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**FEASIBILITY ANALYSIS FOR A KIDNEY DIALYSIS
CENTER IN HUMBOLDT GENERAL HOSPITAL**



UNIVERSITY OF NEVADA, RENO

Feasibility Analysis for a Kidney Dialysis Center in Humboldt General Hospital

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Introduction

Hemodialysis centers provide medical treatment for end-stage renal disease (ESRD) caused primarily by the chronic diseases of diabetes and/or hypertension (high blood pressure). There is an increasing need for hemodialysis centers as people live longer and more people develop the diseases that lead to kidney (renal) failure. Additionally, medical advances have enabled dialysis patients to live longer on dialysis.

In most urban areas hemodialysis centers provide the patient with needed services that are easily accessible with minimal travel time. Usually a family member or a friend drives the hemodialysis patient to and from the treatment facility. However it is not uncommon for the patient to transport his/herself because treatments are so frequent. If the patient is driven, the driver waits at the dialysis center while the patient receives treatment (approximately 4 hours) then drives the patient home. In instances of bad weather, the travel to and from the dialysis center may take more time and be more stressful to both the patient and/or the driver.

For patients living in rural areas, such as in many parts of Nevada, the nearest hemodialysis center may be several hours away. If patients are unable to move to a community that has a hemodialysis center or receive an alternative at-home dialysis treatment, they must make the long commute three times a week. This is a heavy burden not just on the patient, but also on the person who must drive them to the treatments.

Currently, patients from Humboldt, Lander and Pershing Counties must travel great distances to Reno/Sparks or Elko to receive hemodialysis treatments. Opening a hemodialysis center at Humboldt General Hospital in Winnemucca would greatly reduce the travel times for many of the patients in those counties. Opening such a center would

require a substantial investment, and may not be immediately profitable, but it should be explored as a way of greatly reducing the burden currently endured by hemodialysis patients and their families living in Humboldt, Lander and Pershing Counties.

The goal of this report is to provide local decision makers with the information needed to determine whether a hemodialysis center is economically feasible for Humboldt General Hospital. This report will follow A Systems Development Guide for a Kidney Dialysis Center developed by researchers at Oklahoma State University, which will be referred to in the text as the Oklahoma State Report. The information provided in this report is a starting point for decision-makers to use in determining whether their community can support this medical service. Section II will determine the demand for a kidney dialysis center at Humboldt General Hospital and the economic feasibility of a kidney dialysis center will be estimated in Section III.

Demand for a Kidney Dialysis Center at Humboldt General Hospital

Estimating potential patient participation in a hemodialysis center requires defining the service area for the center, identifying the population of the service area, and calculating the prevalence and incidence rates. The Oklahoma State Report outlines a method that can be used to identify hemodialysis patients for a center known as a predictive model. This predictive model can utilize more recent data when available and can also serve to estimate patients for alternative service areas. This report will utilize the predictive model to estimate the number of new and existing patients for a service area using incidence and prevalence data for the state of Nevada to derive patient participant coefficients for the area around Humboldt General Hospital. This procedure will provide

conservative estimates, as new patient growth is greater than the dialysis patient death rate. Incidence and prevalence coefficients for Nevada were developed using incidence and prevalence data for Nevada that is available from the 2004 Annual Report of the Intermountain End-Stage Renal Disease Network, Inc. To derive incidence and prevalence coefficients, the population of the state by age and race is needed. The Nevada population by age was obtained using data from the Nevada State Demographer's Office. The population by race was obtained using data from ESRI Business Analyst online population estimates. The populations by age, race and total population are presented in Table 1 and Table 2. By dividing the number of prevalent patients by the corresponding population numbers, a utilization coefficient is derived. The division is multiplied by 100,000 to arrive at a coefficient that indicates the number of hemodialysis patients per 100,000 population. These steps are repeated for incident patients. The hemodialysis coefficients by race, age, and total population are presented in Table 1 for prevalent patients and Table 2 for new patients. For prediction purposes, the number of projected hemodialysis patients could be estimated by simply multiplying these coefficients by a service area's population by age or race. The coefficient allows for prediction of patients by three methods: population by race, population by age and total population.

Table 1. Prevalence Coefficients, 2004 Data

Category	# of Patients	State Population	Per 100,000 Population
RACE			
White	1158	1742044	66.47
Black	421	165349	254.61
Native American	71	29528	240.45
Asian	93	104084	89.35
Other	126	317476	39.69
AGE			
0-4	2	167307	1.20
5-9	1	164803	0.61
10-14	12	165568	7.25
15-19	11	165297	6.65
20-24	28	171603	16.32
25-29	36	171482	20.99
30-34	56	172979	32.37
35-39	77	174822	44.04
40-44	116	181502	63.91
45-49	133	171551	77.53
50-54	184	151506	121.45
55-59	209	133342	156.74
60-64	210	109638	191.54
65-69	223	86006	259.28
70-74	227	68584	330.98
75-79	181	54139	334.32
80-84	105	34337	305.79
85+	58	21848	265.47
TOTAL POPULATION			
Total	1869	2366314	78.98

Table 2. Incidents Coefficients, 2004 Data

Category	# of Patients	State Population	Per 100,000 Population
RACE			
White	537	1742044	30.83
Black	109	165349	65.92
Native American	22	29528	74.51
Asian	24	104084	23.06
Other	46	317476	14.49
AGE			
0-4	1	167307	0.60
5-9	1	164803	0.61
10-14	3	165568	1.81
15-19	7	165297	4.23
20-24	12	171603	6.99
25-29	8	171482	4.67
30-34	17	172979	9.83
35-39	22	174822	12.58
40-44	26	181502	14.32
45-49	43	171551	25.07
50-54	47	151506	31.02
55-59	74	133342	55.50
60-64	88	109638	80.26
65-69	96	86006	111.62
70-74	107	68584	156.01
75-79	86	54139	158.85
80-84	64	34337	186.39
85+	36	21848	164.77
TOTAL POPULATION			
Total	738	2366314	31.19

Patient Demand for Humboldt General Hospital Service Area

To estimate patient demand for a kidney dialysis center at Humboldt General Hospital, it is necessary to define the service area. Patients will be coming from Pershing, Lander and Humboldt Counties. However, it is likely that not all patients living in these counties will switch to the new center. Some individuals living in Pershing are likely to continue driving to Reno or Sparks for treatment. A new dialysis center in south Reno is being built with approximately 20 new stations, which could add further incentive for some patients to continue driving to Reno. Therefore, this report

analyzes 5 different service area population scenarios:

- 1) Humboldt County
- 2) Humboldt and Lander Counties
- 3) Humboldt, Lander and 25% of Pershing County
- 4) Humboldt, Lander and 50% of Pershing County
- 5) Humboldt, Lander and Pershing County

For each of these service area scenarios, the population was multiplied by the hemodialysis coefficients to determine the patient demand for Humboldt General Hospital. As shown in Table 3, the number of patients could range from 16 to 28. The Appendix contains detailed tables for each service area scenario.

Table 3. Estimate of New and Existing Patients: Summary

	Race	Age	Population
Humboldt Only	15.99	16.13	16.27
Humboldt & Lander	20.72	21.12	21.29
Humboldt, Lander and 25% Pershing	22.47	22.58	22.72
Humboldt, Lander and 50% Pershing	24.21	24.03	24.15
All 3 Counties	27.69	26.95	27.01

*Patient range is from 16 to 28. Age and Population use Nevada State Demographer Population Data and Race uses ESRI Population Data.

Number of Stations and Annual Treatments

The number of stations needed for the dialysis center depends on several factors. First, the number of patients must be determined, as described in the previous section. Second, administrators must decide whether the center will be open 3 days or 6 day per week. Third, the number of treatments per station per day must be decided. Each treatment takes approximately 4 hours, plus about 45 minutes to set up for the next patient. Thus each treatment requires 5 hours. If the center wants to provide 2 treatments per station per day, it will need to be open for 11 hours. If the center wants to provide 3 treatments per station per day, it will need to be open for 16 hours a day.

This analysis assumes that the center will be open 6 days and will have 2 to 3

treatments per station on Monday, Wednesday and Friday (MWF), and will have 1 to 2 treatments per station Tuesday, Thursday, and Saturday (TTS), depending on the service area population scenario. Thus each station will support 4 to 5 patients per week. In analyzing the 5 different scenarios, it was determined that either a 5 or 6 station facility would work for each scenario. Given that the number of personnel required is the same for 5 or 6 stations, we have determined that 6 stations will be optimal because the cost of labor will be lower. In using 6 stations, the difference among the 5 scenarios is the number of days open and the number of treatments per station per day. For instance, if there are 17 patients, the center can meet the demand by opening three days per week and have three treatments per station per day. If there are 23 patients, the center must be open 6 days per week, and can either have 2 treatments per station per day, or 3 treatments per station per day MWF and 1 treatment per station per day TTS. Table 4 shows the station demand for Scenario 3 when the service area is Humboldt, Lander and 25% of Pershing Counties. Tables for the other scenarios are included in the Appendix.

The estimated number of annual treatments is also shown in Table 4. Estimated annual treatments are calculated by multiplying the number of patients by 3 days per week by 52 weeks per year. It is likely that patients will occasionally miss a treatment, thus the expected annual treatments is 90% of the estimated annual treatments. The expected annual treatments for Scenario 3 are 3,229 treatments. The maximum number of patients and annual treatments are also shown in Table 4. The maximum number of patients is calculated by multiplying the number of stations by the number of treatments the station can support per week. The maximum number of annual treatments is calculated by multiplying the maximum number of patients by 3 days per week by 52

weeks per year. For Scenario 3, the maximum number of patients is 24, for a maximum of 3,744 annual treatments.

Table 4. Estimating Number of Stations and Annual Treatments Humboldt, Lander and 25% Pershing Counties

	3 day week	6 day week 3/1	6 day week 3/2	6 day week 2/2	6 day week 3/3
Number of Stations					
Number of Prevalent Patients	16	16	16	16	16
Number of New Patients	7	7	7	7	7
Total Number of Patients	23	23	23	23	23
Number of Daily Treatments per M.W.F per station	3	3	3	2	3
Number of Daily Treatments per T.TH.Sat per station	0	1	2	2	3
Total number of possible treatments per day per station	3	4	5	4	6
Number of Stations Required	7.67	5.75	4.60	5.75	3.83
Actual Number of Stations	8	6	5	6	4
Number of Annual Treatments					
Number of annual treatments from prevalent patients	2496	2496	2496	2496	2496
Number of annual treatments from new patients	1092	1092	1092	1092	1092
Total number of annual treatments	3588	3588	3588	3588	3588
Number of annual treatments expected	3229.2	3229.2	3229.2	3229.2	3229.2
Maximum number of patients	24	24	25	24	24
Maximum number of annual treatments	3744	3744	3900	3744	3744

Economic Feasibility of a Kidney Dialysis Center at Humboldt General Hospital

The economic success of a hemodialysis center is dependent upon the cost for services and facilities and the revenue generated by the center. Revenue depends on the number of treatments and the payer mix (Medicare, Commercial Pay Insurance, etc). As described in the Oklahoma State Report, according to the USRDS Annual Report 2001, Medicare covers approximately 85% of all patients on hemodialysis. Of this group, approximately 6.2% of these patients have pending Medicare enrollment so that reimbursement will not be available for the first 3 months. Payment by third-party payers will vary and is negotiated between the center and the commercial payer, generally 60% to 80% of the billable costs for treatment. Rural communities are likely to have more Medicare patients. Medicare reimbursement is less than reimbursement from commercial payers, thus centers serving patients from rural areas are likely to generate less revenue than a center in an urban area.

According to the Oklahoma State Report, groups experienced in the management of hemodialysis centers suggest that it will take approximately 3 years to operate at 85% capacity, which provides the ability to absorb additional patients in future years. A center should estimate the number of patients needed to function at 85% capacity in the third year and work toward marketing the center to local communities, hospitals, and health care providers and building relationships with local nephrologists. Experienced managers also reported that, in most instances, a small hemodialysis center with 6 to 10 stations can break even with 14 to 15 patients receiving dialysis on a three-day week.

The Oklahoma State Report indicates that centers estimate the capital cost per station at the low end to be between \$25,000 and \$35,000; medium range \$50,000; and

high range \$70,000. Operating costs for a hemodialysis center can vary greatly based upon whether the center is part of a large corporation and/or is hospital based. The cost per treatment depends upon several variables, including staffing, management costs, and patient mix. For budget purposes, corporate groups calculate the total number of treatments given per year as 13 treatments per month times 12 months times 90% to account for absences, no-shows, and other reasons. In general, the cost per treatment ranges between \$200 and \$300.

The Oklahoma State Report recommends that a new hemodialysis center should be able to function without revenue for the first six months of operation to account for the delay in receiving reimbursements from Medicare. Corporate groups recommended that most centers should have between \$350,000 and \$650,000 available for this start-up period. In addition, hemodialysis centers should have a minimum two-week supply of hemodialysis-related supplies on hand to buffer against delayed deliveries.

The following sections outline the estimated costs for a hemodialysis center with 6 stations and an operating schedule of 2 to 3 treatments per station MWF and 1 to 2 treatments per station TTS, as well as the estimated revenues using the various service area demand scenarios previously described. Finally, revenue minus costs will be estimated to determine the economic feasibility of a hemodialysis center at Humboldt General Hospital.

Capital Costs

Capital costs for a six-station center are presented in Table 5. These costs are not affected by the different patient demand scenarios. Capital costs for a hemodialysis center at Humboldt General Hospital include costs for construction, a water treatment

system, bio-medical equipment, clinical equipment, clinical furniture/fixtures, staff lounge/fixtures, storage equipment, business office fixtures, reception and signage. Except for construction costs, the capital costs were calculated using costs estimates from the Oklahoma State Report and converting them to 2004 dollars. Construction costs are based on the estimate of \$125/sq.ft. to retrofit the existing 2000 square foot medical office building that is available for use. The capital costs are estimated to be \$448,529 for the 6 station facility, or \$74,755 per station.

Table 5. Capital Costs for 6 Stations

	Cost/Unit	# of Units	Total Cost	
Construction (sq Ft)				
(Land and parking lot building	Cost/sq. foot	125.00	2000	\$250,000
finish existing building	Cost/station			\$41,667
Utilities Hookup				
Communications				
Telephone System				
Emergency call system				
Security System				
Tv system w/VCR)				
Build Out Construction Subtotal				\$250,000
Water Treatment				
R/O system-capacity up to 30 tx/day	25650	1		\$25,650
drum dolly	307.8	1		\$308
central bi-carb system	2052	1		\$2,052
Water Treatment Subtotal				\$28,010
	cost/station			\$4,668
Bio-medical Equipment				
Electrical analyzer/tester	2252.07	1		\$2,252
conductivity meter	239.058	1		\$239
dialysate meter	282.15	1		\$282
r/o tds water meter	62.586	1		\$63
water analysis test kit	25.65	1		\$26
heat block	474.012	1		\$474
portable tool chest & tools	30.78	1		\$31
parts storage cart	244.188	1		\$244
miscellaneous tools, fittings, tubing	3078	1		\$3,078
hardness test kit	30.78	1		\$31
Nex-one (for machine repair)	2052	1		\$2,052
Bio-Medical Equipment Subtotal				\$8,771
	cost/station			\$1,462
Clinical Equipment				
dialysis machine	16980.3	7		\$118,862
patient lift	1282.5	1		\$1,283
wheelchair/standup scales	2565	1		\$2,565
lab refrigerator (tx)	153.9	1		\$154
lab freezer	282.15	1		\$282
meds refrigerator (tx)	153.9	1		\$154
EPO refrigerator	153.9	1		\$154
ice machine	410.4	1		\$410
Ambu bag	256.5	1		\$257
oxygen equipment (portable)	711.018	1		\$711

	Cost/Unit	# of Units	Total Cost
infusion pump	2000.7	1	\$2,001
iv pole	128.25	1	\$128
glucometer	90.288	1	\$90
thermometer (oto-temp)	153.9	2	\$308
stethoscope	10.26	4	\$41
ultrasonic mini doppler	559.17	1	\$559
mobile BP modules	205.2	3	\$616
infectious waste hampers	102.6	2	\$205
emergency evacuation kit	153.9	1	\$154
misc. clinical	1026	1	\$1,026
bed pan	4.104	4	\$16
trash can	35.91	4	\$144
Clinical Equipment Subtotal			\$130,119
	cost/station		\$21,687
<i>Clinical Furniture/Fixtures</i>			
dialysis chair	918.27	6	\$5,510
task stool	102.6	3	\$308
privacy screen	151.848	1	\$152
chart rack	718.2	1	\$718
wheelchair	307.8	1	\$308
computer system	3078	1	\$3,078
Clinical Furniture Subtotal			\$10,073
	cost/station		\$1,679
<i>Staff Lounge/Fixtures</i>			
refrigerator	769.5	1	\$770
microwave	153.9	1	\$154
coffee machine	51.3	1	\$51
toaster oven	20.52	1	\$21
lockers (3/unit)	513	2	\$1,026
table	615.6	1	\$616
chair	167.238	6	\$1,003
Staff Lounge Subtotal			\$3,640
	cost/station		\$607
<i>Storage Fixtures/Equipment</i>			
supply cart	436.05	1	\$436
shelving	646.38	1	\$646
hand dolly	141.588	1	\$142
flatbed truck (hand)	358.074	1	\$358
utility cart	137.484	3	\$412
floor pallets	59.508	2	\$119
Storage Subtotal			\$2,114
	cost/station		\$352
<i>Business Office Fixtures</i>			
copier machine	1530.792	1	\$1,531
facsimile	513	1	\$513
time clock	307.8	1	\$308
answering machine	90.288	1	\$90
desk	564.3	2	\$1,129
chairs	249.318	4	\$997

	Cost/Unit	# of Units	Total Cost
filing cabinets with locks	820.8	2	\$1,642
computer system/printer/scanner	1436.4	1	\$1,436
Business Office Subtotal			\$7,646
	cost/station		\$1,274
<i>Reception/Waiting Area</i>			
chairs	249.318	8	\$1,995
side tables	307.8	4	\$1,231
television	307.8	1	\$308
lamps	76.95	4	\$308
artwork/plants etc	513	1	\$513
clock	25.65	1	\$26
coffee machine/maker	82.08	1	\$82
Reception Subtotal			\$4,462
	cost/station		\$744
<i>Signage</i>			
interior	102.6	6	\$616
exterior	3078	1	\$3,078
Signage Subtotal			\$3,694
	cost/station		\$616
TOTAL CAPITAL COST			\$448,529
	TOTAL cost/station		\$74,755

Operating Costs

Operating costs include costs for labor, consultants, maintenance, supplies, medical supplies, drugs, utilities, communications, insurance, and medical director fees. The personnel requirements for a hemodialysis center are described in detail in the Oklahoma State Report. According to the report, federal law requires that each hemodialysis center must have a medical director, a chief executive officer, a licensed registered nurse, a social worker, a dietitian, and a medical records practitioner, each of whom must meet specific training and licensing requirements. The medical director may also serve as the CEO, and must be board-certified in internal medicine or pediatrics and have a minimum of 12 months experience or training in the care of ESRD patients. The registered nurse must have at least 12 months experience in clinical nursing and an additional 6 months of experience in the clinical care of ESRD patients including experience with the hemodialysis process. The dietitian must be registered by the American Dietetic Association and have at least one year of experience in clinical nutrition. The social worker must have a masters' degree in social work and must be licensed to practice in the state of Nevada.

During the hemodialysis treatments, a licensed health professional (physician, registered nurse, or licensed practical nurse) with experience in providing ESRD care is required to be present to supervise patient care. Additionally, the Center for Medicare and Medicaid Services requires that there be one registered nurse for every twelve patients on duty to supervise patient care and that there be one patient care staff member for every four patients. If the registered nurse provides direct patient care, he/she can be

counted as one of these staff members. Based on these requirements, for the six station facility analyzed in this report, there must be one registered nurse and one patient care technician on duty during all times that the patients are receiving hemodialysis.

Personnel costs are calculated by adjusting the hourly rates used in the Oklahoma State Report to 2004 Nevada dollars. The rate used for a registered nurse was chosen based on a discussion with Jim Parrish regarding registered nurse's wage rates at Humboldt General Hospital. The needed personnel hours per week were calculated based on 6 stations and varied among the 5 different service area scenarios. Under Scenario 3, the center could meet patient demand by having two treatments per station per day (2/2), or by having three treatments per station MWF and one treatment per station TTS (3/1). Both of these options are presented in Table 6. The annual personnel costs range from \$376,721 to \$385,062. The cost per treatment for 23 patients ranges from \$113.16 to \$115.67. From this table it is clear that personnel costs are lower under the 3/1 operating schedule. Tables detailing personnel costs for the other service area scenarios are included in the Appendix.

The other annual operating costs are calculated by adjusting the costs in the Oklahoma State Report to 2004 dollars. The estimates in the Oklahoma State Report were based on cost per treatment data provided by several clinical managers of regional hemodialysis centers. The operating costs estimates include costs for maintenance, supplies, biomedical supplies, utilities, communications and insurance. Table 7 provides operating cost estimates for each of the service area scenarios. In Scenario 3, the total annual operating costs are \$889,115, or \$275.35 per treatment.

Table 6. Estimating Annual Personnel Costs for 6 Stations for Humboldt, Lander and 25% Pershing Counties

Type	Rate/hour	2/2		3/1	
		Hours/Week	Total Costs	Hours/Week	Total Costs
Salaried Personnel					
Registered Nurse	29.00	67	101036.00	67	101036.00
Patient Care Tech	13.19	66	45268.08	66	45268.08
Chief Technician	17.07	54	47932.56	51	45269.64
Housekeeper	6.76	40	14060.80	30	10545.60
Financial Manager	26.27	20	27320.80	20	27320.80
Total Salaried Personnel			235618.24		229440.12
Benefits @35%			82466.38		80304.04
Subtotal Salaried Personnel			318084.62		309744.16
Staff Development					
Staff training/continuing education			7880.00		7880.00
Subtotal Staff Development			7880.00		7880.00
Contract Personnel (no benefits)					
Medical Director/Nephrologist		45965	45965.00	45965	45965.00
Renal Social Worker		6566	6566.00	6566	6566.00
Hemodialysis dietician		6566	6566.00	6566	6566.00
Subtotal Contract Personnel			59097.00		59097.00
TOTAL Personnel Costs			385061.62		376721.16
Cost per Stations			64176.94		62786.86
Cost per Treatment (3229 Treatments for 23 Patients)			115.67		113.16

Table 7. Estimating Annual Operating Costs Base on Annual Treatments

	Cost/Treatment	Humboldt	Humboldt & Lander	Humboldt, Lander, .25 Pershing	Humboldt, Lander, .5 Pershing	Humboldt, Lander & Pershing
Annual Treatments		2387	3089	3229	3370	3791
Maintenance						
Housekeeping/cleaning supplies	\$1.67	\$3,992	\$5,166	\$5,400	\$5,636	\$6,340
lawn/yard maintenance (local rate)	local rate	\$308	\$308	\$308	\$308	\$308
physical plant maintenance	\$1.10	\$2,620	\$3,391	\$3,545	\$3,700	\$4,162
equipment maintenance	\$5.79	\$13,813	\$17,875	\$18,685	\$19,501	\$21,937
SUBTOTAL Maintenance		\$20,733	\$26,740	\$27,938	\$29,145	\$32,747
Supplies						
paper/office supplies	\$2.10	\$5,021	\$6,497	\$6,792	\$7,088	\$7,974
advertisement/literature	\$0.41	\$980	\$1,268	\$1,325	\$1,383	\$1,556
SUBTOTAL Supplies	\$2.51	\$6,000	\$7,765	\$8,117	\$8,471	\$9,529
Medical Supplies						
dialysis supplies	\$42.92	\$102,444	\$132,572	\$138,581	\$144,632	\$162,701
medications EPO, Vitamin D	\$71.89	\$171,606	\$222,074	\$232,139	\$242,275	\$272,542
biomedical hazardous material disposal	\$3.39	\$8,082	\$10,459	\$10,933	\$11,410	\$12,836
SUBTOTAL Medical Supplies	\$118.20	\$282,132	\$365,105	\$381,652	\$398,318	\$448,078
Utilities						
water	\$9.82	\$23,438	\$30,330	\$31,705	\$33,089	\$37,223
sewer	\$9.30	\$22,189	\$28,714	\$30,015	\$31,326	\$35,239
electricity	\$4.25	\$10,139	\$13,121	\$13,716	\$14,315	\$16,103
natural gas/heating	\$0.62	\$1,469	\$1,902	\$1,988	\$2,075	\$2,334
SUBTOTAL Utilities	\$23.98	\$57,235	\$74,067	\$77,424	\$80,805	\$90,899
Communications						
telephone	\$0.93	\$2,229	\$2,884	\$3,015	\$3,146	\$3,540
security system	\$0.10	\$245	\$317	\$331	\$346	\$389
cable/satellite	\$0.14	\$343	\$444	\$464	\$484	\$545
Pagers for MD and staff	local rate	\$2,462	\$2,462	\$2,462	\$2,462	\$2,462
SUBTOTAL Communications		\$5,278	\$6,107	\$6,272	\$6,438	\$6,935
Insurance						
fire and theft	\$0.82	\$1,959	\$2,535	\$2,650	\$2,766	\$3,112
SUBTOTAL Insurance		\$1,959	\$2,535	\$2,650	\$2,766	\$3,112
SUBTOTAL Labor Costs		\$373,338	\$482,319	\$504,053	\$525,942	\$591,300
TOTAL Annual Operating Costs		\$310,392	\$385,062	\$385,062	\$385,062	\$443,867
		\$683,730	\$867,381	\$889,115	\$911,004	\$1,035,168

Revenue

Hemodialysis center revenue depends on several factors: the number of existing patients, the number of new patients, and the number of patients using Medicare vs. commercial pay insurance. There is a three month lag for receiving Medicare payments for new patients. If the patients do not have commercial insurance or cannot afford to pay, the hemodialysis center must absorb the costs. Patients with commercial pay insurance will bring in more revenue than those on Medicare. The revenue estimates provided in this report use the national average Medicare reimbursement rate of \$237/treatment and a commercial insurance rate of \$1050/treatment. The commercial rate is based on the rate used in the Oklahoma State study. However, since each commercial payer negotiates a rate with each dialysis center, this rate can vary significantly. Discussions with existing dialysis centers indicated this rate could range from \$450 to \$1800. Tables 8-11 show revenue estimates for each of the service area scenarios. These tables vary in the patient mix. Table 8 shows revenue estimates if all patients receive Medicare reimbursements. Table 9 shows revenue estimates if one existing patient uses commercial insurance. Table 10 show revenue estimates if one new patient uses commercial insurance. Table 11 shows revenue estimates if two existing patients use commercial insurance. From viewing these tables, it is clear that having just one or two patients that use commercial insurance can greatly alter revenues. For instance, in Scenario 3, going from no commercial pay patients to 2 existing commercial pay patients will increase revenue by more than \$225,000.

Table 8. Estimating Revenue For Humboldt, Lander and Pershing Counties Service Area

No Commercial Patients					
	Humboldt	Humboldt & Lander	Humboldt, Lander & .25 Pershing	Humboldt, Lander & .5 Pershing	Humboldt, Lander & Pershing
	17 Patients	22 Patients	23 Patients	24 Patients	27 Patients
Expected number of prevalent patients	12	16	16	17	19
Number of Medicare reimbursed patients	12	16	16	17	19
Number of Commercial pay patients	0	0	0	0	0
Number of new patients	5	6	7	7	8
Number of Medicare reimbursed patients	5	6	7	7	8
Number of Commerical pay patients	0	0	0	0	0
Number of annual treatments by reimbursement					
Number of annual Medicare treatments	2387	3089	3229	3370	3791
Number of annual Commercial pay treatments	0	0	0	0	0
Revenue Projections					
Medicare Revenues (\$237/tx)	\$565,671.60	\$732,045.60	\$765,320.40	\$798,595.20	\$898,419.60
Commercial Pay (\$1050/tx)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
TOTAL Gross Revenues	\$565,671.60	\$732,045.60	\$765,320.40	\$798,595.20	\$898,419.60
Revenue adjustment for new Medicare Patients (First 3 months or 39 treatments)	-\$41,593.50	-\$49,912.20	-\$58,230.90	-\$58,230.90	-\$66,549.60
TOTAL Annual Net Revenues	\$524,078.10	\$682,133.40	\$707,089.50	\$740,364.30	\$831,870.00

Table 9. Estimating Revenue For Humboldt, Lander and Pershing Counties Service Area

One Existing Commercial Patient					
	Humboldt	Humboldt & Lander	Humboldt, Lander & .25 Pershing	Humboldt, Lander & .5 Pershing	Humboldt, Lander & Pershing
	17 Patients	22 Patients	23 Patients	24 Patients	27 Patients
Expected number of prevalent patients	12	16	16	17	19
Number of Medicare reimbursed patients	11	15	15	16	18
Number of Commercial pay patients	1	1	1	1	1
Number of new patients	5	6	7	7	8
Number of Medicare reimbursed patients	5	6	7	7	8
Number of Commerical pay patients	0	0	0	0	0
Number of annual treatments by reimbursement					
Number of annual Medicare treatments	2246	2948	3089	3229	3650
Number of annual Commercial pay treatments	140	140	140	140	140
Revenue Projections					
Medicare Revenues (\$237/tx)	\$532,396.80	\$698,770.80	\$732,045.60	\$765,320.40	\$865,144.80
Commercial Pay (\$1050/tx)	\$147,420.00	\$147,420.00	\$147,420.00	\$147,420.00	\$147,420.00
TOTAL Gross Revenues	\$679,816.80	\$846,190.80	\$879,465.60	\$912,740.40	\$1,012,564.80
Revenue adjustment for new Medicare Patients (First 3 months or 39 treatments)	-\$41,593.50	-\$49,912.20	-\$58,230.90	-\$58,230.90	-\$66,549.60
TOTAL Annual Net Revenues	\$638,223.30	\$796,278.60	\$821,234.70	\$854,509.50	\$946,015.20

Table 10. Estimating Revenue For Humboldt, Lander and Pershing Counties Service Area

One New Commercial Patient					
	Humboldt	Humboldt & Lander	Humboldt, Lander & .25 Pershing	Humboldt, Lander & .5 Pershing	Humboldt, Lander & Pershing
	17 Patients	22 Patients	23 Patients	24 Patients	27 Patients
Expected number of prevalent patients	12	16	16	17	19
Number of Medicare reimbursed patients	12	16	16	17	19
Number of Commercial pay patients	0	0	0	0	0
Number of new patients	5	6	7	7	8
Number of Medicare reimbursed patients	4	5	6	6	7
Number of Commerical pay patients	1	1	1	1	1
Number of annual treatments by reimbursement					
Number of annual Medicare treatments	2246	2948	3089	3229	3650
Number of annual Commercial pay treatments	140	140	140	140	140
Revenue Projections					
Medicare Revenues (\$237/tx)	\$532,396.80	\$698,770.80	\$732,045.60	\$765,320.40	\$865,144.80
Commercial Pay (\$1050/tx)	\$147,420.00	\$147,420.00	\$147,420.00	\$147,420.00	\$147,420.00
TOTAL Gross Revenues	\$679,816.80	\$846,190.80	\$879,465.60	\$912,740.40	\$1,012,564.80
Revenue adjustment for new Medicare Patients (First 3 months or 39 treatments)	-\$33,274.80	-\$41,593.50	-\$49,912.20	-\$49,912.20	-\$58,230.90
TOTAL Annual Net Revenues	\$646,542.00	\$804,597.30	\$829,553.40	\$862,828.20	\$954,333.90

Table 11. Estimating Revenue For Humboldt, Lander and Pershing Counties Service Area

Two Existing Commercial Patients					
	Humboldt	Humboldt & Lander	Humboldt, Lander & .25 Pershing	Humboldt, Lander & .5 Pershing	Humboldt, Lander & Pershing
	17 Patients	22 Patients	23 Patients	24 Patients	27 Patients
Expected number of prevalent patients	12	16	16	17	19
Number of Medicare reimbursed patients	10	14	14	15	17
Number of Commercial pay patients	2	2	2	2	2
Number of new patients	5	6	7	7	8
Number of Medicare reimbursed patients	5	6	7	7	8
Number of Commerical pay patients	0	0	0	0	0
Number of annual treatments by reimbursement					
Number of annual Medicare treatments	2106	2808	2948	3089	3510
Number of annual Commercial pay treatments	281	281	281	281	281
Revenue Projections					
Medicare Revenues (\$237/tx)	\$499,122.00	\$665,496.00	\$698,770.80	\$732,045.60	\$831,870.00
Commercial Pay (\$1050/tx)	\$294,840.00	\$294,840.00	\$294,840.00	\$294,840.00	\$294,840.00
TOTAL Gross Revenues	\$793,962.00	\$960,336.00	\$993,610.80	\$1,026,885.60	\$1,126,710.00
Revenue adjustment for new Medicare Patients (First 3 months or 39 treatments)	-\$41,593.50	-\$49,912.20	-\$58,230.90	-\$58,230.90	-\$66,549.60
TOTAL Annual Net Revenues	\$752,368.50	\$910,423.80	\$935,379.90	\$968,654.70	\$1,060,160.40

Revenue minus Costs

Revenue minus Costs is calculated for each of the service area scenarios and the four payer mixes. Capital costs are annualized using straight line depreciation. The construction costs are depreciated over 30 years while the rest of the capital costs are depreciated over 10 years. These estimates are presented in Tables 12-15. Tables 12-14 show annual losses for the dialysis center. Table 15 shows that if two patients pay with commercial insurance, the center will turn a small profit.

This report is intended to provide information that will assist in the decision to open a hemodialysis center at Humboldt General Hospital. This report relies heavily on information and estimates provided in the Oklahoma State Report. If local cost/revenue estimates are known for the state of Nevada and/or Humboldt County, they can easily be incorporated into the model to provide a more accurate feasibility analysis. Based on the current analysis, a kidney dialysis center at Humboldt General Hospital would not be very profitable and would most likely result in a loss.

Table 12. Summary of Annual Costs and Revenue

No Commerical Pay Patients		Humboldt		Humboldt & Lander		Humboldt, Lander & .25 Pershing		Humboldt, Lander & .5 Pershing		Humboldt, Lander & Pershing	
		17 Patients	2387 Treatments	22 Patients	3089 Treatments	23 Patients	3229 Treatments	24 Patients	3370 Treatments	27 Patients	3791 Treatments
	Total Capital Costs	Per Treatment	Total Annual Costs	Per Treatment	Total Annual Costs	Per Treatment	Total Annual Costs	Per Treatment	Total Annual Costs	Per Treatment	Total Annual Costs
Depreciated Capital Costs											
Construction (30 years)	\$250,000		\$8,333		\$8,333		\$8,333		8,333		\$8,333
Dialysis machines (10 years)	\$118,862		\$11,886		\$11,886		\$11,886		11,886		\$11,886
Remainder of equipment (10 years)	\$79,667		\$7,967		\$7,967		\$7,967		7,967		\$7,967
TOTAL Capital Costs	\$448,529	187.90		145.20		138.91		133.09		118.31	
TOTAL Annual Capital Costs			\$28,186		\$28,186		\$28,186		28,186		\$28,186
TOTAL Annual Operating Costs			\$683,730		\$867,381		\$889,115		911,004		\$1,035,168
TOTAL Annual Capital and Operating Costs		298.25	\$711,916	289.92	\$895,567	284.08	\$917,301	278.69	939,190	280.49	\$1,063,354
Total Net Revenue		219.56	\$524,078	220.83	\$682,133	218.98	\$707,090	219.69	740,364	219.43	\$831,870
REVENUE LESS COSTS			-\$187,838		-\$213,433		-\$210,211		-198,826		-\$231,484

Table 13. Summary of Annual Costs and Revenue

One Existing Commercial Pay Patient		Humboldt		Humboldt & Lander		Humboldt, Lander & .25 Pershing		Humboldt, Lander & .5 Pershing		Humboldt, Lander & Pershing	
		17 Patients	2387 Treatments	22 Patients	3089 Treatments	23 Patients	3229 Treatments	24 Patients	3370 Treatments	27 Patients	3791 Treatments
	Total Capital Costs	Per Treatment	Total Annual Costs	Per Treatment	Total Annual Costs	Per Treatment	Total Annual Costs	Per Treatment	Total Annual Costs	Per Treatment	Total Annual Costs
Depreciated Capital Costs											
Construction (30 years)	\$250,000		\$8,333		\$8,333		\$8,333		8,333		\$8,333
Dialysis machines (10 years)	\$118,862		\$11,886		\$11,886		\$11,886		11,886		\$11,886
Remainder of equipment (10 years)	\$79,667		\$7,967		\$7,967		\$7,967		7,967		\$7,967
TOTAL Capital Costs	\$448,529	187.90		145.20		138.91		133.09		118.31	
TOTAL Annual Capital Costs			\$28,186		\$28,186		\$28,186		28,186		\$28,186
TOTAL Annual Operating Costs			\$683,730		\$867,381		\$889,115		911,004		\$1,035,168
TOTAL Annual Capital and Operating Costs		298.25	\$711,916	289.92	\$895,567	284.08	\$917,301	278.69	939,190	280.49	\$1,063,354
Total Net Revenue		267.37	\$638,223	257.78	\$796,279	254.33	\$821,235	253.56	854,510	249.54	\$946,015
REVENUE LESS COSTS			-\$73,692		-\$99,288		-\$96,066		-\$84,681		-\$117,339

Table 14. Summary of Annual Costs and Revenue

One New Commercial Pay Patient		Humboldt		Humboldt & Lander		Humboldt, Lander & .25 Pershing		Humboldt, Lander & .5 Pershing		Humboldt, Lander & Pershing	
		17 Patients	2387 Treatments	22 Patients	3089 Treatments	23 Patients	3229 Treatments	24 Patients	3370 Treatments	27 Patients	3791 Treatments
	Total Capital Costs	Per Treatment	Total Annual Costs	Per Treatment	Total Annual Costs	Per Treatment	Total Annual Costs	Per Treatment	Total Annual Costs	Per Treatment	Total Annual Costs
Depreciated Capital Costs											
Construction (30 years)	\$250,000		\$8,333		\$8,333		\$8,333		8,333		\$8,333
Dialysis machines (10 years)	\$118,862		\$11,886		\$11,886		\$11,886		11,886		\$11,886
Remainder of equipment (10 years)	\$79,667		\$7,967		\$7,967		\$7,967		7,967		\$7,967
TOTAL Capital Costs	\$448,529	187.90		145.20		138.91		133.09		118.31	
TOTAL Annual Capital Costs			\$28,186		\$28,186		\$28,186		28,186		\$28,186
TOTAL Annual Operating Costs			\$683,730		\$867,381		\$889,115		911,004		\$1,035,168
TOTAL Annual Capital and Operating Costs		298.25	\$711,916	289.92	\$895,567	284.08	\$917,301	278.69	939,190	280.49	\$1,063,354
Total Net Revenue		270.86	\$646,542	260.47	\$804,597	256.91	\$829,553	256.03	862,828	251.74	\$954,334
REVENUE LESS COSTS			-\$65,374		-\$90,969		-\$87,748		-76,362		-\$109,020

Table 15. Summary of Annual Costs and Revenue

Two Existing Commercial Pay Patients		Humboldt		Humboldt & Lander		Humboldt, Lander & .25 Pershing		Humboldt, Lander & .5 Pershing		Humboldt, Lander & Pershing	
		17 Patients	2387 Treatments	22 Patients	3089 Treatments	23 Patients	3229 Treatments	24 Patients	3370 Treatments	27 Patients	3791 Treatments
	Total Capital Costs	Per Treatment	Total Annual Costs	Per Treatment	Total Annual Costs	Per Treatment	Total Annual Costs	Per Treatment	Total Annual Costs	Per Treatment	Total Annual Costs
Depreciated Capital Costs											
Construction (30 years)	\$250,000		\$8,333		\$8,333		\$8,333		8,333		\$8,333
Dialysis machines (10 years)	\$118,862		\$11,886		\$11,886		\$11,886		11,886		\$11,886
Remainder of equipment (10 years)	\$79,667		\$7,967		\$7,967		\$7,967		7,967		\$7,967
TOTAL Capital Costs	\$448,529	187.90		145.20		138.91		133.09		118.31	
TOTAL Annual Capital Costs			\$28,186		\$28,186		\$28,186		28,186		\$28,186
TOTAL Annual Operating Costs			\$683,730		\$867,381		\$889,115		911,004		\$1,035,168
TOTAL Annual Capital and Operating Costs		298.25	\$711,916	289.92	\$895,567	284.08	\$917,301	278.69	939,190	280.49	\$1,063,354
Total Net Revenue		315.19	\$752,369	294.73	\$910,424	289.68	\$935,380	287.43	968,655	279.65	\$1,060,160
REVENUE LESS COSTS			\$40,453		\$14,857		\$18,079		29,464		-\$3,194

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Appendix

Patient Demand, Number of Stations and Personnel Costs Tables for the Service Area Scenarios

Table 16. Number of Current (Prevalent) Hemodialysis Patients for Humboldt

Category	2005 Area Population	Coefficients Based on 2002 Data per 100,000 Population	Estimated 2005 Number of Patients in Area (Prevalence Data)	Number of Patients on Hemodialysis (92.6%)*
RACE**				
White	13935	66.5	9.26	8.58
Black	89	254.6	0.23	0.21
Native American	665	240.4	1.60	1.48
Asian	94	89.4	0.08	0.08
Other	2258	39.7	0.90	0.83
TOTAL	17041		12.07	11.18
AGE***				
0-4	1034	1.20	0.01	0.01
5-9	1402	0.61	0.01	0.01
10-14	1312	7.25	0.10	0.09
15-19	1234	6.65	0.08	0.08
20-24	1217	16.32	0.20	0.18
25-29	980	20.99	0.21	0.19
30-34	561	32.37	0.18	0.17
35-39	851	44.04	0.37	0.35
40-44	1239	63.91	0.79	0.73
45-49	1449	77.53	1.12	1.04
50-54	1233	121.45	1.50	1.39
55-59	923	156.74	1.45	1.34
60-64	892	191.54	1.71	1.58
65-69	560	259.28	1.45	1.34
70-74	407	330.98	1.35	1.25
75-79	271	334.32	0.91	0.84
80-84	207	305.79	0.63	0.59
85+	172	265.47	0.46	0.42
TOTAL	15944		12.52	11.59
POPULATION***				
TOTAL	15944	79.0	12.59	11.66

*Note: 92.6% of all patients requiring dialysis are treated using hemodialysis. **Race uses ESRI Population Data. ***Age and Population use Nevada State Demographer's Population Data.

Table 17. Number of New (Incident) Hemodialysis Patients for Humboldt

Category	2005 Area Population	Coefficients Based on 2002 Data per 100,000 Population	Estimated 2005 Number of Patients in Area (Prevalence Data)	Estimated Number of Patients on Hemodialysis (92.6%)*
RACE**				
White	13935	30.83	4.30	3.98
Black	89	65.92	0.06	0.05
Native American	665	74.51	0.50	0.46
Asian	94	23.06	0.02	0.02
Other	2258	14.49	0.33	0.30
TOTAL	17041		5.20	4.81
AGE***				
0-4	1034	0.60	0.01	0.01
5-9	1402	0.61	0.01	0.01
10-14	1312	1.81	0.02	0.02
15-19	1234	4.23	0.05	0.05
20-24	1217	6.99	0.09	0.08
25-29	980	4.67	0.05	0.04
30-34	561	9.83	0.06	0.05
35-39	851	12.58	0.11	0.10
40-44	1239	14.32	0.18	0.16
45-49	1449	25.07	0.36	0.34
50-54	1233	31.02	0.38	0.35
55-59	923	55.50	0.51	0.47
60-64	892	80.26	0.72	0.66
65-69	560	111.62	0.63	0.58
70-74	407	156.01	0.63	0.59
75-79	271	158.85	0.43	0.40
80-84	207	186.39	0.39	0.36
85+	172	164.77	0.28	0.26
	15944		4.89	4.53
POPULATION***				
TOTAL	15944	31.19	4.97	4.60

*Note: 92.6% of all patients requiring dialysis are treated using hemodialysis. **Race uses ESRI Population Data. ***Age and Population use Nevada State Demographer's Population Data.

Table 18. Number of Current (Prevalent) Hemodialysis Patients for Humboldt and Lander Counties

Category	2005 Area Population	Coefficients Based on 2002 Data per 100,000 Population	Estimated 2005 Number of Patients in Area (Prevalence Data)	Number of Patients on Hemodialysis (92.6%)*
RACE**				
White	18131	66.47	12.05	11.16
Black	101	254.61	0.26	0.24
Native American	862	240.45	2.07	1.92
Asian	114	89.35	0.10	0.09
Other	2898	39.69	1.15	1.07
TOTAL	22106		15.63	14.48
AGE***				
0-4	1348	1.20	0.02	0.01
5-9	1851	0.61	0.01	0.01
10-14	1749	7.25	0.13	0.12
15-19	1683	6.65	0.11	0.10
20-24	1470	16.32	0.24	0.22
25-29	1124	20.99	0.24	0.22
30-34	769	32.37	0.25	0.23
35-39	1162	44.04	0.51	0.47
40-44	1653	63.91	1.06	0.98
45-49	1860	77.53	1.44	1.34
50-54	1635	121.45	1.99	1.84
55-59	1302	156.74	2.04	1.89
60-64	1203	191.54	2.30	2.13
65-69	750	259.28	1.94	1.80
70-74	516	330.98	1.71	1.58
75-79	324	334.32	1.08	1.00
80-84	258	305.79	0.79	0.73
85+	212	265.47	0.56	0.52
	20869		16.42	15.20
POPULATION***				
TOTAL	20869	78.98	16.48	15.26

*Note: 92.6% of all patients requiring dialysis are treated using hemodialysis. **Race uses ESRI Population Data. ***Age and Population use Nevada State Demographer's Population Data.

Table 19. Number of New (Incident) Hemodialysis Patients for Humboldt and Lander Counties

Category	2005 Area Population	Coefficients Based on 2002 Data per 100,000 Population	Estimated 2005 Number of Patients in Area (Prevalence Data)	Estimated Number of Patients on Hemodialysis (92.6%)*
RACE**				
White	18131	30.83	5.59	5.18
Black	101	65.92	0.07	0.06
Native American	862	74.51	0.64	0.59
Asian	114	23.06	0.03	0.02
Other	2898	14.49	0.42	0.39
TOTAL	22106		6.74	6.24
AGE***				
0-4	1348	0.60	0.01	0.01
5-9	1851	0.61	0.01	0.01
10-14	1749	1.81	0.03	0.03
15-19	1683	4.23	0.07	0.07
20-24	1470	6.99	0.10	0.10
25-29	1124	4.67	0.05	0.05
30-34	769	9.83	0.08	0.07
35-39	1162	12.58	0.15	0.14
40-44	1653	14.32	0.24	0.22
45-49	1860	25.07	0.47	0.43
50-54	1635	31.02	0.51	0.47
55-59	1302	55.50	0.72	0.67
60-64	1203	80.26	0.97	0.89
65-69	750	111.62	0.84	0.78
70-74	516	156.01	0.81	0.75
75-79	324	158.85	0.51	0.48
80-84	258	186.39	0.48	0.45
85+	212	164.77	0.35	0.32
	20869		6.38	5.91
POPULATION***				
TOTAL	20869	31.19	6.51	6.03

*Note: 92.6% of all patients requiring dialysis are treated using hemodialysis. **Race uses ESRI Population Data. ***Age and Population use Nevada State Demographer's Population Data.

Table 20. Number of Current (Prevalent) Hemodialysis Patients for Humboldt, Lander and 25% Pershing Counties

Category	2005 Area Population	Coefficients Based on 2002 Data per 100,000 Population	Estimated 2005 Number of Patients in Area (Prevalence Data)	Number of Patients on Hemodialysis (92.6%)*
RACE**				
White	19447	66.47	12.93	11.97
Black	189	254.61	0.48	0.45
Native American	923	240.45	2.22	2.05
Asian	125	89.35	0.11	0.10
Other	3115	39.69	1.24	1.14
TOTAL	23797		16.97	15.72
AGE***				
0-4	1434	1.20	0.02	0.02
5-9	1936	0.61	0.01	0.01
10-14	1849	7.25	0.13	0.12
15-19	1821	6.65	0.12	0.11
20-24	1599	16.32	0.26	0.24
25-29	1221	20.99	0.26	0.24
30-34	843	32.37	0.27	0.25
35-39	1232	44.04	0.54	0.50
40-44	1756	63.91	1.12	1.04
45-49	1976	77.53	1.53	1.42
50-54	1731	121.45	2.10	1.95
55-59	1378	156.74	2.16	2.00
60-64	1271	191.54	2.43	2.25
65-69	809	259.28	2.10	1.94
70-74	555	330.98	1.84	1.70
75-79	354	334.32	1.18	1.09
80-84	278	305.79	0.85	0.79
85+	231	265.47	0.61	0.57
	22271		17.55	16.25
POPULATION***				
TOTAL	22271	78.98	17.59	16.29

*Note: 92.6% of all patients requiring dialysis are treated using hemodialysis. **Race uses ESRI Population Data. ***Age and Population use Nevada State Demographer's Population Data.

Table 21. Number of New (Incident) Hemodialysis Patients for Humboldt, Lander and 25% Pershing Counties

Category	2005 Area Population	Coefficients Based on 2002 Data per 100,000 Population	Estimated 2005 Number of Patients in Area (Prevalence Data)	Estimated Number of Patients on Hemodialysis (92.6%)*
RACE**				
White	19447	30.83	5.99	5.55
Black	189	65.92	0.12	0.12
Native American	923	74.51	0.69	0.64
Asian	125	23.06	0.03	0.03
Other	3115	14.49	0.45	0.42
TOTAL	23797		7.29	6.75
AGE***				
0-4	1434	0.60	0.01	0.01
5-9	1936	0.61	0.01	0.01
10-14	1849	1.81	0.03	0.03
15-19	1821	4.23	0.08	0.07
20-24	1599	6.99	0.11	0.10
25-29	1221	4.67	0.06	0.05
30-34	843	9.83	0.08	0.08
35-39	1232	12.58	0.15	0.14
40-44	1756	14.32	0.25	0.23
45-49	1976	25.07	0.50	0.46
50-54	1731	31.02	0.54	0.50
55-59	1378	55.50	0.76	0.71
60-64	1271	80.26	1.02	0.94
65-69	809	111.62	0.90	0.84
70-74	555	156.01	0.87	0.80
75-79	354	158.85	0.56	0.52
80-84	278	186.39	0.52	0.48
85+	231	164.77	0.38	0.35
	22271		6.83	6.33
POPULATION***				
TOTAL	22271	31.19	6.95	6.43

*Note: 92.6% of all patients requiring dialysis are treated using hemodialysis. **Race uses ESRI Population Data. ***Age and Population use Nevada State Demographer's Population Data.

Table 22. Number of Current (Prevalent) Hemodialysis Patients for Humboldt, Lander and 50% Pershing Counties

Category	2005 Area Population	Coefficients Based on 2002 Data per 100,000 Population	Estimated 2005 Number of Patients in Area (Prevalence Data)	Number of Patients on Hemodialysis (92.6%)*
RACE**				
White	20762	66.47	13.80	12.78
Black	278	254.61	0.71	0.65
Native American	983	240.45	2.36	2.19
Asian	135	89.35	0.12	0.11
Other	3331	39.69	1.32	1.22
TOTAL	25489		18.31	16.96
AGE***				
0-4	1520	1.20	0.02	0.02
5-9	2020	0.61	0.01	0.01
10-14	1948	7.25	0.14	0.13
15-19	1958	6.65	0.13	0.12
20-24	1728	16.32	0.28	0.26
25-29	1318	20.99	0.28	0.26
30-34	917	32.37	0.30	0.27
35-39	1301	44.04	0.57	0.53
40-44	1859	63.91	1.19	1.10
45-49	2092	77.53	1.62	1.50
50-54	1828	121.45	2.22	2.06
55-59	1455	156.74	2.28	2.11
60-64	1340	191.54	2.57	2.38
65-69	867	259.28	2.25	2.08
70-74	595	330.98	1.97	1.82
75-79	383	334.32	1.28	1.19
80-84	297	305.79	0.91	0.84
85+	250	265.47	0.66	0.61
	23672		18.67	17.29
POPULATION***				
TOTAL	23672	78.98	18.70	17.31

*Note: 92.6% of all patients requiring dialysis are treated using hemodialysis. **Race uses ESRI Population Data. ***Age and Population use Nevada State Demographer's Population Data.

Table 23. Number of New (Incident) Hemodialysis Patients for Humboldt, Lander and 50% Pershing Counties

Category	2005 Area Population	Coefficients Based on 2002 Data per 100,000 Population	Estimated 2005 Number of Patients in Area (Prevalence Data)	Estimated Number of Patients on Hemodialysis (92.6%)*
RACE**				
White	20762	30.83	6.40	5.93
Black	278	65.92	0.18	0.17
Native American	983	74.51	0.73	0.68
Asian	135	23.06	0.03	0.03
Other	3331	14.49	0.48	0.45
TOTAL	25489		7.83	7.25
AGE***				
0-4	1520	0.60	0.01	0.01
5-9	2020	0.61	0.01	0.01
10-14	1948	1.81	0.04	0.03
15-19	1958	4.23	0.08	0.08
20-24	1728	6.99	0.12	0.11
25-29	1318	4.67	0.06	0.06
30-34	917	9.83	0.09	0.08
35-39	1301	12.58	0.16	0.15
40-44	1859	14.32	0.27	0.25
45-49	2092	25.07	0.52	0.49
50-54	1828	31.02	0.57	0.52
55-59	1455	55.50	0.81	0.75
60-64	1340	80.26	1.08	1.00
65-69	867	111.62	0.97	0.90
70-74	595	156.01	0.93	0.86
75-79	383	158.85	0.61	0.56
80-84	297	186.39	0.55	0.51
85+	250	164.77	0.41	0.38
	23672		7.28	6.74
POPULATION***				
TOTAL	23672	31.19	7.38	6.84

*Note: 92.6% of all patients requiring dialysis are treated using hemodialysis. **Race uses ESRI Population Data. ***Age and Population use Nevada State Demographer's Population Data.

Table 24. Number of Current (Prevalent) Hemodialysis Patients for Humboldt, Lander and Pershing Counties

Category	2005 Area Population	Coefficients Based on 2002 Data per 100,000 Population	Estimated 2005 Number of Patients in Area (Prevalence Data)	Number of Patients on Hemodialysis (92.6%)*
RACE**				
White	23393	66.47	15.55	14.40
Black	454	254.61	1.16	1.07
Native American	1104	240.45	2.65	2.46
Asian	156	89.35	0.14	0.13
Other	3764	39.69	1.49	1.38
TOTAL	28871		20.99	19.44
AGE***				
0-4	1691	1.20	0.02	0.02
5-9	2189	0.61	0.01	0.01
10-14	2147	7.25	0.16	0.14
15-19	2233	6.65	0.15	0.14
20-24	1986	16.32	0.32	0.30
25-29	1512	20.99	0.32	0.29
30-34	1065	32.37	0.34	0.32
35-39	1440	44.04	0.63	0.59
40-44	2064	63.91	1.32	1.22
45-49	2323	77.53	1.80	1.67
50-54	2020	121.45	2.45	2.27
55-59	1607	156.74	2.52	2.33
60-64	1476	191.54	2.83	2.62
65-69	984	259.28	2.55	2.36
70-74	673	330.98	2.23	2.06
75-79	442	334.32	1.48	1.37
80-84	336	305.79	1.03	0.95
85+	287	265.47	0.76	0.71
	26475		20.92	19.37
POPULATION***				
TOTAL	26475	78.98	20.91	19.36

*Note: 92.6% of all patients requiring dialysis are treated using hemodialysis. **Race uses ESRI Population Data. ***Age and Population use Nevada State Demographer's Population Data.

Table 25. Number of New (Incident) Hemodialysis Patients for Humboldt, Lander and Pershing Counties

Category	2005 Area Population	Coefficients Based on 2002 Data per 100,000 Population	Estimated 2005 Number of Patients in Area (Prevalence Data)	Estimated Number of Patients on Hemodialysis (92.6%)*
RACE**				
White	23393	30.83	7.21	6.68
Black	454	65.92	0.30	0.28
Native American	1104	74.51	0.82	0.76
Asian	156	23.06	0.04	0.03
Other	3764	14.49	0.55	0.51
TOTAL	28871		8.91	8.25
AGE***				
0-4	1691	0.60	0.01	0.01
5-9	2189	0.61	0.01	0.01
10-14	2147	1.81	0.04	0.04
15-19	2233	4.23	0.09	0.09
20-24	1986	6.99	0.14	0.13
25-29	1512	4.67	0.07	0.07
30-34	1065	9.83	0.10	0.10
35-39	1440	12.58	0.18	0.17
40-44	2064	14.32	0.30	0.27
45-49	2323	25.07	0.58	0.54
50-54	2020	31.02	0.63	0.58
55-59	1607	55.50	0.89	0.83
60-64	1476	80.26	1.18	1.10
65-69	984	111.62	1.10	1.02
70-74	673	156.01	1.05	0.97
75-79	442	158.85	0.70	0.65
80-84	336	186.39	0.63	0.58
85+	287	164.77	0.47	0.44
	26475		8.18	7.57
POPULATION***				
TOTAL	26475	31.19	8.26	7.65

*Note: 92.6% of all patients requiring dialysis are treated using hemodialysis. **Race uses ESRI Population Data. ***Age and Population use Nevada State Demographer's Population Data.

Table 26. Estimating Number of Stations and Annual Treatments for Humboldt County

	3 day week	6 day week 3/1	6 day week 3/2	6 day week 2/2	6 day week 3/3
Number of Stations					
Number of Prevalent Patients	12	12	12	12	12
Number of New Patients	5	5	5	5	5
Total Number of Patients	17	17	17	17	17
Number of Daily Treatments per M.W.F per station	3	3	3	2	3
Number of Daily Treatments per T.TH.Sat per station	0	1	2	2	3
Total number of possible treatments per day per station	3	4	5	4	6
Number of Stations Required	5.66666667	4.25	3.4	4.25	2.833333333
Actual Number of Stations	6	5	4	5	3
Number of Annual Treatments					
Number of annual treatments from prevalent patients	1872	1872	1872	1872	1872
Number of annual treatments from new patients	780	780	780	780	780
Total number of annual treatments	2652	2652	2652	2652	2652
Number of annual treatments expected	2386.8	2386.8	2386.8	2386.8	2386.8
Maximum number of patients	18	20	20	20	18
Maximum number of annual treatments	2808	3120	3120	3120	2808

Table 27. Estimating Number of Stations and Annual Treatments Humboldt & Lander Counties

Number of Stations	3 day week	6 day week 3/1	6 day week 3/2	6 day week 2/2	6 day week 3/3
Number of Prevalent Patients	16	16	16	16	16
Number of New Patients	6	6	6	6	6
Total Number of Patients	22	22	22	22	22
Number of Daily Treatments per M.W.F per station	3	3	3	2	3
Number of Daily Treatments per T.TH.Sat per station	0	1	2	2	3
Total number of possible treatments per day per station	3	4	5	4	6
Number of Stations Required	7.333333333	5.5	4.4	5.5	3.666666667
Actual Number of Stations	8	6	5	6	4
Number of Annual Treatments					
Number of annual treatments from prevalent patients	2496	2496	2496	2496	2496
Number of annual treatments from new patients	936	936	936	936	936
Total number of annual treatments	3432	3432	3432	3432	3432
Number of annual treatments expected	3088.8	3088.8	3088.8	3088.8	3088.8
Maximum number of patients	24	24	25	24	24
Maximum number of annual treatments	3744	3744	3900	3744	3744

Table 28. Estimating Number of Stations and Annual Treatments Humboldt, Lander and 50% Pershing Counties

	3 day week	6 day week 3/1	6 day week 3/2	6 day week 2/2	6 day week 3/3
Number of Stations					
Number of Prevalent Patients	17	17	17	17	17
Number of New Patients	7	7	7	7	7
Total Number of Patients	24	24	24	24	24
Number of Daily Treatments per M.W.F per station	3	3	3	2	3
Number of Daily Treatments per T.TH.Sat per station	0	1	2	2	3
Total number of possible treatments per day per station	3	4	5	4	6
Number of Stations Required	8	6	4.8	6	4
Actual Number of Stations	8	6	5	6	4
Number of Annual Treatments					
Number of annual treatments from prevalent patients	2652	2652	2652	2652	2652
Number of annual treatments from new patients	1092	1092	1092	1092	1092
Total number of annual treatments	3744	3744	3744	3744	3744
Number of annual treatments expected	3369.6	3369.6	3369.6	3369.6	3369.6
Maximum number of patients	24	24	25	24	24
Maximum number of annual treatments	3744	3744	3900	3744	3744

Table 29. Estimating Number of Stations and Annual Treatments Humboldt, Lander and Pershing Counties

Number of Stations	3 day week	6 day week 3/1	6 day week 3/2	6 day week 2/2	6 day week 3/3
Number of Prevalent Patients	19	19	19	19	19
Number of New Patients	8	8	8	8	8
Total Number of Patients	27	27	27	27	27
Number of Daily Treatments per M.W.F per station	3	3	3	2	3
Number of Daily Treatments per T.TH.Sat per station	0	1	2	2	3
Total number of possible treatments per day per station	3	4	5	4	6
Number of Stations Required	9	6.75	5.4	6.75	4.5
Actual Number of Stations	10	7	6	7	5
Number of Annual Treatments					
Number of annual treatments from prevalent patients	2964	2964	2964	2964	2964
Number of annual treatments from new patients	1248	1248	1248	1248	1248
Total number of annual treatments	4212	4212	4212	4212	4212
Number of annual treatments expected	3790.8	3790.8	3790.8	3790.8	3790.8
Maximum number of patients	30	28	30	28	30
Maximum number of annual treatments	4680	4368	4680	4368	4680

Table 30. Estimating Annual Personnel Costs for Humboldt County

Type	Rate/hour	6 Stations 3/0		4 Stations 3/2	
		Hours/Week	Total Costs	Hours/Week	Total Costs
Salaried Personnel					
Registered Nurse	29.00	52	78416.00	75	113100.00
Patient Care Tech	13.19	48	32922.24	20	13717.60
Chief Technician	17.07	39	34617.96	66	58584.24
Housekeeper	6.76	20	7030.40	40	14060.80
Financial Manager	26.27	20	27320.80	20	27320.80
Total Salaried Personnel			180307.40		226783.44
Benefits @35%			63107.59		79374.20
Subtotal Salaried Personnel			243414.99		306157.64
Staff Development					
Staff training/continuing education			7880.00		7880.00
Subtotal Staff Development			7880.00		7880.00
Contract Personnel (no benefits)					
Medical Director/Nephrologist		45965	45965.00	45965	45965.00
Renal Social Worker		6566	6566.00	6566	6566.00
Hemodialysis dietician		6566	6566.00	6566	6566.00
Subtotal Contract Personnel			59097.00		59097.00
TOTAL Personnel Costs			310391.99		373134.64
Cost per Stations			51732.00		93283.66
Cost per Treatment (2387 Treatments for 17 Patients)			130.03		156.32

Table 31. Estimating Annual Personnel Costs for 6 Stations for Humboldt and Lander Counties

Type	Rate/hour	2/2		3/1	
		Hours/Week	Total Costs	Hours/Week	Total Costs
Salaried Personnel					
Registered Nurse	29.00	67	101036.00	67	101036.00
Patient Care Tech	13.19	66	45268.08	66	45268.08
Chief Technician	17.07	54	47932.56	51	45269.64
Housekeeper	6.76	40	14060.80	30	10545.60
Financial Manager	26.27	20	27320.80	20	27320.80
Total Salaried Personnel			235618.24		229440.12
Benefits @35%			82466.38		80304.04
Subtotal Salaried Personnel			318084.62		309744.16
Staff Development					
Staff training/continuing education			7880.00		7880.00
Subtotal Staff Development			7880.00		7880.00
Contract Personnel (no benefits)					
Medical Director/Nephrologist		45965	45965.00	45965	45965.00
Renal Social Worker		6566	6566.00	6566	6566.00
Hemodialysis dietician		6566	6566.00	6566	6566.00
Subtotal Contract Personnel			59097.00		59097.00
TOTAL Personnel Costs			385061.62		376721.16
Cost per Stations			64176.94		62786.86
Cost per Treatment (3089 Treatments for 22 Patients)			124.66		121.96

Table 32. Estimating Annual Personnel Costs for 6 Stations for Humboldt, Lander and 50% Pershing Counties

Type	Rate/hour	2/2		3/1	
		Hours/Week	Total Costs	Hours/Week	Total Costs
Salaried Personnel					
Registered Nurse	29.00	67	101036.00	67	101036.00
Patient Care Tech	13.19	66	45268.08	66	45268.08
Chief Technician	17.07	54	47932.56	51	45269.64
Housekeeper	6.76	40	14060.80	30	10545.60
Financial Manager	26.27	20	27320.80	20	27320.80
Total Salaried Personnel			235618.24		229440.12
Benefits @35%			82466.38		80304.04
Subtotal Salaried Personnel			318084.62		309744.16
Staff Development					
Staff training/continuing education			7880.00		7880.00
Subtotal Staff Development			7880.00		7880.00
Contract Personnel (no benefits)					
Medical Director/Nephrologist		45965	45965.00	45965	45965.00
Renal Social Worker		6566	6566.00	6566	6566.00
Hemodialysis dietician		6566	6566.00	6566	6566.00
Subtotal Contract Personnel			59097.00		59097.00
TOTAL Personnel Costs			385061.62		376721.16
Cost per Stations			64176.94		62786.86
Cost per Treatment (3370 Treatments for 24 Patients)			114.26		111.79

Table 33. Estimating Annual Personnel Costs for 6 Stations for Humboldt, Lander and Pershing Counties

Type	Rate/hour	3/2	
		Hours/Week	Total Costs
Salaried Personnel			
Registered Nurse	29.00	82	123656.00
Patient Care Tech	13.19	81	55556.28
Chief Technician	17.07	66	58584.24
Housekeeper	6.76	40	14060.80
Financial Manager	26.27	20	27320.80
Total Salaried Personnel			279178.12
Benefits @35%			97712.34
Subtotal Salaried Personnel			376890.46
Staff Development			
Staff training/continuing education			7880.00
Subtotal Staff Development			7880.00
Contract Personnel (no benefits)			
Medical Director/Nephrologist		45965	45965.00
Renal Social Worker		6566	6566.00
Hemodialysis dietician		6566	6566.00
Subtotal Contract Personnel			59097.00
TOTAL Personnel Costs			443867.46
Cost per Stations			73977.91
Cost per Treatment (3791 treatments for 27 Patients)			117.08