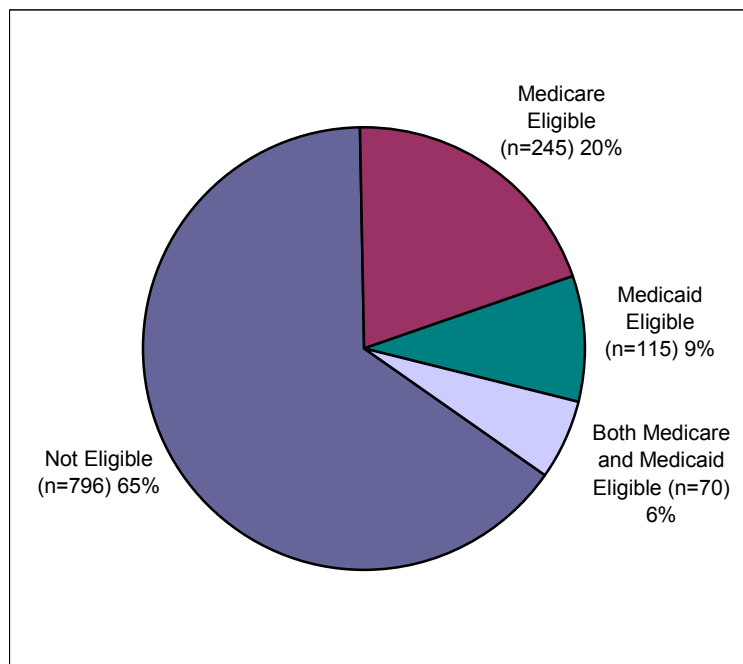


Table 8 breaks down Medicare-eligible FESC encounters by clinic. It shows that the longer length of these encounters contributed to a mean of 9.5 hours and a median of 6.3 hours. Both of these exceed the mean and median for total FESC encounters, monitoring and observation encounters, and transfer encounters.

Each year CRMC in Glennallen had the longest mean and median and, hence, had the overall longest mean (12.7 hrs) and median (7.5 hours) for Medicare-eligible FESC encounters. The remaining four FESC sites had means and medians that were closer to the overall three-year mean (9.5 hours) and median (6.3 hours). IIMC in Friday Harbor had the shortest three-year mean (5.5 hours) and median (4.8 hours) due, in part, to where the clinic is located<sup>28</sup> and the frequency and availability of varied transportation methods to move patients to tertiary-care facilities.

**Table 8. Time Descriptors for Medicare-eligible Encounters<sup>29</sup>**

	<b>ARMC Klawock</b>	<b>CRMC Glennallen</b>	<b>IFHS Unalaska</b>	<b>IIMC Friday Harbor</b>	<b>HMC Haines</b>	<b>All FESC Clinics</b>
<b>Year 1</b>						
Number of encounters	25	31	7	7	NA	70
Mean length (hrs)	9.1	11.6	8.4	4.6	NA	9.7
Median length (hrs)	6.0	7.5	7.3	4.5	NA	6.0
Standard deviation (hrs)	9.3	9.2	5.1	0.6	NA	8.6
Maximum (hrs)	48.0	45.0	19.5	5.5	NA	48.0
<b>Year 2</b>						
Number of encounters	32	26	9	5	20	92
Mean length (hrs)	8.3	12.9	10.1	6.2	6.6	9.3
Median length (hrs)	5.3	7.3	6.5	6.0	6.0	6.0
Standard deviation (hrs)	7.8	10.1	6.6	1.5	3.4	7.8
Maximum (hrs)	36.5	44.5	22.5	8.5	18.0	44.5
<b>Year 3</b>						
Number of encounters	53	22	45	9	24	153
Mean length (hrs)	8.4	13.8	9.5	5.7	9.3	9.5
Median length (hrs)	5.5	9.2	6.8	4.5	6.7	6.3
Standard deviation (hrs)	7.2	11.4	6.7	2.7	5.5	7.6
Maximum (hrs)	38.5	41.3	36.8	12.5	21.0	41.3
<b>Three Years Combined</b>					<b>Two Years</b>	
Number of encounters	110	79	61	21	44	315
Mean length (hrs)	8.5	12.7	9.5	5.5	8.1	9.5
Median length (hrs)	5.5	7.5	6.8	4.8	6.3	6.3
Standard deviation (hrs)	7.8	10.1	6.5	2.0	4.8	7.9
Maximum (hrs)	48.0	45.0	36.8	12.5	21.0	48.0

<sup>28</sup> The facility in which IIMC is located requires additional modifications to facilitate overnight patient monitoring and observation.

<sup>29</sup> See Glossary for definition of time descriptors.

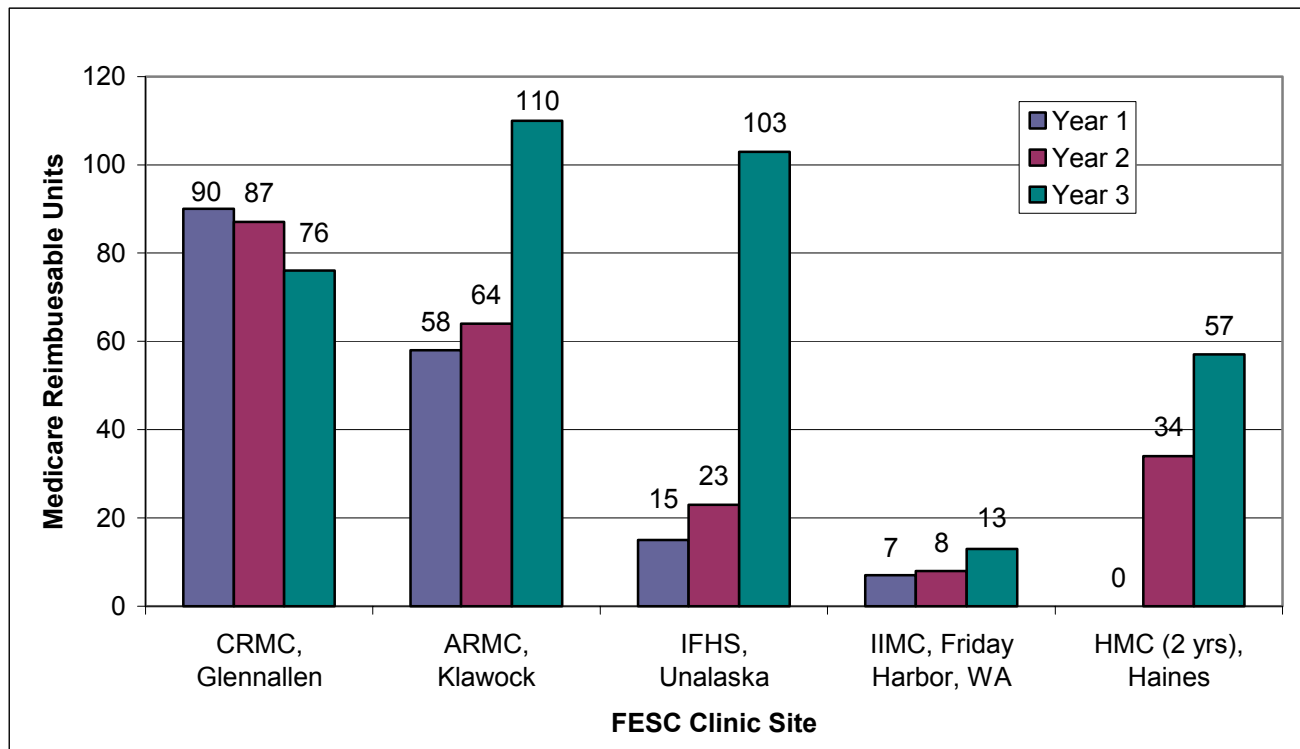
Medicare-eligible encounters for medical care were calculated in 4-hour units. Thus, a long 24-hour encounter would be reimbursed for 6 units, while a brief 4-hour encounter would be reimbursed for only 1 unit. The time distribution and numbers of Medicare-eligible encounters resulted in the following total potential CMS-eligible units for the project over the three years (Table 9).

**Table 9. FESC Encounters in Medicare-eligible Time Units**

Medicare-eligible Time Units	Year 1 (n=70)	Year 2 (n=92)	Year 3 (n=153)	Three Years (n=315)
	170	216	359	745

Year two had considerably more time units than year one. By year three, the time units were double those of year one. Figure 23 shows the Medicare-eligible units by clinic. With their more numerous and relatively more lengthy Medicare-eligible encounters, CRMC and ARMC reported by far the largest number of eligible units—a total of 253 and 232, respectively, over three years. These two clinics had 65% of the project total Medicare-eligible time units over the three years. IFHS in Unalaska had a noticeable increase in Medicare-eligible units in year three. This was due to an increase in patients who were eligible for Medicare.

**Figure 23. Number of Medicare-Reimbursable Time Units Three-Year Comparison**



Looking at Medicare-eligible encounters by type (Table 10), monitoring and observation encounters (mean 10.7 hours, median 6.8 hours) were longer than both transfer encounters (mean 7.8 hours, median 5.7 hours) and other extended stay encounters (mean 9.0 hours, median 4.5 hours).

**Table 10. Medicare-eligible Encounters by Type—Time Descriptors**

Variable	Monitoring and Observations	Transfers	Other	All
Number of encounters	177	130	8	315
Mean (hrs)	10.7	7.8	9.0	9.5
Median (hrs)	6.8	5.7	4.5	6.3
Standard deviation (hrs)	8.7	6.4	7.0	7.9
Maximum (hrs)	48.0	41.3	20.5	48.0

In Table 11, Medicare-eligible encounters had a longer mean and slightly longer median (mean 9.5 hours and median 6.3 hours) than all FESC encounters (mean 8.8 hours and median 6.0 hours). This implies that there were a number of Medicare-eligible encounters among the longer FESC encounters.

**Table 11. FESC Encounters by Monitoring and Observation and Transfer Encounters—Time Descriptors**

Variable	Monitoring and Observations	Transfers	Other	All
Number of encounters	784	420	22	1226
Mean (hrs)	9.0	8.4	8.7	8.8
Median (hrs)	6.2	6.0	6.9	6.0
Standard deviation (hrs)	6.8	6.8	5.6	6.8
Maximum (hrs)	48.0	50.0	23.8	50.0

**Figure 24. Medicare-eligible Encounters During and After Clinic Hours Over Three Years**

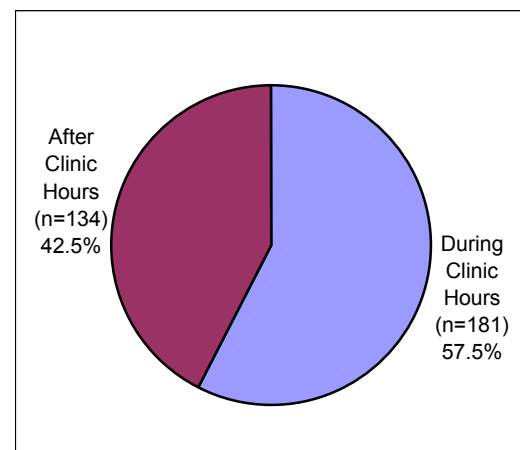
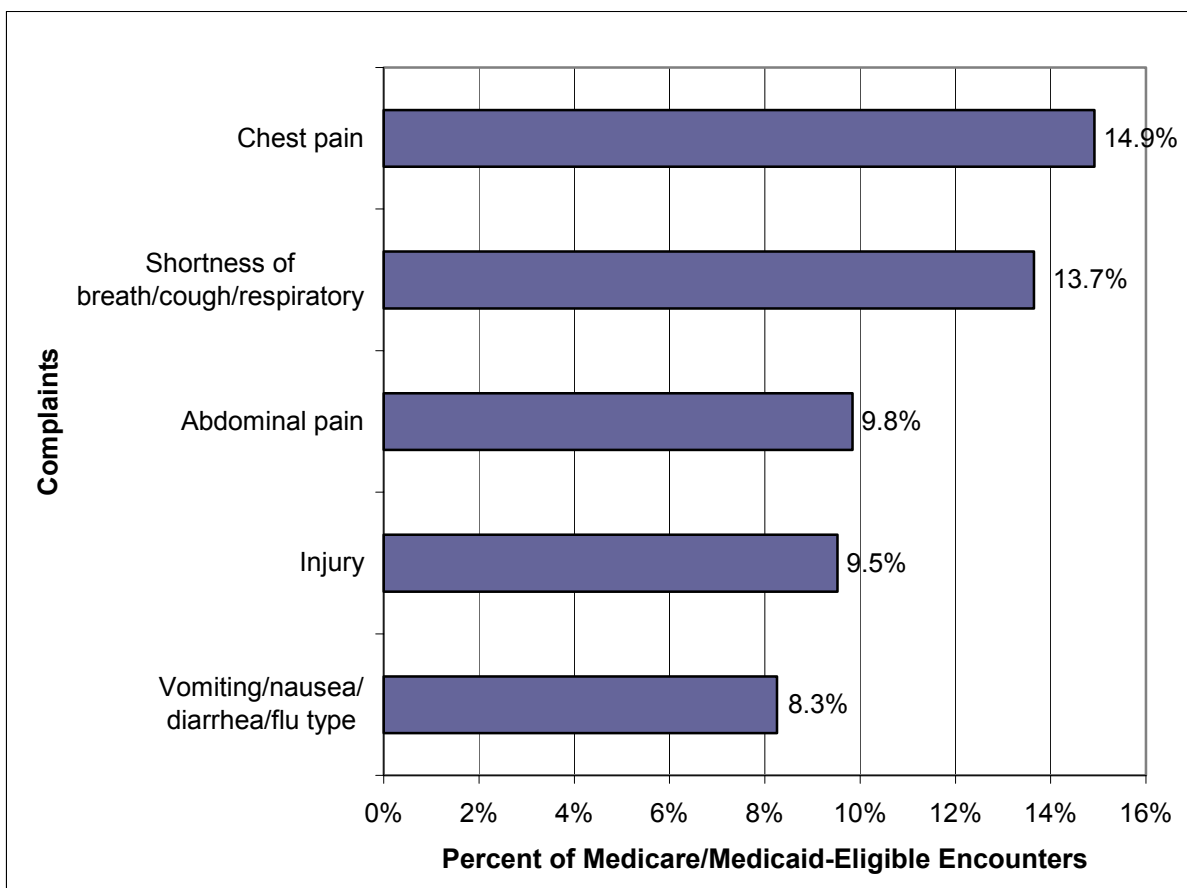


Figure 24 shows that a lower percentage of Medicare-eligible encounters began after hours (43%, n=134) than did for the overall project encounters (45%, n=547; see Figure 6).

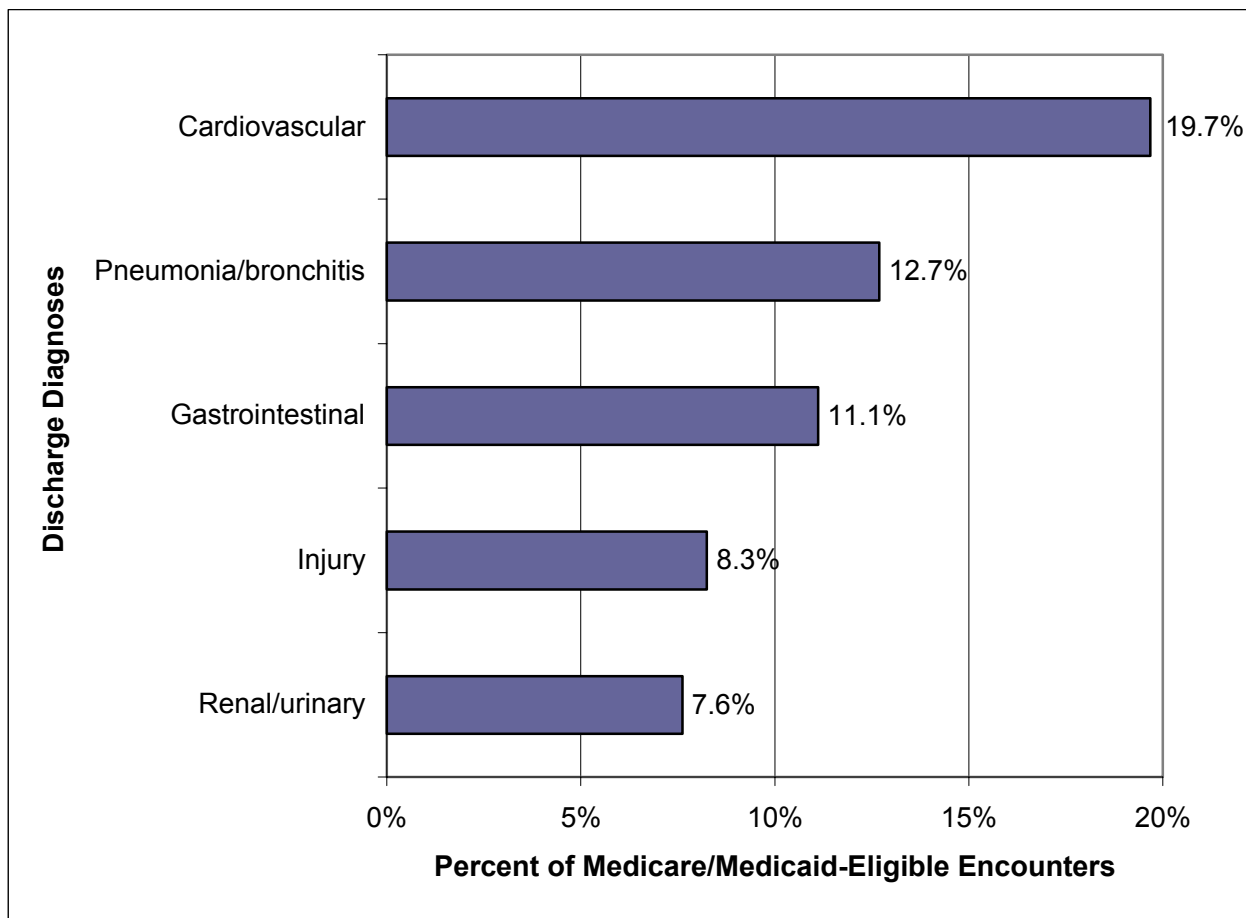
The five most frequent chief complaints at time of admission for Medicare-eligible encounters are shown in Figure 25, accounting for 57% of all Medicare-eligible encounter chief complaints. These were the same five most frequent chief complaints for the overall FESC encounters, though in different rank order (see Figure 9). For the Medicare-eligible encounters, chest pain (14.9%, n=47) was first, followed by shortness of breath/cough/respiratory (13.7%, n=43), abdominal pain (9.8%, n=31), injury (9.5%, n=30), and vomiting/nausea/diarrhea/flu-type symptoms (8.3%, n=26). Other less frequent complaints included dizzy/syncope/confusion (6%, n=18), fever (4.0%, n=13), and behavioral/mental health (3%, n=10).

**Figure 25. Percentage of Five Most Frequent Chief Complaints of Medicare/Medicaid-eligible Encounters Over Three Years**



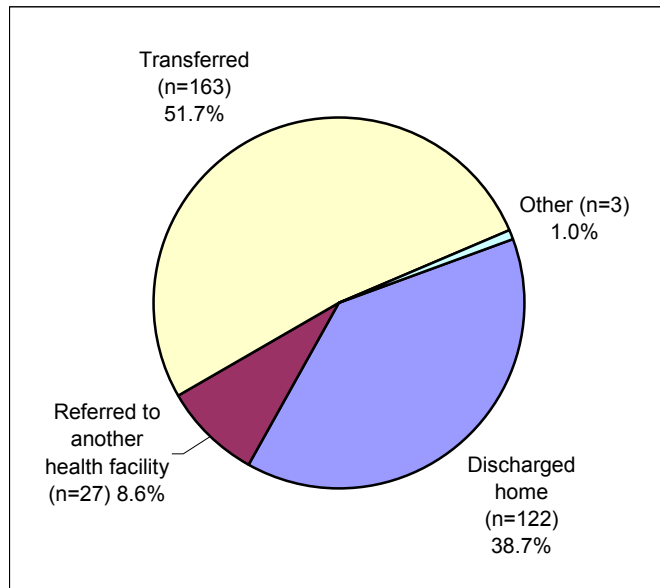
The five most common discharge diagnoses for the Medicare-eligible encounters are shown in Figure 26. They represent 60.1% of the discharge diagnoses, which differed from the overall project's top five diagnoses. Pneumonia/bronchitis ranked second in Medicare-eligible encounters and ranked fifth in overall FESC encounters (see Figure 10). Among the five highest ranking discharge diagnoses for Medicare-eligible encounters, cardiovascular (19.7%, n=62) was the most frequent, followed by pneumonia/bronchitis (12.7%, n=40), gastrointestinal (11.1%, n=35), injury (8.3%, n=26), and renal/urinary (7.6%, n=24). Additional discharge diagnoses included respiratory (7%, n=23) and musculoskeletal (4%, n=13).

**Figure 26. Percentage of Five Most Frequent Discharge Diagnoses of Medicare/Medicaid-eligible Encounters Over Three Years**

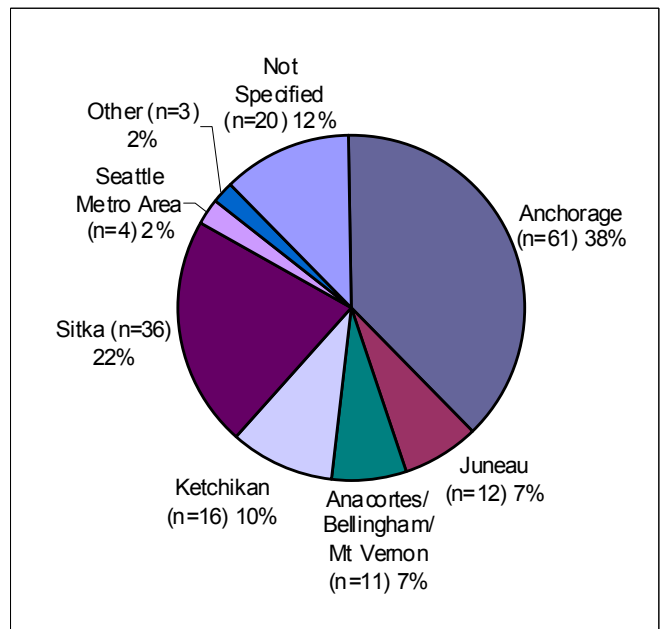


The disposition of Medicare-eligible encounters (Figure 27) differed somewhat from the disposition of the overall FESC encounters (see Figure 11). A lower percentage of patients were discharged home—39% (n=122) of Medicare-eligible patients vs. 46% (n=559) overall FESC encounters. A higher percentage of those who were eligible for Medicare were transferred—52% (n=163) Medicare-eligible vs. 43% (n=528) overall. Those referred for non-urgent follow-up had similar percentages—9% (n=27) of Medicare-eligible vs. 10% (n=122) for overall FESC encounters.

**Figure 27. Discharge Disposition of Medicare-Eligible Encounters Over Three Years**



**Figure 28. Medevac Destinations of Medicare-Eligible Encounters Over Three Years**



The destinations of medevacs for Medicare-eligible encounters ranked the same as the overall project distribution of destinations (see Table 5). Anchorage remained the most frequent destination for Medicare-eligible encounters (38%, n=61), receiving patients from ARMC, CRMC, HMC, and IFHS, followed by Sitka (22%, n=36) which received patients from ARMC and HMC (Figure 28).

## E. Under Four-Hour Encounter

This subsection examines the data for 1,634 encounters that were less than four hours in length (Table 12).<sup>30</sup> These encounters made up 57% (1634/2860) of all encounters at the FESC clinics. The mean and median for all clinics for three years were within 10 minutes (mean 2.3 hours and median 2.5 hours). This difference was based on a wide range with a standard deviation of .9 hours—with a minimum of .25 hours and a maximum of 3.9 hours.

**Table 12. Time Descriptors for Less-Than-4-Hour Encounters**

	<b>ARMC Klawock</b>	<b>CRMC Glennallen</b>	<b>IFHS Unalaska</b>	<b>IIMC Friday Harbor</b>	<b>HMC Haines</b>	<b>All FESC Clinics</b>
<b>Year 1</b>						
Number of encounters	125	75	76	182	NA	458
Mean length (hrs)	2.7	2.8	2.8	1.7	NA	2.3
Median length (hrs)	2.5	2.8	3.0	1.5	NA	2.5
Standard deviation (hrs)	0.7	0.7	0.7	0.9	NA	0.9
Maximum (hrs)	3.8	3.8	3.8	3.8	NA	3.8
Minimum (hrs)	0.3	0.8	1.0	0.3	NA	0.3
<b>Year 2</b>						
Number of encounters	70	59	120	217	90	556
Mean length (hrs)	2.7	2.9	2.6	1.6	2.8	2.3
Median length (hrs)	2.6	3.0	2.8	1.5	2.9	2.5
Standard deviation (hrs)	0.7	0.6	0.7	0.8	0.7	0.9
Maximum (hrs)	3.5	3.8	3.8	3.8	3.8	3.8
Minimum (hrs)	0.3	1.3	0.3	0.3	0.3	0.3
<b>Year 3</b>						
Number of encounters	104	58	105	235	118	620
Mean length (hrs)	2.9	2.8	3.0	1.6	2.5	2.4
Median length (hrs)	3.0	2.9	3.0	1.5	2.7	2.5
Standard deviation (hrs)	0.6	0.7	0.6	0.8	0.9	0.9
Maximum (hrs)	3.8	4.0	3.9	3.8	3.9	4.0
Minimum (hrs)	1.3	1.3	1.5	0.3	0.3	0.3
<b>Three years Combined</b>					<b>Two Years</b>	
Number of encounters	299	192	301	634	208	1634
Mean length (hrs)	2.8	2.8	2.8	1.7	2.6	2.3
Median length (hrs)	2.8	3.0	2.8	1.5	2.8	2.5
Standard deviation (hrs)	0.7	0.7	0.7	0.8	0.8	0.9
Maximum (hrs)	3.8	4.0	3.9	3.8	3.9	4.0
Minimum (hrs)	0.3	0.8	0.3	0.3	0.3	0.3

<sup>30</sup> The criteria the FESC encounter must meet for potential CMS reimbursement are (1) eligibility for Medicare and (2) an encounter that is four or more hours in length. Encounters for Medicare-eligible patients that are under four hours in length would not be eligible for Medicare reimbursement.

**Figure 29. Percentage of <4 Hour Encounters During and After Hours Over Three Years**

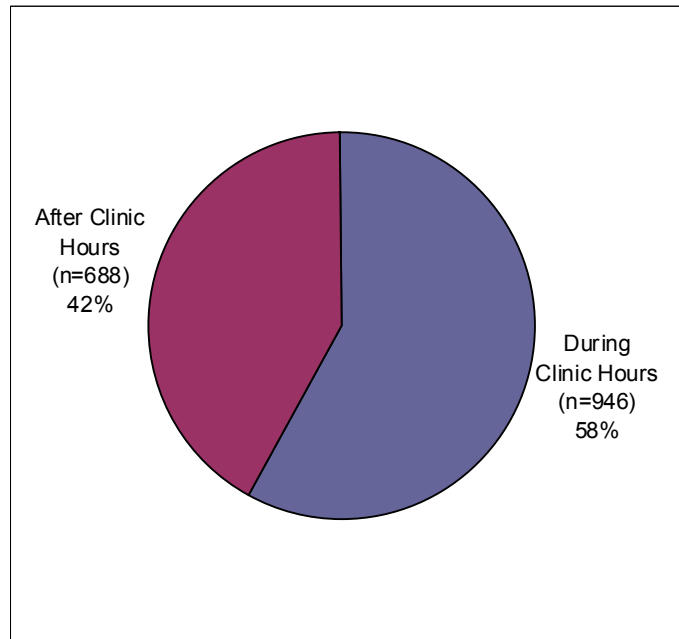


Figure 29 shows that 42% of the encounters that were less than four hours occurred after normal clinic hours—three percent less than the overall FESC encounters at 45% (see Figure 6).

**Figure 30. Percentage of <4 Hour Encounters by Type Over Three Years**

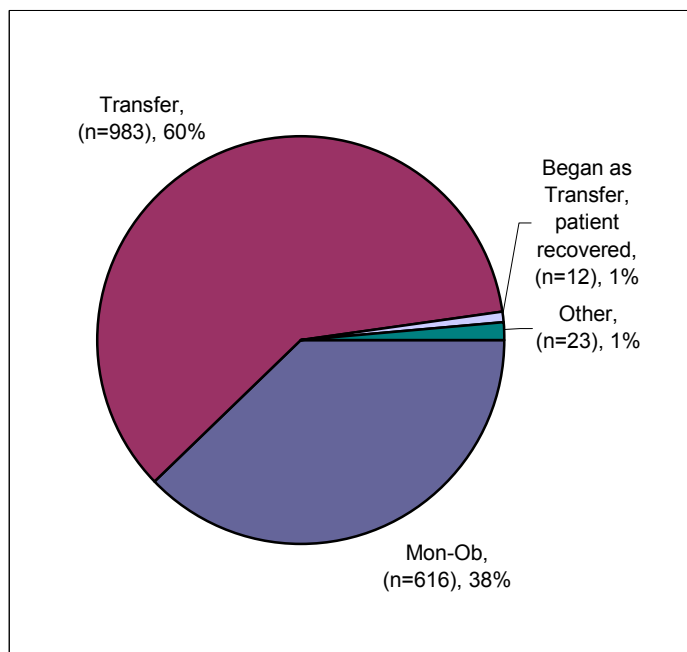
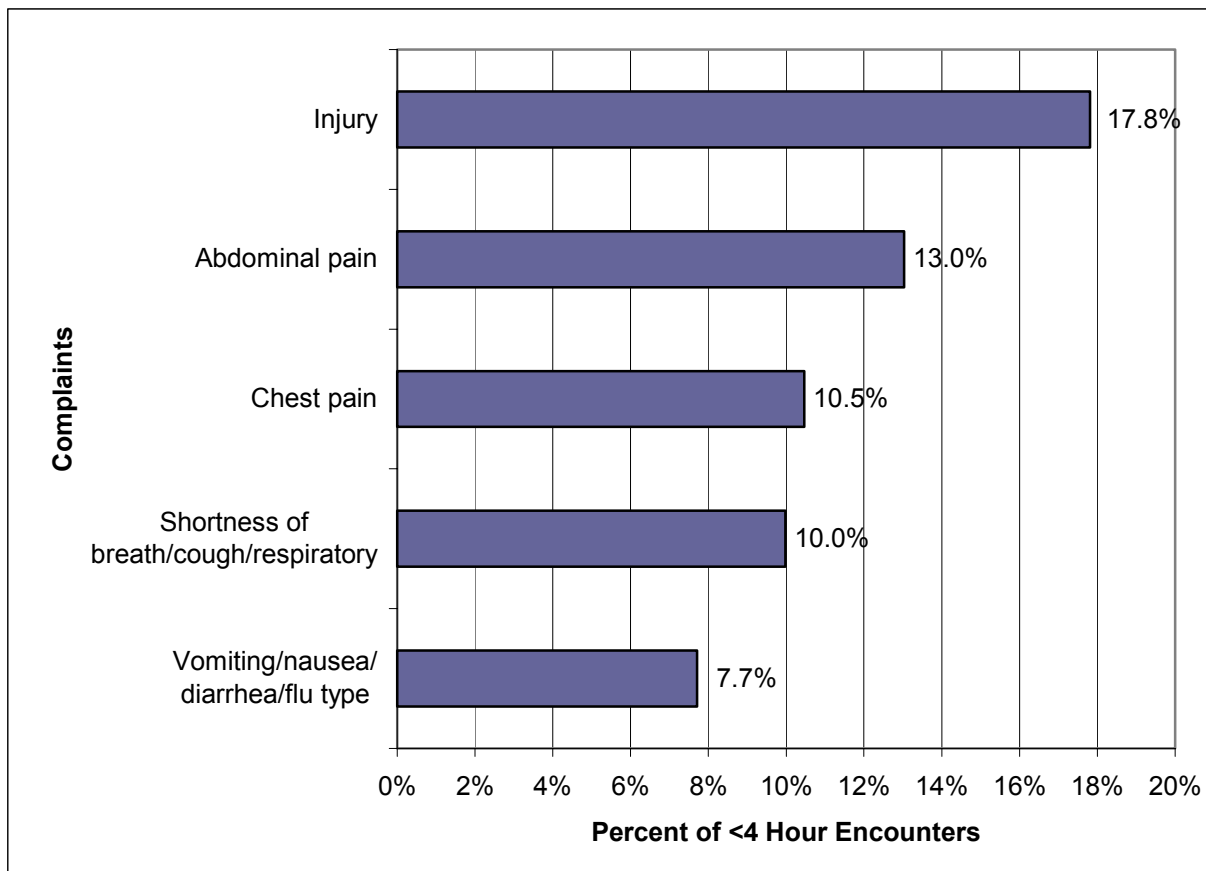


Figure 30 shows that 60% (n=983) of encounters lasting fewer than four hours resulted in transfers, compared to 34% (n=420) for overall FESC encounters (see Figure 4). Thirty-eight percent (n=616) of less-than-four-hour encounters were classified as monitoring and observation encounters, compared to 64% (n=784) for overall FESC encounters (see Figure 4). These numbers testify to the clinics' ability to quickly diagnose, classify, stabilize, and arrange transport for their patients. Clinical judgment determines whether a patient with an illness or injury may be treated and discharged in fewer than four hours.

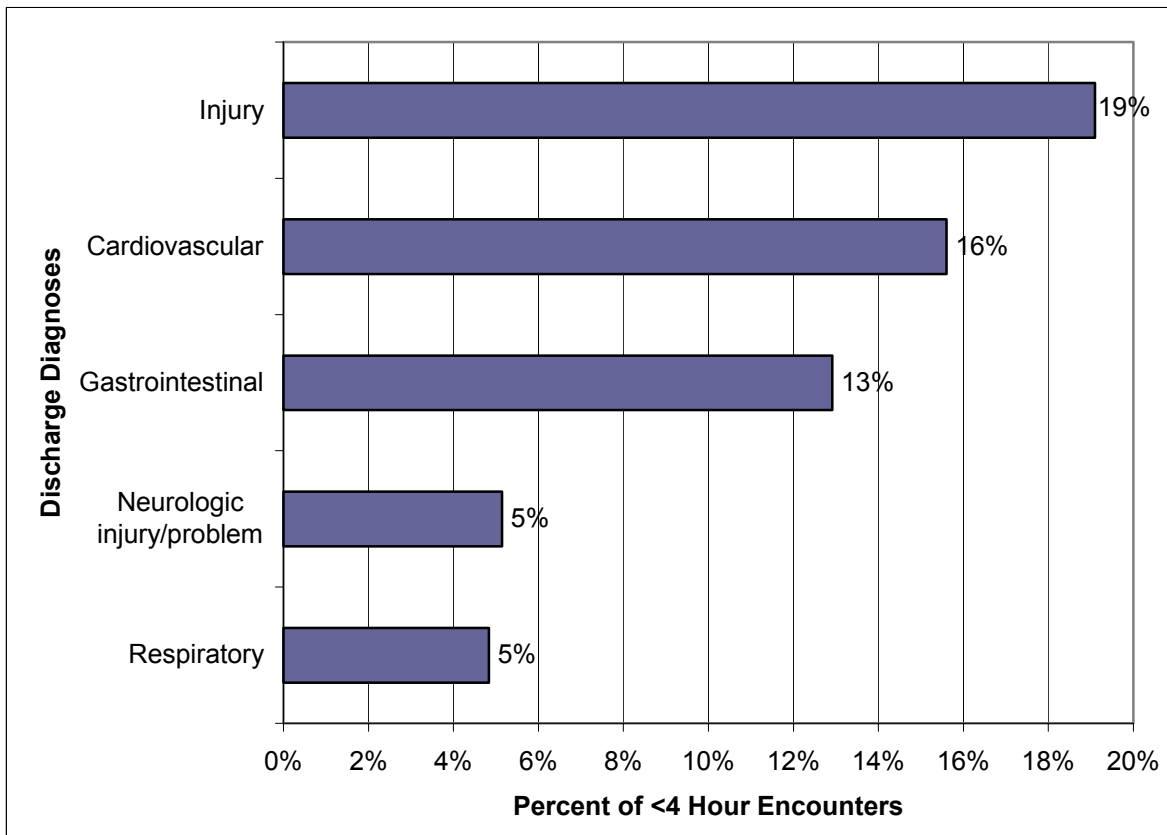
The five most frequent chief complaints of encounters lasting less than four hours accounted for 59% of these encounters (Figure 31). Four of these five complaints were also listed in the top five chief complaints for the overall FESC encounters, but in a different order (see Figure 9). Leading the list was injury (17.8%, n=291), followed by abdominal pain (13.0%, n=213), chest pain (10.5%, n=171), shortness of breath/cough/respiratory (10.0%, n=163), and vomiting/nausea/diarrhea/flu type symptoms (7.7%, n=126). Other, less frequent chief complaints included dizziness/syncope/confusion (7.6%, n=124) and pain in limb(s) (4%, n=62).

**Figure 31. Percentage of Five Most Frequent Chief Complaints of <4 Hour Encounters**



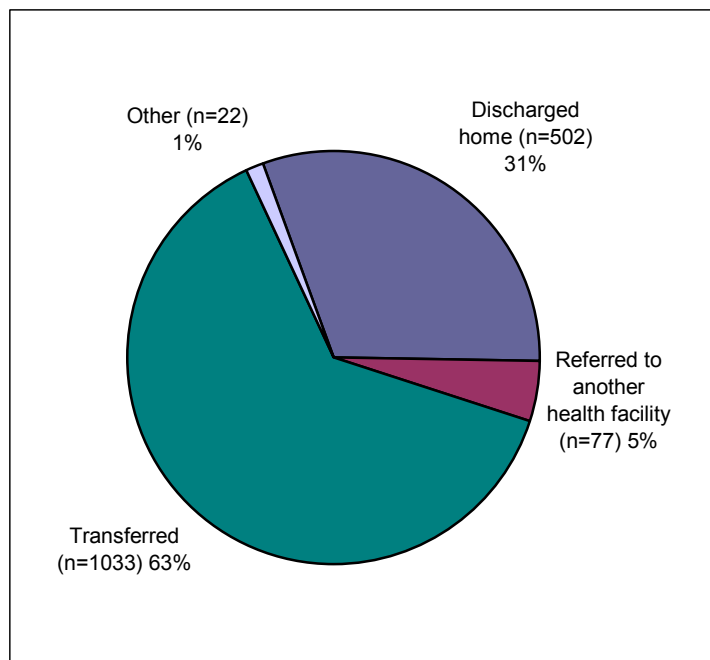
The five most common diagnoses at discharge for encounters under four hours are shown in Figure 32, representing 58% of all diagnoses. Note that injury topped the list (19%, n=312), followed by cardiovascular (16%, n=255). Rounding out the five most frequent were gastrointestinal diagnoses (13%, n=211), neurologic injury/problem (5%, n=84), and respiratory (5%, n=79). Another, less-frequent diagnosis at discharge was substance abuse/use-related (5%, n=78).

**Figure 32. Percentage of Five Most Frequent Discharge Diagnoses of <4 Hour Encounters**



The pattern of patient disposition in Figure 33 differed considerably from that of the entire patient population. A large majority of encounters under four hours were transferred (63%, n=1033). Transfer encounters cause the clinics to incur the expense and inconvenience of medevacs or long off-island/out-of-area referral visits. Though these encounters are under four hours, they require clinical staff with a higher level of training and experience, specialized equipment and supplies, and additional resources that exceed those commonly found in a clinic that is closer to (within 75 miles) a tertiary-care facility. Thirty-one percent (31%, n=502) of encounters under four hours were discharged home, meaning they were successfully treated in-clinic and in-community, avoiding a medevac or a follow-up trip to another health facility. Thus, the clinics had the resources to resolve not quite a third of the under-four-hour encounters. Another 5% (n=77) were referred to another health facility for non-urgent follow-up care.

**Figure 33. Disposition of Under-4-Hour Encounters Over Three Years**



## F. Medicare- and Medicaid-Eligible and Projected Revenue

This subsection examines Medicare- and Medicaid-eligible units and FESC encounters, proposed rates, and projected revenue.

FESC encounters are monitoring and observation, transfer, and other extended stay encounters of four hours or longer. Medicare- and Medicaid-eligible units are calculated by dividing FESC encounters into segments using the following table. The maximum Medicare/Medicaid billable units is 12. See Table 13 for a description of the Medicare billable units.

**Table 13. Medicare Billable Units Description**

<b>Encounter Length (Range in Hours)</b>	<b>Units</b>
Under 4 hours	0
4 to <6 hours	1
6 to <10 hours	2
10 to <14 hours	3
14 to <18 hours	4
18 to <22 hours	5
22 to <26 hours	6
26 to <30 hours	7
30 to <34 hours	8
34 to <38 hours	9
38 to <42 hours	10
42 to <46 hours	11
Up to 48 hours	12

Table 14 shows that 745 of the encounters were potentially Medicare and/or Medicaid-eligible units generated from 1,226 FESC encounters. The proposed Medicare and Medicaid rates and the projected revenue of the combined programs are included. A detailed breakdown of these projections by clinic and eligible units is in Appendix D.

**Table 14. Medicare- and Medicaid-eligible Units and FESC Encounters, Proposed Rates, and Projected Revenue**

<b>FESC Site</b>	<b>Medicare Units</b>	<b>FESC Encounters</b>	<b>Proposed Medicare Rate</b>	<b>Proposed Medicaid Rate</b>	<b>Projected Revenue (Medicare and Medicaid Combined)</b>
<b>CRMC, Glennallen</b>	253	259	\$ 522.43	\$ 299.59	\$185,819.30
<b>ARMC, Klawock</b>	232	323	\$ 522.43	\$ 426.00	\$162,525.76
<b>IFHS, Unalaska</b>	141	474	\$ 522.43	\$ 219.86	\$ 74, 211.23
<b>IIMC, Friday Harbor</b>	28	50	\$ 463.07	\$ 885.29	\$ 23,080.26
<b>HMC, Haines (Two Years)</b>	91	120	\$ 522.43	\$ 426.00	\$ 65,007.13
<b>Total</b>	745	1226	N/A	N/A	\$436,432.45

CRMC in Glennallen had a high percentage of FESC encounters that were eligible for reimbursement by Medicare or in combination with Medicaid. It appears that the population which utilized most of the FESC encounters was eligible for Medicare. This was in sharp contrast to IFHS in Unalaska, which had a higher total of FESC encounters than CRMC (IFHS, n=474 and CRMC, n=259). It appears that Unalaska's population had a health status that creates many FESC encounters; however, these patients were too young or did not qualify for Medicare for other reasons.

## V. Discussion

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The accrual of three years of data deepens our understanding of what constitutes a “FESC encounter.” A total of 1,226 FESC encounters (greater than or equal to four hours) and 1,634 less-than-four-hour encounters were analyzed, representing the total encounters between September 15, 2005, and September 14, 2008, for ARMC, CRMC, IIMC, and IFHS; and between September 15, 2006, and September 14, 2008, for HMC (which entered the project later than the others). Looking at the data presented, we can draw the following generalizations:

- Almost half of these encounters (45.5%) commenced outside of normal clinic hours and, because some began during hours and occasionally extended after hours, about half of all encounters fell to the after-hours/on-call/night-shift staff.
- The most common presenting complaints of these patients were abdominal pain (13%), shortness of breath/cough/respiratory symptoms (12%), chest pain (12%), injury (11%), and vomiting/diarrhea/nausea/flu-type symptoms (10%).
- After patient stabilization and work-up, the most common diagnoses were cardiovascular (14%), gastrointestinal (13%), injury (12%), substance abuse (9%), and pneumonia/bronchitis (8%).
- Upon diagnosis, in more than half of the FESC encounters (64%, or 786 of 1,226), staff judged it prudent to monitor, observe, and locally treat the patient rather than decide to Medevac.
- However, in less than one-in-ten of the monitoring and observation cases (9%), the patient unexpectedly worsened or failed to improve as expected, requiring a medevac.
- Anchorage was the principal medevac destination (52.7% of medevacs), receiving patients from all four Alaska clinics. A paid escort was used by 11% of the medevacs.
- Almost three-quarters (74%) of the monitoring and observation encounters ended by being discharged home, and another 15% of these encounters resulted in referral for non-urgent follow-up at another health-care facility.
- Despite occasional delays due to transportation problems and inclement weather, the median transfer/medevac encounter was 6.0 hours.
- Only about one-in-four (25.7%) FESC encounters were potentially reimbursable by Medicare.
- There were 745 potential Medicare- and/or Medicaid-eligible units generated from 1,226 FESC encounters.
- There was a noticeable dip in FESC encounters for IFHS during Year 2, down to 117 from 163 in Year 1. It went back up in Year 3 to 194. The lower amount of FESC

encounters in Year 2 directly corresponds with an increase in encounters under 4 hours for the same time period. This can be attributed to the consequence of having a dedicated plane on the island for medevacs during Year 2.

- IIMC showed an increase in FESC encounters and encounters under 4 hours in Year 3. This can be attributed to both staffing changes as well as increased clinic traffic due to the growth of tourism in Friday Harbor.

The overall project statistics—means, medians, percentages, and frequency distributions of under-four-hour and FESC encounters—are starting to show similarities and common trends among the FESC clinics. CRMC and ARMC are showing similar trends as are IIMC and IFHS. With only two years of operations, the data from HMC is not yet trending with any of the other four clinics. It may represent a third type of FESC clinic. We will know more after we have a third year of information.

It is important to remember that even with these developing patterns and generalizations between clinics, there are factors that make each clinic unique. The geographic location of the clinic relative to a higher level of medical care, transportation options and frequency (used when transferring a patient), and age of the population being served affects the number, length, and type of encounters.

FESC clinics have initiated a CMS demonstration project that will reimburse them for Medicare-eligible FESC encounters lasting four or more hours. All five sites reporting during the three project years had enough Medicare-reimbursable encounters and potentially reimbursable time units to receive a meaningful financial boost from these reimbursements. However, IFHS and IIMC have substantially more encounters that are less than four hours that need an additional reimbursement mechanism to assist them in recovering an appropriate fee for service.

Each clinic is clearly a distinct combination of geographic location; weather and climate; transportation resources and challenges; material, managerial, financial, and human resources; and community and culture—all of which converge to influence the patient behavior and expectations as well as provider practices and decisions that produce the distinctive clinic data sets. Thus, despite the generalizations drawn above, one should continue to look cautiously for the unique differences among the clinics and the reasons why these exist when using overall FESC project data for drafting either policy or best practices, since these data hide critical clinic-specific distinctions.

## Appendix A: FESC Outcome Log

1. Patient Number:

2. Date/Time **In**: \_\_\_\_/\_\_\_\_/\_\_\_\_ \_\_\_\_:\_\_\_\_ am pm

3. Chief complaint:

4. Date/Time **Out**: \_\_\_\_/\_\_\_\_/\_\_\_\_ \_\_\_\_:\_\_\_\_ am pm

5. Diagnosis at discharge:

6. Select FESC type:

\_\_\_\_ A. Transfer to hospital:

- commercial air
- medevac
- ferry or boat
- vehicle (i.e., ambulance, private vehicle)
- Coast Guard helicopter
- other (specify) \_\_\_\_\_

Did any of the following factors influence encounter length?

\_\_\_ weather, \_\_\_ darkness, or \_\_\_ unavailability of preferred method of transportation  
\_\_\_ other \_\_\_\_\_

Destination: (site specific)

Transfer company: (site specific)

Did your organization provide a paid escort for the transfer? \_\_\_yes \_\_\_no

\_\_\_\_ B. Monitoring/Observation

Disposition:

\_\_\_ Discharged Home

\_\_\_ Referred for Non-Emergent Follow-up

\_\_\_ Transferred; if yes, why:

- Patient deteriorated
- Patient failed to improve as expected
- Patient was safely monitored and observed until non-emergency transport was available

\_\_\_ Other \_\_\_\_\_

\_\_\_ C. Other

- \_\_\_ Patient recovered while waiting for transport
- \_\_\_ Patient refused transport
- \_\_\_ Receiving hospital refused patient
- \_\_\_ Patient died
- \_\_\_ Other

7. **For monitoring/observation encounters:** How did the availability of a FESC option affect the care given?

- \_\_\_ avoided emergency transfer and subsequent hospitalization
- \_\_\_ delayed emergency transfer and subsequent hospitalization
- \_\_\_ avoided risk of sending patient home
- \_\_\_ allowed patient to seek non-emergent transport instead of emergency transport

8. Describe the clinical outcome of the FESC encounter. Include the referral facility diagnosis and any unanticipated results.

**Financial/Coding Information**

9. ICD-9 Codes:

10. CPT Codes:

11. Total billed:

12. Primary Payor: \_\_\_ Medicare \_\_\_ Medicaid \_\_\_ Private Ins.  
\_\_\_ Self Pay \_\_\_ IHS/Tribal \_\_\_ Other

13. Secondary Payor: \_\_\_ Medicare \_\_\_ Medicaid \_\_\_ Private Ins. \_\_\_ HRSA Sliding Fee  
\_\_\_ Self Pay \_\_\_ IHS/Tribal \_\_\_ Other

14. Additional Payor(s) (select all that apply): \_\_\_ Medicare \_\_\_ Medicaid \_\_\_ Private Ins.  
\_\_\_ HRSA Sliding Fee \_\_\_ Self Pay \_\_\_ IHS/Tribal \_\_\_ Other

## Appendix B: Data Tables for Figures in the Report

<b>Figure ES1. Type of Encounters at FESC Sites Over Three Data Years</b>		
	Number	Percent
Under 4 Hour Encounters	1634	66%
Over 4 Hour Mon Obs	784	32%
Over 4 Hour Transfers	420	2%
Over 4 Hour Other	22	1%
<b>Total</b>	<b>2,860</b>	<b>100%</b>

<b>Figure 1. Count and Percentage of FESC Encounters by Clinic Over Three Years</b>		
	Number	Percent
Glennallen	259	21%
Klawock	323	26%
Unalaska	474	39%
Friday Harbor	50	4%
Haines (2 yrs)	120	10%
<b>Total</b>	<b>1,226</b>	<b>100%</b>

<b>Figure 2. Mean Annual Number of FESC Encounters per Clinic Over Three Data Years</b>	
Glennallen	108
Klawock	86
Unalaska	158
Friday Harbor	17
Haines (2 yrs)	60
<b>All FESC Sites</b>	<b>86</b>

<b>Figure 3. Mean Length (Hours) of FESC Encounters by Type Over Three Years</b>		
	Mon Ob	Transfer
Glennallen	13.57	6.84
Klawock	7.76	6.90
Unalaska	7.83	10.87
Friday Harbor	5.18	6.74
Haines (2 yrs)	7.21	7.92
<b>All FESC Sites</b>	<b>8.97</b>	<b>8.42</b>

FESC type	Year 1		Year 2		Year 3		All Years	
	#	%	#	%	#	%	#	%
Mon-Ob	254	68%	224	63%	306	61%	784	64%
Transfer	114	31%	119	34%	187	38%	420	34%
Other	4	1%	12	3%	6	1%	22	2%
<b>Total</b>	<b>372</b>	<b>100%</b>	<b>355</b>	<b>100%</b>	<b>499</b>	<b>100%</b>	<b>1226</b>	<b>100%</b>

	CRMC		ARMC		IFHS		IIMC		HHC	
	#	%	#	%	#	%	#	%	#	%
Mon-Ob	177	68%	208	64%	322	68%	29	58%	48	40%
Transfer	79	31%	112	35%	147	31%	19	38%	63	53%
Other	3	1%	3	1%	5	1%	2	4%	9	8%
<b>Total</b>	<b>259</b>	<b>100%</b>	<b>323</b>	<b>100%</b>	<b>474</b>	<b>100%</b>	<b>50</b>	<b>100%</b>	<b>120</b>	<b>100%</b>

	Number	Percent
During Clinic Hours	679	55%
After Hours	547	45%
<b>Total</b>	<b>1,226</b>	<b>100%</b>

CRMC	55.6%
ARMC	48.0%
IFHS	37.3%
IIMC	24.0%
HHC (2 yrs)	49.2%
<b>All FESC Sites</b>	<b>44.6%</b>

	Year 1	Year 2	Year 3
After Hours	46.5%	37.2%	48.5%
During Clinic Hours	53.5%	62.8%	51.5%

<b>Figure 9. FESC Encounters by Five Most-Frequent Chief Complaints Over Three Years</b>		
	<b>Number</b>	<b>Percent</b>
Abdominal pain	165	13%
Shortness of breath/cough/respiratory	150	12%
Chest pain	143	12%
Injury	139	11%
Vomiting/nausea/diarrhea/flu type	119	10%
Dizzy/unresponsive/syncope/confusion	76	6%
Behavioral/mental health	68	6%
Fever	50	4%
Back pain	32	3%
Seizure	29	2%
Pregnancy related	28	2%
Headache	26	2%
Pain in limb(s)	24	2%
Flank pain	18	1%
Blood in cough/vomit	10	1%
Blood in stool	8	1%
Other	141	12%
<b>Total</b>	<b>1,226</b>	<b>100%</b>

<b>Figure 10. FESC Encounters by Five Most-Frequent Discharge Diagnoses Over Three Years</b>		
	<b>Number</b>	<b>Percent</b>
Cardiovascular	172	14%
Gastrointestinal	159	13%
Injury	141	12%
Substance abuse/use related	113	9%
Pneumonia/Bronchitis	97	8%
Respiratory	74	6%
Renal/Urinary	73	6%
Hepatic/Pancreatic/Gallbladder/Appendix	46	4%
Behavioral/Mental health	41	3%
Neurologic injury/problem	41	3%
Musculoskeletal	40	3%
Pregnancy related	37	3%
Infection not associated w/ another cat	35	3%
Diabetes-related diagnosis	29	2%
Dehydration	28	2%
Flu/Flu-like illness	27	2%
Cancer	12	1%
Allergic reaction	4	0%
Other	57	5%
<b>Total</b>	<b>1,226</b>	<b>100%</b>

<b>Figure 11. Discharge Disposition of FESC Encounters Over Three Years</b>		
<b>Disposition of Patient</b>	<b>Number</b>	<b>Percent</b>
Discharged home	559	46%
Referred	122	10%
Transferred	528	43%
Other	17	1%
<b>Total</b>	<b>1,226</b>	<b>100%</b>

**Figure 12. Percentage of Transfers by Destination\***

\*See Table 5 in the body of this report.

<b>Figure 13. FESC Encounters Using a Paid Escort</b>		
<b>Escort used</b>	<b>Number</b>	<b>Percent</b>
Yes	60	11%
No	509	90%
<b>Total</b>	<b>528</b>	<b>100%</b>

<b>Figure 14. Mon Ob Encounters During and After Clinic Hours Over Three Years</b>		
	<b>Number</b>	<b>Percent</b>
During Clinic Hours	453	58%
After Clinic Hours	331	42%
<b>Total</b>	<b>784</b>	<b>100%</b>

<b>Figure 15. Mon Ob Encounters by Five Most Frequent Chief Complaints Over Three Years</b>		
	<b>Number</b>	<b>Percent</b>
Abdominal pain	102	13%
Flu-like symptoms	102	13%
Shortness of breath/cough/respiratory	93	12%
Chest pain	77	10%
Injury	69	9%
Dizzy/unresponsive/syncope/confusion	49	6%
Behavioral/Mental health	46	6%
Fever	37	5%
Back pain	24	3%
Headache	19	2%
Pain in limb(s)	17	2%
Pregnancy related	17	2%
Flank pain	16	2%
Seizure	16	2%
Blood in cough/vomit	5	1%
Other	92	12%
<b>Total</b>	<b>784</b>	<b>100%</b>

<b>Figure 16. Mon Ob Encounters by Five Most Frequent Discharge Diagnoses Over Three Years</b>		
	<b>Number</b>	<b>Percent</b>
Gastrointestinal	114	15%
Substance abuse/use related	92	12%
Cardiovascular	84	11%
Injury	71	9%
Pneumonia/Bronchitis	71	9%
Renal/Urinary	50	6%
Respiratory	46	6%
Musculoskeletal	28	4%
Diabetes-related diagnosis	27	3%
Dehydration	24	3%
Infection not associated w/ another cat	24	3%
Flu/Flu-like illness	23	3%
Behavioral/Mental health	21	3%
Hepatic/Pancreatic/Gallbladder/Appendix	20	3%
Pregnancy related (fetal demise, labor, etc.)	20	3%
Neurologic injury/problem	15	2%
Cancer	9	1%
Allergic reaction	4	1%
Other	41	5%
<b>Total</b>	<b>784</b>	<b>100%</b>

<b>Figure 17. Discharge Disposition of Mon Ob Encounters Over Three Years</b>		
	<b>Number</b>	<b>Percent</b>
Discharged home	548	70%
Referred to another health facility	121	15%
Transferred	106	14%
Other	9	1%
<b>Total</b>	<b>784</b>	<b>100%</b>

<b>Figure 18. Discharge Disposition of Mon Obs by Clinic Over Three Years</b>										
	<b>Discharged Home</b>		<b>Referred to Another Health Facility</b>		<b>Transferred</b>		<b>Other</b>		<b>Total</b>	
	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>	<b>#</b>	<b>%</b>
Glennallen	129	73%	36	20%	11	6%	1	1%	177	23%
Klawock	148	71%	26	13%	33	16%	1	0%	208	27%
Unalaska	223	69%	54	17%	41	13%	4	1%	322	41%
Friday Harbor	21	72%	1	3%	5	17%	2	7%	29	4%
Haines	27	56%	4	8%	16	33%	1	2%	48	6%
All FESC Sites	548	70%	121	15%	106	14%	9	1%	784	100%

<b>Figure 19. During- and After-Hours Transfer Encounters Over Three Years</b>		
	<b>Number</b>	<b>Percent</b>
During Clinic Hours	215	51%
After Clinic Hours	205	49%
<b>Total</b>	<b>420</b>	<b>100%</b>

<b>Figure 20. Five Most-Frequent Chief Complaints of Transfer Encounters Over Three Years</b>		
	<b>Number</b>	<b>Percent</b>
Injury	68	16%
Abdominal pain	63	15%
Chest pain	62	15%
Shortness of breath/cough/respiratory	52	12%
Dizzy/unresponsive/ syncope/confusion	47	6%
Behavioral/Mental health	24	5%
Vomiting/nausea/diarrhea/flu type	20	4%
Fever	15	3%
Seizure	13	3%
Pregnancy related	13	2%
Back pain	10	2%
Headache	8	2%
Pain in limb(s)	7	2%
Blood in stool	7	1%
Blood in cough/vomit	5	1%
Flank pain	5	0%
Other	1	11%
<b>Total</b>	<b>420</b>	<b>100%</b>

<b>Figure 21. Five Most-Frequent Discharge Diagnoses of Transfer Encounters Over Three Years</b>		
	<b>Number</b>	<b>Percent</b>
Cardiovascular	84	20%
Injury	70	17%
Gastrointestinal	43	10%
Hepatic/Pancreatic/ Gallbladder/Appendix	26	6%
Neurologic injury/problem	26	6%
Pneumonia/Bronchitis	25	6%
Respiratory	24	6%
Renal/Urinary	21	5%
Behavioral/Mental health	20	5%
Substance abuse/use related	17	4%
Pregnancy related (fetal demise, labor, etc.)	16	4%
Musculoskeletal	12	3%
Infection not associated w/ another cat	11	3%
Dehydration	3	1%
Cancer	3	1%
Flu/Flu-like illness	2	0%
Diabetes-related diagnosis	2	0%
Other	15	4%
<b>Total</b>	<b>420</b>	<b>100%</b>

<b>Figure 22. FESC Encounters by Medicare/Medicaid Eligibility Over Three Years</b>		
	<b>Number</b>	<b>Percent</b>
Not Eligible	796	65%
Medicare Eligible	245	20%
Medicaid Eligible	115	9%
Both Medicare and Medicaid Eligible	70	6%
<b>Total</b>	<b>1,226</b>	<b>100%</b>

<b>Figure 23. Number of Medicare-Reimbursable Time Units, Three-Year Comparison</b>			
	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
Glennallen	90	87	76
Klawock	58	64	110
Unalaska	15	23	103
Friday Harbor	7	8	13
Haines	0	34	57
<b>Total</b>	<b>170</b>	<b>216</b>	<b>359</b>

<b>Figure 24. Medicare-Eligible Encounters During and After Clinic Hours Over Three Years</b>		
	<b>Number</b>	<b>Percent</b>
During Clinic Hours	181	57%
After Clinic Hours	134	43%
<b>Total</b>	<b>315</b>	<b>100%</b>

<b>Figure 25. Five Most Frequent Chief Complaints of Medicare/Medicaid-Eligible Encounters Over Three Years</b>		
	<b>Number</b>	<b>Percent</b>
Chest pain	47	15%
Shortness of Breath/cough/respiratory	43	14%
Abdominal pain	31	10%
Injury	30	10%
Vomiting/nausea/ diarrhea/flu type	26	8%
Dizzy/unresponsive/syncope/confusion	18	6%
Fever	13	4%
Behavioral/Mental health	10	3%
Pain in limb(s)	7	2%
Back pain	6	2%
Headache	6	2%
Flank pain	4	1%
Blood in stool	3	1%
Seizure	3	1%
Blood in cough/vomit	2	1%
Other	66	21%
<b>Total</b>	<b>315</b>	<b>100%</b>

<b>Figure 26. Five Most Frequent Discharge Diagnoses of Medicare/Medicaid-Eligible Encounters Over Three Years</b>		
	<b>Number</b>	<b>Percent</b>
Cardiovascular	62	20%
Pneumonia/Bronchitis	40	13%
Gastrointestinal	35	11%
Injury	26	8%
Renal/Urinary	24	8%
Respiratory	23	7%
Musculoskeletal	13	4%
Dehydration	10	3%
Substance abuse/use related	10	3%
Cancer	9	3%
Hepatic/Pancreatic/Gallbladder/Appendix	9	3%
Neurologic injury/problem	9	3%
Behavioral/Mental health	8	3%
Diabetes-related diagnosis	8	3%
Infection not associated w/ another cat	4	1%
Flu/Flu-like illness	3	1%
Allergic reaction	1	0%
Pregnancy related (fetal demise, labor, etc.)	1	0%
Other	20	6%
<b>Total</b>	<b>315</b>	<b>100%</b>

<b>Figure 27. Discharge Disposition of Medicare-Eligible Encounters Over Three Years</b>		
	<b>Number</b>	<b>Percent</b>
Discharged home	122	39%
Referred to another health facility	27	9%
Transferred	163	52%
Other	3	1%
<b>Total</b>	<b>315</b>	<b>100%</b>

<b>Figure 28. Medevac Destinations of Medicare-Eligible Encounters Over Three Years</b>		
	<b>Number</b>	<b>Percent</b>
Anchorage	61	37%
Juneau	12	7%
Anacortes/ Bellingham/Mt Vernon	11	7%
Ketchikan	16	10%
Sitka	36	22%
Seattle Metro Area	4	2%
Other	3	2%
Not Specified	20	12%
<b>Total</b>	<b>163</b>	<b>100%</b>

<b>Figure 29. Under-4-Hour Encounters During and After Hours Over Three Years</b>		
	<b>Number</b>	<b>Percent</b>
During Clinic Hours	946	58%
After Clinic Hours	688	42%
<b>Total</b>	<b>1,634</b>	<b>100%</b>

<b>Figure 30. Under-4-Hour Encounters by Type Over Three Years</b>		
<b>FESC type</b>	<b>Number</b>	<b>Percent</b>
Mon-Ob	616	38%
Transfer	983	60%
Began as Transfer, patient recovered	12	1%
Other	23	1%
<b>Total</b>	<b>1,634</b>	<b>100%</b>

<b>Figure 31. Five Most-Frequent Chief Complaints of Under-4-Hour Encounters</b>		
	<b>Number</b>	<b>Percent</b>
Injury	291	18%
Abdominal pain	213	13%
Chest pain	171	10%
Shortness of breath/cough/respiratory	163	10%
Vomiting/nausea/ diarrhea/flu type	126	8%
Dizzy/unresponsive/syncope/confusion	124	8%
Pain in limb(s)	62	4%
Behavioral/Mental health	55	3%
Pregnancy related	49	3%
Back pain	46	3%
Headache	39	2%
Fever	37	2%
Seizure	31	2%
Flank pain	21	1%
Blood in stool	14	1%
Blood in cough/vomit	12	1%
Other	180	11%
<b>Total</b>	<b>1,634</b>	<b>100%</b>

<b>Figure 32. Five Most Frequent Discharge Diagnoses of Under-4-Hour Encounters</b>		
	<b>Number</b>	<b>Percent</b>
Injury	312	19%
Cardiovascular	255	16%
Gastrointestinal	211	13%
Neurologic injury/problem	84	5%
Respiratory	79	5%
Substance abuse/use related	78	5%
Pneumonia/Bronchitis	73	4%
Renal/Urinary	71	4%
Infection not associated w/ another cat	65	4%
Hepatic/Pancreatic/Gallbladder/Appendix	60	4%
Pregnancy related (fetal demise, labor, etc.)	57	3%
Musculoskeletal	49	3%
Behavioral/Mental health	45	3%
Cancer	30	2%
Flu/Flu-like illness	30	2%
Dehydration	29	2%
Diabetes-related diagnosis	27	2%
Allergic reaction	10	1%
Other	69	4%
<b>Total</b>	<b>1,634</b>	<b>100%</b>

<b>Figure 33. Disposition of Under-4-Hour Encounters Over Three Years</b>		
	<b>Number</b>	<b>Percent</b>
Discharged home	502	31%
Referred to another health facility	77	5%
Transferred	1,033	63%
Other	22	1%
<b>Total</b>	<b>1,634</b>	<b>100%</b>

## Appendix C: Operating Hours for FESC Clinics

### **Unalaska**

M-F 8:30am – 6pm  
Sat 8:30am – 5pm  
Sun – closed

### **Friday Harbor**

M-F 8am – 5pm  
Sat 10am – 1pm  
Sun – closed

### **Klawock**

M-F 8am – 5pm  
Wed 1pm – 5pm  
Sat & Sun – closed

### **Haines**

M-F 8am – 5pm  
Sat & Sun – closed

### **Glennallen**

Mon 9am – 5:30pm  
TWF 10am – 4:40pm  
Thurs 1pm – 7:30pm (starting Oct 1<sup>st</sup>, 2007 10am – 7:30pm)  
Sat (starting Oct 1<sup>st</sup>, 2007 10am – 2pm)  
Sun – closed

## Appendix D: Detailed Data Tables for Medicare- and Medicaid-eligible Encounters

All Clinic Sites - 3 Years Combined							
FESC type				Medicare/Medicaid Eligible			
		Frequency	Percent			Frequency	Percent
<4 hours	Mon-Ob	616	38%	<4 hours	Not Eligible	1008	62%
	Transfer	983	60%		Medicare Eligible	412	25%
	Began Transfer, pt. recovered	12	1%		Medicaid Eligible	151	9%
	Other	23	1%		Medicare & Medicaid Eligible	63	4%
	Total	1634	100%				
4-<6 hours	Mon-Ob	358	63%	4-<6 hours	Not Eligible	381	67%
	Transfer	202	36%		Medicare Eligible	106	19%
	Began Transfer, pt. recovered	3	50%		Medicaid Eligible	46	8%
	Other	6	1%		Medicare & Medicaid Eligible	36	6%
	Total	569	100%				
6-<10 hours	Mon-Ob	225	63%	6-<10 hours	Not Eligible	241	67%
	Transfer	128	36%		Medicare Eligible	70	19%
	Began Transfer, pt. recovered	4	1%		Medicaid Eligible	29	8%
	Other	3	80%		Medicare & Medicaid Eligible	20	6%
	Total	360	100				
10-<14 hours	Mon-Ob	56	62%	10-<14 hours	Not Eligible	60	66%
	Transfer	32	53%		Medicare Eligible	16	18%
	Began Transfer, pt. recovered	1	1%		Medicaid Eligible	13	14%
	Other	2	2%		Medicare & Medicaid Eligible	2	2%
	Total	91	100%				
14-<18 hours	Mon-Ob	63	73%	14-<18 hours	Not Eligible	54	63%
	Transfer	23	27%		Medicare Eligible	18	21%
	Began Transfer, pt. recovered	0	0%		Medicaid Eligible	9	11%
	Other	0	0%		Medicare & Medicaid Eligible	5	6%
	Total	86	100%				
18-<22 hours	Mon-Ob	34	68%	18-<22 hours	Not Eligible	28	56%
	Transfer	14	28%		Medicare Eligible	13	26%
	Began Transfer, pt. recovered	0	0%		Medicaid Eligible	6	12%
	Other	2	4%		Medicare & Medicaid Eligible	3	6%
	Total	50	100%				

All Clinic Sites - 3 Years Combined (Continued)							
FESC type				Medicare/Medicaid Eligible			
22-<26 hours	Mon-Ob	21	70%	22-<26 hours	Not Eligible	12	40%
	Transfer	8	27%		Medicare Eligible	14	47%
	Began Transfer, pt. recovered	0	0%		Medicaid Eligible	4	13%
	Other	1	3%		Medicare & Medicaid Eligible	0	0%
	Total	30	100%				
26-<30 hours	Mon-Ob	9	75%	26-<30 hours	Not Eligible	7	58%
	Transfer	3	25%		Medicare Eligible	0	0%
	Began Transfer, pt. recovered	0	0%		Medicaid Eligible	4	33%
	Other	0	0%		Medicare & Medicaid Eligible	1	8%
	Total	12	100%				
30-<34 hours	Mon-Ob	8	80%	30-<34 hours	Not Eligible	6	60%
	Transfer	2	20%		Medicare Eligible	1	10%
	Began Transfer, pt. recovered	0	0%		Medicaid Eligible	2	20%
	Other	0	0%		Medicare & Medicaid Eligible	1	10%
	Total	10	100%				
34-<38 hours	Mon-Ob	6	67%	34-<38 hours	Not Eligible	3	33%
	Transfer	3	33%		Medicare Eligible	3	33%
	Began Transfer, pt. recovered	0	0%		Medicaid Eligible	2	22%
	Other	0	0%		Medicare & Medicaid Eligible	1	11%
	Total	9	100%				
38-<42 hours	Mon-Ob	1	25%	38-<42 hours	Not Eligible	2	50%
	Transfer	3	75%		Medicare Eligible	1	25%
	Began Transfer, pt. recovered	0	0%		Medicaid Eligible	0	0%
	Other	0	0%		Medicare & Medicaid Eligible	1	25%
	Total	4	100%				
42-46 hours	Mon-Ob	2	67%	42-46 hours	Not Eligible	1	33%
	Transfer	1	33%		Medicare Eligible	2	67%
	Began Transfer, pt. recovered	0	0%		Medicaid Eligible	0	0%
	Other	0	0%		Medicare & Medicaid Eligible	0	0%
	Total	3	100%				
>48 hours	Mon-Ob	1	50%	>48 hours	Not Eligible	1	50%
	Transfer	1	50%		Medicare Eligible	1	50%
	Began Transfer, pt. recovered	0	0%		Medicaid Eligible	0	0%
	Other	0	0%		Medicare & Medicaid Eligible	0	0%
	Total	2	100%				