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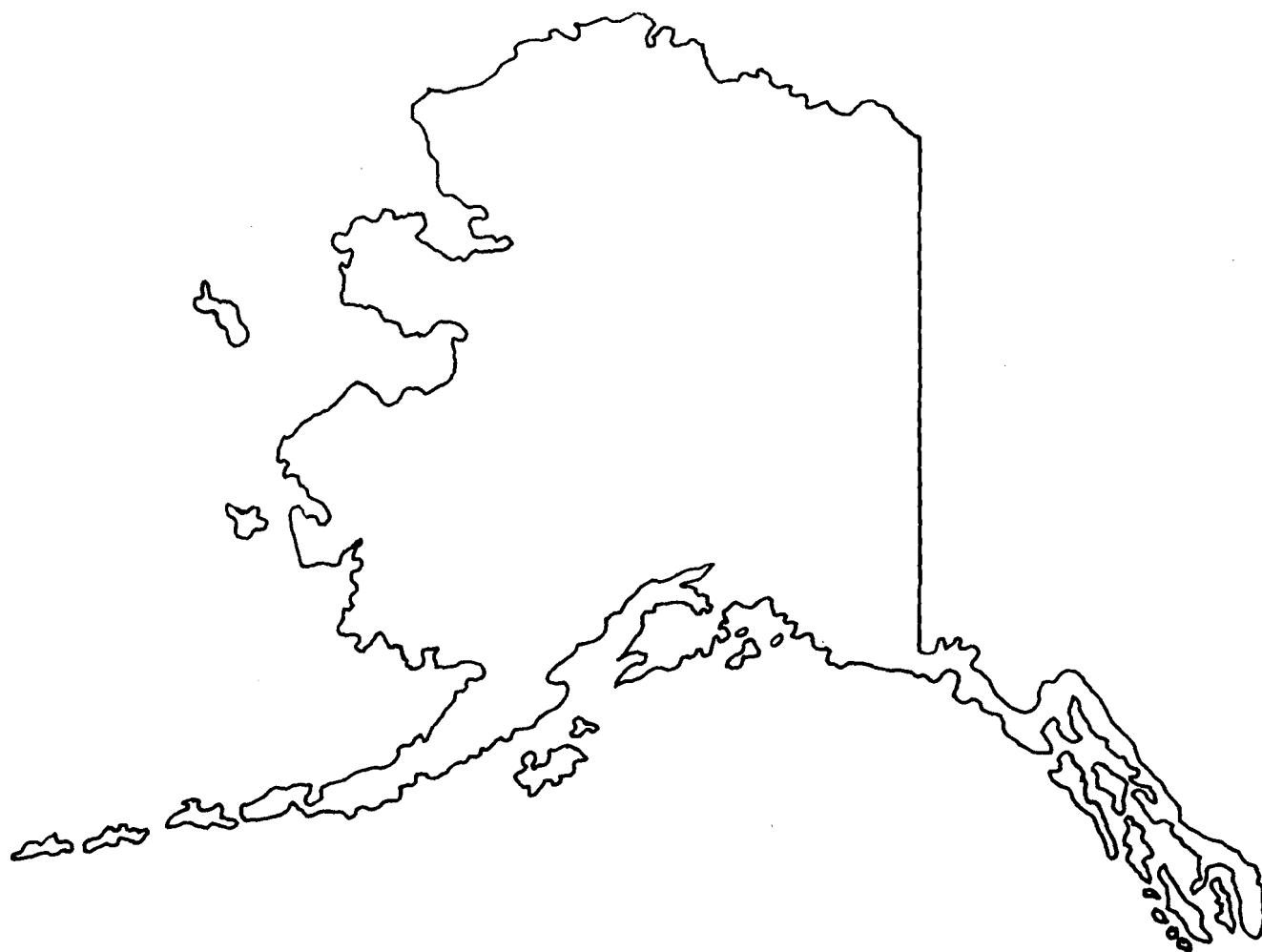
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Evaluation of Medical Care

Provided to Alaskan Natives

Volume 3

Summary Report



A Report by the Alaska Native Health Board

February 1975 - April 1977

EVALUATION OF MEDICAL CARE PROVIDED TO ALASKA NATIVES

Volume 3

SUMMARY REPORT

Prenatal Care, Infant Care, Streptococcal Disease and
Rheumatic Fever Prophylaxis, Lacerations, Hypertension,
Urinary Tract Infection, Iron Deficiency Anemia and
the Continuity of Health Care

This report was prepared by:

Alaska Native Health Board
Health Care Evaluation Projects
Box 4-1808
Anchorage, Alaska 99509

Edward F. Helmick, M.P.H., Director
William Thomas McClure, M.A., Associate Director

CONSULTANT:

Paul A. Nutting, M.D.
Medical Care Research Officer
Office of Research and Development
Indian Health Service
Tucson, Arizona 85206

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INTRODUCTION

Between February 1975 and March 1977, the Alaska Native Health Board has conducted studies to examine the quality of ambulatory health care provided to Alaska Natives. Specific tracer conditions were selected as representative ambulatory health problems to assess the effectiveness of ambulatory care provided by Federal, State, and local agencies. The objective of the study was to identify the relative strengths and weaknesses of the system(s) of care in order to effect improvement in health services. Explicit criteria were developed for each tracer condition in order to monitor provider performance and the continuity of the health care process. The criteria were translated into medical record audit instruments that served as the basis for tracking patients through the process of care provided by the various agencies and facilities attempting to impact Alaska Native health.

Phase I of the study examined the health care provided to twelve communities in southeast Alaska (Mt. Edgecumbe Service Unit) and interior Alaska (Tanana Service Unit) utilizing iron deficiency anemia, streptococcal disease, and hypertension as tracer conditions. The results of this phase of the study are reported in EVALUATION OF MEDICAL CARE PROVIDED TO ALASKAN NATIVES, VOLUME I.

Phase II of the study examined health care provided to fifteen communities in southcentral Alaska (Anchorage Service Unit) and southwest Alaska (Kanakanak Service Unit). Streptococcal disease, rheumatic fever prophylaxis, lacerations, prenatal care, well infant care, hypertension, urinary tract infections, and iron deficiency anemia were used as tracer conditions, and the results of this phase of the study were reported in

EVALUATION OF MEDICAL CARE PROVIDED TO ALASKA NATIVES, VOLUME II.

This document, prepared as Volume III of the study, summarizes both phases of the study. The results are described briefly and organized by tracer condition. It is hoped that a summary document will be useful to the clinician and health program manager with a particular interest in one or more of the tracer conditions. For brevity, the description of the methodology and the extensive data tables have been omitted from the report. Therefore, the interested reader is strongly urged to review Volumes I and II and particularly to study the data tables for himself, rather than relying solely on the interpretations presented here. It should also be noted that Volume II presents comparative data obtained from other IHS service units and from the private practice sector, and this material has been omitted from the Volume III summary.

SUMMARY OF METHODOLOGY

A set of health problems called tracer conditions was selected to be representative of the ambulatory care workload. These were selected to include elements of prevention, screening, diagnosis, treatment, and follow-up. Criteria, which are the bench marks of effectiveness, are translated into audit questions called indicators which are the actual measures of effectiveness of health care.

The indicators are of three types. The population-based indicators are patient oriented and track individuals through the problem solving process to determine the distribution, continuity, and end results of care. They express a percent of the total community which has received a particular health service. This class of indicators characterizes the extent to which the health care system is meeting the needs of its total patient population.

Health status indicators are also population based and express the percent of patients for whom a change in health status has been documented. One should be cautioned against equating health status indicators with measures of incidence or prevalence since the latter requires a random sampling of the population. Health status indicators, on the other hand, often reflect a change in health status of selected patient groups, e.g., only those who were followed-up.

Finally, provider-based indicators focus on health worker performance, rather than system performance as a whole. They express a percent of contacts between patients and the health care system in which particular health services were received. This class of indicator characterizes the adequacy of health services provided when patients utilize the health care system.

PRENATAL CARE

Tables 1-3 show the results for prenatal care in the Kanakanak and Anchorage Service Units. The prenatal entry rate measured that proportion of pregnant women who made their first prenatal visits by the 20th week of gestation. If this criterion is changed to include all prenatal visits made by the 30th week, a significant increase is noted as shown in the table below. This is an important point to consider since the link between appropriate use of medical services and desirable outcomes has been established in the area of prenatal care by the elegant study of Kessner and associates.¹ In reviewing the outcomes of over 140,000 births in New York City in 1968, Kessner was able to establish the importance of prenatal care to the successful outcome of pregnancy. The appropriate use of prenatal services was shown to dramatically decrease the risk of infant mortality within all ethnic and socioeconomic classes.

As with the prenatal entry rate, increases are observed by altering the criteria for other selected indicators. It is noteworthy that the prenatal work-up rate (VDRL, cervical culture, Pap smear, and clinical pelvimetry) does not appreciably improve by expanding the time interval to the 30th week. This is due to the low frequency at which a cervical culture is done as part of the prenatal work-up. For those patients receiving primary care at the Alaska Native Medical Center, where a full contingent of medical and support services are available, the prenatal work-up rate was 58% by the 20th week.

PRENATAL CARE
POPULATION BASED PROCESS INDICATORS

TITLE	DESCRIPTION	N#	ANCHORAGE S.U.	N#	KANAKANAK S.U.	N#	TOTAL
Prenatal Entry Rate By 20th Week	What proportion of pregnant women entered the health care system by the 20th week of gestation?	83	75%	58	62%	141	70%
Prenatal Entry Rate by 30th week	What proportion of pregnant women entered the health care system by the 30th week of gestation?	83	87%	58	82%	141	85%
Prenatal Work-Up Rate by 20th week	What proportion of pregnant women had a VDRL, cervical culture, pap smear, evaluation of rubella status and clinical pelvimetry by the 20th week of gestation?	83	36%	58	10%	141	26%
Prenatal Work-Up Rate by 30th week	What proportion of pregnant women had a VDRL, cervical culture, pap smear, evaluation of rubella status and clinical pelvimetry by the 30th week of gestation?	83	45%	58	12%	141	31%
Pregnancy Induced Hypertension Screening Rate	What proportion of patients had blood pressure checks at least 3 times in the second trimester and 5 times in the third trimester?	67	37%	58	07%	125	23%
Pregnancy Induced Hypertension Screening Rate	What proportion of patients had blood pressure checks at least 2 times in second trimester and 3 times in third trimester?	67	60%	58	24%	125	43%

Among the population-based process indicators for prenatal care, two stand out as being quite low. The pregnancy assessment rate measures the proportion of pregnant women for whom the provider has made a statement of risk or prognosis by the 20th gestational week. The total result for both Alaska Service Units was only 1%. Of perhaps greater significance is the very low rate of apparent recognition of pregnancy-induced hypertension: the recognition rate is 0%. This rate was calculated as the percent of patients with a diastolic blood pressure greater than 90 mm. Hg. who received any assessment suggesting recognition of the elevated blood pressure reading. Table 1 indicates that for residents of the two Service Units, only 23% of pregnant women were adequately screened for pregnancy-induced hypertension (a population-based indicator). Contrasted to that,

Table 3 reflects that the pregnancy-induced hypertension (PIH) screening rate as a provider-based indicator is 93%. In essence, increased provider recognition of patients overdue for PIH screening would not appreciably improve health care. Accessibility and patient compliance appear to be the main barriers to adequate screening for PIH.

The health status indicators associated with prenatal care (Table 2) are remarkable in several instances. The pregnancy-induced hypertension (PIH) rate is somewhat lower in Alaska than in the non-Alaska site. However, in light of the low result for "abnormal blood pressure recognition rate" (Table 3), it is possible that some mild cases of PIH are being overlooked.

Although based on relatively small samples, the "TAB family planning rate" in Alaska is significantly better than that observed in the private sector ($p < .05$).

The "minimum estimates of the prevalence of anemia during the prenatal course" were extremely high in all health systems audited. Since the criterion for anemia was set at a HCT of less than 37% and HGB less than 12 gm., it is instructive to look at the frequency distribution of the screening results:

HCT HGB	< 24%	24-30%	31-33%	34-37%	> 37%	TOTAL
	< 8 gm	8-10 gm	10.1-11.0 gm	11.1-12.0 gm	> 12 gm	
KANAKANAK SERVICE UNIT	0	4(12%)	6(18%)	8(24%)	16(47%)	34
ANCHORAGE SERVICE UNIT	0	0	2(5%)	8(18%)	44(31%)	54
SERVICE UNIT "B"	0	3(6%)	8(17%)	19(40%)	17(36%)	47
PRIVATE SECTOR	0	1(3%)	2(6%)	7(21%)	23(70%)	33

As can be seen in the Kanakanak Service Unit, almost a third of this study population were in the 8 and 11 gm. HGB range. The high prevalence of anemia in the Kanakanak Service Unit has also been cited in a recent study by the Center for Disease Control.² The Anchorage Service Unit anemia occurrence can best be described as borderline. All hematocrit and hemoglobin levels recorded in this study were performed by laboratory technicians using standard laboratory procedures.

The family planning sequence of events is summarized below incorporating both process and health status indicators. The results suggest that family planning efforts are a continuous process extending through pregnancy and into the postpartum period resulting in a relatively large proportion of women employing family planning and a relatively small number of repeat pregnancies within the first year following birth.

TITLE	DESCRIPTION	ANCHORAGE S. U.		KANAKANAK S.U.		TOTAL	
		%	N#	%	N#	%	N#
Family planning counseling rate	What percent of women who delivered had documentation of family planning prior to discharge from this hospital.	84%	67	53%	58	70%	125
Intended Family planning Rate	What percent of women who delivered had documentation within 8 weeks after delivery of their intentions regarding family planning.	85%	67	78%	58	82%	125
Family Planning Started	What percent of women who delivered had documentation within 8 weeks after delivery of actually starting some method of family planning.	75%	67	59%	58	67%	125
Remained Free of Pregnancy for one year rate	Percent of women that remained free of pregnancy one year.	94%	67	86%	36	90%	103

In support of the importance of one year spacing of pregnancies, we have cited articles by Wright,³ Fedrick,⁴ Lesinski,⁵ and others.⁶

Table 1: RESULTS FOR PRENATAL CARE - POPULATION BASED
PROCESS INDICATORS

TITLE	DESCRIPTION	ANCHORAGE S.U.		KANAKANAK S.U.		TOTAL	
		RESULT	N	RESULT	N	RESULT	N
Prenatal Entry Rate	What proportion of pregnant women entered the health care system by the 20th week of gestation?	75%	83	62%	58	70%	141
Prenatal Work-Up Rate	What proportion of pregnant women had a VDRL, cervical culture, pap smear, evaluation of rubella status and clinical pelvimetry by the 20th week of gestation?	36%	83	10%	58	26%	141
Pregnancy Assessment Rate	What proportion of pregnant women had documentation of risk or prognosis of pregnancy by the 20th week of gestation?	01%	83	00%	58	01%	141
Wanted, Unwanted, Undecided, Pregnancy Assessment Rate	What proportion of pregnant women had documentation of wanted, unwanted, or undecided pregnancy by the 13th week of gestation?	40%	83	00%	58	23%	141
Unwanted Pregnancy TAB Rate	What proportion of pregnant women with documentation of unwanted pregnancy prior to 13th week of gestation received a TAB?	81%	16	--	--	81%	16
Nutritional Counseling Rate	What proportion of patients received nutritional counseling by the 26th week of gestation?	10%	67	03%	58	07%	125
Family Planning Counseling Rate	What proportion of patients received family planning counseling during the pregnancy prior to discharge following delivery?	84%	67	53%	58	70%	125
Pregnancy Induced Hypertension Screening Rate	What proportion of patients had blood pressure checks at least 3 times in the second and 5 times in the third trimester?	37%	67	07%	58	23%	125
Pregnancy Induced Hypertension Recognition Rate	What proportion of patients with a diastolic BP greater than 90 recorded during pregnancy had a diagnosis or narrative documenting recognition of the abnormal diastolic blood pressure?	00%	7	00%	3	00%	10
Anemia Screening Rate	What proportion of patients had a hematocrit or hemoglobin checked in the first 20 weeks of gestation?	81%	67	59%	58	70%	125
Pregnancy Monitoring Rate	What proportion of pregnant women had the fundal height measured 3 times in the second and 5 times in the third trimester and had the L&P documented once in the second and 5 times in the third trimester?	21%	67	02%	58	12%	125
Postpartum Follow-up Rate	What proportion of women who delivered were seen within 8 weeks of the delivery?	75%	67	66%	58	70%	125

Table 2: RESULTS FOR PRENATAL CARE - POPULATION BASED
HEALTH STATUS INDICATORS

TITLE	DESCRIPTION	ANCHORAGE S. U.		KANAKAKAK S. U.		TOTAL	
		RESULT	N	RESULT	N	RESULT	N
Normal Birth Weight Rate	Percent of pregnancies resulting in a birth weight between 5 lbs 8 oz and 9 lbs.	85%	65	91%	57	87%	122
Acceptable 1 Minute Apgar Rate	Percent of pregnancies resulting in an infant with an Apgar 7 or greater.	91%	64	96%	53	92%	117
Pregnancy Induced Hypertension Rate	Percent of pregnancies with documentation of pregnancy induced hypertension or diastolic BP greater than 90 mm Hg.	13%	67	05%	58	10%	125
Gestational Diabetes Rate	Percent of pregnancies with documentation of gestational diabetes.	01%	67	00%	58	01%	125
Minimum Estimate of Prevalence of Anemia in Pregnancy	Percent of pregnancies with documentation of anemia. (Hgb < 12gm or Hct < 37%)	15%	67	31%	58	22%	125
Operative Delivery Rate	Percent of pregnancies terminating with operative delivery.	02%	67	00%	58	01%	125
TAB Family Planning Rate	Percent of women with TAB who received family planning within 4-8 weeks after TAB.	100%	16	--	--	100%	16
Post Partum Family Planning Rate	Percent of pregnant women who delivered who began family planning within 4-8 weeks of delivery.	75%	67	59%	58	67%	125
Repeat Pregnancy Rate	Percent of women who became pregnant within one year of previous pregnancy.	7%	67	14%	36	10%	103

TABLE 3 : RESULTS FOR PRENATAL CARE: PROVIDER-BASED INDICATOR

TITLE	DESCRIPTION	ANCHORAGE SERVICE UNIT	KANAKANAK SERVICE UNIT	BOTH SERVICE UNITS			
		ALL PROVIDERS N	ALL PROVIDERS N	ALL PROVIDERS N	MD N	PHN/RN/PA N	CHA N
Prenatal Work-up Rate	What proportion of pregnant women had a VDRL, cervical culture, pap smear, and clinical pelvimetry within 2 weeks of the first prenatal visit?	39% 83	12% 58	--- 141	--- ---	--- ---	--- ---
Pregnancy Assessment Rate	What proportion of pregnant women had documentation of risk or prognosis of pregnancy within 2 weeks of the first prenatal visit?	2% 83	0% 58	--- 141	--- ---	--- ---	--- ---
Wanted, Unwanted, Undecided Pregnancy Assessment Rate	What proportion of pregnant women had documentation of wanted, unwanted, or undecided pregnancy on the first prenatal visit?	33% 83	0% 58	--- 141	--- ---	--- ---	--- ---
Unwanted Pregnancy Counseling Rate	What proportion of pregnant women with unwanted or undecided pregnancy documented on first visit received counseling within two weeks after first prenatal visit?	100% 16	-- --	--- 16	--- ---	--- ---	--- ---
Anemia Screening Rate	What proportion of pregnant women had a hematocrit or hemoglobin checked within 2 weeks of the first prenatal visit?	83% 83	83% 58	--- 141	--- ---	--- ---	--- ---
Pregnancy Monitoring Rate	What proportion of visits made after the prenatal evaluation resulted in documentation of fundal height?	82% 495	71% 310	78% 505	85% 656	69% 98	2% 51
Pregnancy Induced Hypertension Screening Rate	What proportion of visits made by pregnant women in the second and third trimester resulted in a documented blood pressure recording?	82% 490	94% 308	93% 734	94% 651	88% 26	92% 51
Abnormal BP recog- nition Rate	What proportion of visits with a recorded diastolic BP > 90 had a recorded diagnosis or narrative documenting recognition of the abnormal BP?	0% 17	0% 5	0% 22	0% 20	0% 2	-- --

INFANT CARE

The study results for infant care are shown in Tables 4 and 5. As with some of the data for prenatal care, improved results are noted in the population-based process indicators for infant care when the frequency of required tasks is varied. It is instructive to examine these results while keeping in mind the absence of a clear-cut relationship between these specific health care criteria and the ultimate health outcome of a child.

INFANT CARE---POPULATION BASED PROCESS INDICATORS

TITLE	DESCRIPTION	N#	ANCHORAGE S.U.	H#	KANAKANAK S.U.	N#	TOTAL	%
Growth Monitoring Rate	What proportion of infants had weight and length recorded at least 3 times in first six months and at least 2 times in second 7 months of life?	78	41%	41	20%	119		34%
Growth Monitoring Rate	What proportion of infants had weight and length recorded at least 2 times in first 6 months and at least once in second 7 months of life?	78	60%	41	44%	119		55%
Development Monitoring Rate	What proportion of infants had documented statements of developmental milestones at least 4 times in first 6 months and at least 3 times in second 7 months of life?	78	00%	41	00%	119		00%
Development Monitoring Rate	What proportion of infants had documented statements of developmental milestones at least 2 times in first 6 months and at least once in second 7 months of life?	78	19%	41	05%	119		14%
Diet Monitoring Rate	What proportion of infants had documentation of dietary intake at least 4 times in the first 6 months and at least 3 times in second 7 months of life?	78	01%	41	02%	119		02%
Diet Monitoring Rate	What proportion of infants had documentation of dietary intake at least 2 times the first 6 months and at least once in second 7 months of life?	78	40%	41	29%	119		36%

Among the health status indicators for infant care, the "minimal estimate of prevalence of anemia" (Table 4) in Kanakanak stands out as unusually high. This is due to the large proportion of screening HCTs and HGBs that resulted in values between 10 - 12 gm. (hemoglobin).

The frequency distribution of screening results is shown below:

	HGB HCT	< 8 gm < 24%	8-10 gm 24-30%	10.1-11.0 gm 31-33%	11.1-12.0 gm 34-37%	> 12 gm > 37%	TOTAL
Kanakanak Service Unit infants		1 (7%)	2 (14%)	8 (57%)	2 (14%)	1 (7%)	14
Anchorage Service Unit infants		0	0	1 (3%)	0	38 (97%)	39

This continues to point out the presence of an anemia problem in the Kanakanak Service Unit. The detrimental effect of anemia on the growth and development of young children has been widely recognized.^{7, 8, 9, 10}

The "adequate growth rate" of infants in Alaska was comparable to that in the non-Alaska settings. The indicator considered infants to have appropriate growth of both height and weight if they were between the 10th and 90th percentile at or near one year of age. As illustrated in the table below, most deviations from "normal" were above the 90th percentile for height and/or weight, rather than indication of deficient growth of the sample population.

	WEIGHT				HEIGHT			
	10th	10-90th	90th	TOTAL	10th	10-90th	90th	TOTAL
Communities without a physician	0	15 (88%)	2 (12%)	17	0	16 (94%)	1 (6%)	17
Communities with a physician	3 (6%)	41 (80%)	7 (14%)	51	0	46 (90%)	5 (10%)	51

The "total immunization rates" and the "DPT-OPV immunization rates" (Table 5) indicate that children are being relatively well immunized. These rates compare very favorably to the non-Alaska population and with other similar studies.¹¹

The natural immunity fostered by human milk as well as the contributions of breast milk to the physical and emotional well-being are well documented.^{12, 13, 14} It is with this in mind that we examined the breast feeding rates at the time of discharge from the hospital. The rates in Alaska are high when compared with IHS facilities in the southwest United States.

Table 4: RESULTS FOR INFANT CARE
POPULATION - BASED INDICATORS

TITLE	DESCRIPTION	ANCHORAGE S.U.		PAMAKIAK S.U.		TOTAL	
		RESULT	N	RESULT	N	RESULT	N
Initial Feeding Instruction	What proportion of infants' mothers received diet or feeding instruction prior to discharge after delivery?	40%	78	27%	41	35%	119
Initial Infant Care Counseling Rate	What proportion of infants' mothers received instructions on general topics of infant care prior to discharge after delivery?	54%	78	39%	41	49%	119
Growth Monitoring Rate	What proportion of infants had weight and length recorded at least 3 times in first 6 months and at least 2 times in second 7 months of life?	41%	78	20%	41	34%	119
Development Monitoring Rate	What proportion of infants had documented statements of developmental milestones at least 4 times in the first 6 months and at least 3 times in the second 7 months of life?	00%	78	00%	41	00%	119
Diet Monitoring Rate	What proportion of infants had documentation of dietary intake at least 4 times in the first 6 months and at least 2 times in the second 7 months of life?	01%	78	02%	41	02%	119
Immunization Rate	What proportion of infants had received 3 DPT, 2 OPV, a measles and a rubella immunization by age 12 months?	51%	78	46%	41	50%	119
Infant care Counseling Rate	What proportion of infant's mothers received counseling in topics of infant care at least once in first six months and once in second 7 months of life?	03%	78	05%	41	03%	119
Anemia Screening Rate	What proportion of infants had a Hct/Hgb recorded in second seven months of life?	50%	78	34%	41	45%	119
TB Screening Rate	What proportion of infants had a PPD or Tine test in the second 7 months of life?	55%	78	24%	41	45%	119
Hip Dysplasia Screening Rate	What proportion of infants had documentation of specific hip exam in their first 6 months of life?	37%	78	61%	41	45%	119
Nutrition and Feeding Instruction Rate	What proportion of infant mothers received nutrition and instructions prior to discharge from the hospital?	36%	67	62%	58	48%	125
Infant Care Counseling Rate	What proportion of infant mothers received infant care counseling prior to discharge from the hospital?	30%	67	57%	58	42%	125
Breast Feeding Rate	What proportion of infant mothers were discharged from the hospital breast feeding?	46%	56	74%	50	54%	106
Adequate Growth Rate	What proportion of infants were between the 10th and 90th percentiles for height and weight at approximately 1 year of age?	73%	78	69%	41	72%	119
Birth Depression Rate	What proportion of infants had an Apgar Score less than 6 at 1 minute or less than 8 at 5 minutes?	01%	78	00%	41	01%	119
Total Immunization Rate	What proportion of infants had received 3 DPT, 2 OPV, measles and a rubella immunization by age 12 months?	46%	78	44%	41	45%	119
DPT - OPV Immunization Rate	What proportion of infants received 3 DPT and 2 OPV by age 12 months?	78%	78	64%	41	75%	119
Anemia Screening Field Rate	What proportion of infants screened for anemia were screen positive (Hgb < 12gm or Hct < 37%)?	05%	39	26%	14	26%	53
Minimum Estimate of prevalence of anemia	What proportion of infants had documentation of a positive Hgb (< 12gm) or Hct (< 37%) between 6 months and 12 months of age?	03%	78	24%	41	10%	119

CHILD STATUS INDICATORS

Table 5: RESULTS FOR INFANT CARE: PROVIDER-BASED INDICATORS

TITLE	DESCRIPTION	ANCHORAGE SERVICE UNIT	KANAKANAK SERVICE UNIT	BOTH SERVICE UNITS			
		ALL PROVIDERS N	ALL PROVIDERS N	ALL PROVIDERS N	MD N	PHN/RN/PA N	CHA N
Growth Monitoring Rate	What proportion of visits had weight and length recorded during first 13 months of life?	58% 546	40% 303	52% 849	54% 522	51% 258	39% 69
DPT Immunization Rate	What proportion of visits made when an infant was due for a DPT immunization was the immunization given?	71% 284	48% 184	62% 468	55% 276	84% 151	27% 41
Diet History Rate	What proportion of visits had documentation of recent dietary intake?	42% 546	30% 303	37% 849	40% 522	39% 258	13% 69

STREPTOCOCCAL DISEASE AND RHEUMATIC FEVER PROPHYLAXIS

Phase I of the study examined the Tanana and Mt. Edgecumbe Service Units followed in Phase II by an audit of the Anchorage and Kanakanak Service Units. Tables 6-8 summarize the data from Anchorage and Kanakanak.

Table 6: RESULTS FOR STREPTOCOCCAL DISEASE
POPULATION - BASED INDICATORS

	TITLE	DESCRIPTION	ANCHORAGE S. U.		KANAKANAK S.U.		TOTAL	
			RESULT	N	RESULT	N	RESULT	N
PROCESS INDICATORS	Selective Screening Rate	What percent of first visits for pharyngitis received a throat culture within two days of the initial visit?	72%	137	57%	196	64%	333
	Treatment Rate	What percent of patients with a positive strep culture received an antibiotic within 5 days of the culture date?	97%	33	83%	44	90%	77
	Treatment-of-Choice Rate	What percent of patients with a positive strep culture received either 1.2 gm LA Bicillin (600,000 mu for children less than 60 lbs or 9 yrs or less), Oral pen x 10 days Erythromycin x 10 days within 5 days of the culture date?	97%	33	83%	44	90%	77
	Unsupported Treatment Rate	What percent of patients with an episode of pharyngitis received an antibiotic without receiving a strep culture?	18%	137	37%	196	29%	333
HEALTH STATUS INDICATORS	Positive Strep Culture Rate	What percent of episodes of URI/ pharyngitis which were cultured resulted in a positive strep culture?	33%	99	35%	113	34%	212

Table 7: RESULTS FOR RHEUMATIC FEVER PROPHYLAXIS - POPULATION BASED INDICATORS*

	TITLE	DESCRIPTION	ANCHORAGE AND KANAKANAK SERVICE UNITS	
			RESULT	N
PROCESS INDICATORS	Prophylaxis Rate	What proportion of patients were treated prophylactically during the study period?	83%	43
	Drug of Choice Rate	What proportion of patients received LA Bicillin or (if allergic to penicillin) either Erythromycin 250 mg BID or Sulfadiazine 1 gram q.d.?	76%	43
	Cohort Prophylaxis Coverage Rate	What is the mean percent of the study year during which the study cohort was covered prophylactically?	28%	43
	Prophylaxis Coverage Rate	What is the mean percent of the study year during which those individuals receiving prophylaxis were covered prophylactically?	29%	36
HEALTH STATUS INDICATORS	Acute Rheumatic Fever Recurrence Rate	What percent of patients suffered a recurrence of ARF during the study time frame (1 year)?	02%	43

* BECAUSE OF THE SMALL SIMPLE SIZE RESULTS FROM BOTH THE ANCHORAGE AND KANAKANAK SERVICE UNITS WERE COMBINED.

Table 8: RESULTS FOR STREPTOCOCCAL DISEASE AND RHEUMATIC FEVER PROPHYLAXIS: PROVIDER - BASED INDICATORS

TITLE	DESCRIPTION	ANCHORAGE S.U.	KANAKANAK S.U.	TOTAL BOTH S.U.'s.			
		ALL PROVIDERS n	ALL PROVIDERS n	ALL PROVIDERS n	MD n	PHM / PA n	CHA n
Selective Screening Rate	What percent of first visits for pharyngitis received a throat culture within two days of the initial visit?	72% 137	57% 196	64% 333	88% 99	83% 28	49% 206
Treatment Rate	What percent of patients with a positive strep culture received an antibiotic within 5 days of the culture date?	97% 35	83% 47	90% 82	78% 28	92% 20	91% 34
Treatment Of Choice Rate	What percent of patients with a positive strep culture received either 1.2 mu LA Bicillin (600,000 mu for children less than 60 lbs or 9 yrs or less), Oral pen x 10 days Erythromycin x 10 days within 5 days of the culture date?	97% 35	83% 47	90% 82	78% 28	92% 20	91% 34
Unsupported Treatment Rate	What percent of patients with an episode of URI/pharyngitis received an antibiotic without receiving a strep culture?	13% 137	37% 196	29% 333	6% 99	4% 23	43% 206
Prophylaxis Renewal Rate	What percent of visits by post ARF patients not covered prophylactically, resulted in a renewal of prophylaxis?	--- ---	--- ---	27% 32	29% 65	25% 8	21% 19

The yield of positive pharyngeal cultures for strep (Table 6) is relatively high ranging from 32% to 36%, and when compared to the southwestern United States, this strep infection rate is considerably higher. Although these percentages should not be confused with a true incidence, it nonetheless suggests that streptococcal pharyngitis deserves continued emphasis.

Examination of both population-based and provider-based indicators can be of significant benefit in improving the quality of health services. For example, Table 7 indicates that the rheumatic fever patient requiring penicillin prophylaxis was covered prophylactically only 29% of the time, although this relatively low figure may be due in part to the patient's failure to return to a provider. However, Table 8 shows the prophylaxis renewal rate for all providers to be only 27%. By this we mean that when a patient who is overdue for prophylaxis contacts a provider of health care, his prophylaxis with penicillin is given only 27% of the time. A cursory analysis suggests that if all the opportunities to renew prophylaxis had been exploited (e.g., prophylaxis renewal rate of 100%), the prophylaxis coverage rate might have been increased from 29% to as much as 44%. In other words, although accessibility and patient compliance may be relative barriers to adequate rheumatic fever prophylaxis, a significant improvement could result from additional recognition on the part of the providers of those individuals overdue for prophylaxis.

On January 1, 1976, the Alaska Area Native Health Service Office of Program Development implemented a computerized surveillance system to track rheumatic fever patients. One of the functions of the system was to increase the prophylaxis coverage by identifying those patients overdue for prophylaxis. Since the time frame of this study included the six months preceding and the six months following implementation of the system, it is

possible to draw some preliminary conclusions on its impact in the pilot sites of this study. The data for the 36 patients requiring prophylaxis are shown below:

	BEFORE (7-1-75 To 12-31-75)	AFTER (1-1-76 to 7-1-76)
Patient months of prophylaxis required	216	216
Patient months of prophylaxis provided	45	84
Prophylaxis Coverage Rate	21%	39%

It appears from this that implementation of the system led to a significant improvement ($p < .01$) in the prophylactic coverage of patients with rheumatic fever.

LACERATIONS OF SCALP AND EXTREMITY

Results for lacerations in the Anchorage and Kakanak Service Units are shown in Tables 9 and 10. The population-based wound description rate is made up of three elements: 1) the time since the laceration; 2) the cause of the laceration; and 3) the description of the wound. Examination of the data reveals that failure to document the time since the laceration was the major factor in lowering the overall wound description rate as shown in the following table. Since justification of the treatment plan may be dependent upon the time since the injury occurred, documentation of the time span would appear to be an important element of charting for medical/legal reasons.

TITLE	DESCRIPTION	ANCHORAGE S.U.		KANAKANAK S.U.		TOTAL	
		N#	%	N#	%	N#	%
Time since laceration	Any notation regarding time since the injury or time and/or date of the injury.	100	34%	95	26%	195	30%
Cause of laceration	Documentation of the cause of the laceration (blunt, trauma, glass, dog bite, etc.)	100	94%	95	56%	195	76%
Description of wound	Documentation of the wound appearance (clean, deep, jagged, etc.)	100	84%	95	56%	195	70%
Wound description rate	Percent of scalp or extremity laceration encounters documenting 1) the time since the laceration, 2) cause of the laceration and 3) description of the wound.	100	34%	95	23%	195	28%

As can be concluded from this data, less than one third of the providers are documenting the time since the lacerations occurred.

The observed wound infection rate (Table 9) was relatively low and was comparable to that observed in other health care settings.

Table 9: RESULTS FOR LACERATIONS - POPULATION BASED
PROCESS INDICATORS

TITLE	DESCRIPTION	ANCHORAGE S.U.		KANAKAHAK S.U.		TOTAL	
		RESULT	N	RESULT	N	RESULT	N
PROCESS INDICATORS	Wound Description Rate	34%	100	23%	95	28%	195
	Documentation of Extent of Injury Rate	39%	100	18%	95	29%	195
	Tetanus Prophylaxis Coverage Rate	56%	100	31%	95	44%	195
	Revisit Rate	66%	72	87%	23	71%	95
	Follow-up Rate	58%	72	74%	23	62%	95
HEALTH STATUS INDICATORS	Observed Wound Infection Rate	05%	100	05%	95	05%	100

Table 10: RESULTS FOR LACERATIONS: PROVIDER-BASED INDICATORS

TITLE	DESCRIPTION	ANCHORAGE SERVICE UNIT	YANAKAHAK SERVICE UNIT	BOTH SERVICE UNITS			
		ALL PROVIDERS N	ALL PROVIDERS N	ALL PROVIDERS N	ND N	PHN * PA N	CHA N
Wound Description Rate	Percent of scalp or extremity laceration encounter by provider type (ND, PHN, CHA, RN, PA) that documented: 1) Time since laceration, 2) Cause of laceration, and 3) Description of wound.	34% 100	23% 95	28% 195	42% 96	23% 26	8% 73
Documentation of Extent of Injury Rate	By provider type (same description as population based indicators).	39% 100	18% 95	29% 195	44% 96	27% 26	4% 73
Tetanus Prophylaxis Renewal Rate	Percent of patients who were due for tetanus immunization received tetanus toxoid.	43% 77	16% 76	29% 153	38% 77	50% 16	10% 60
Follow-up Rate	By provider type, percent of patients with sutured scalp or extremity lacerations who revisited provider 5-15 days after laceration with documentation of wound healing.	88% 47	85% 20	87% 67	89% 58	83% 6	67% 3

HYPERTENSION

The results of the audit for hypertension are shown in Table 11. The major weakness appears to be the relatively low recognition rate for persons overdue for screening, however this is contrasted to the high recognition of patients in need of follow-up.

The drug coverage rate is somewhat disappointing. The indicator asks, "What percent of hypertensive patients on medication were covered by a prescription at least 80% of the study year?" The results suggest that less than half of the hypertensive population had achieved this degree of coverage.

It is interesting to note that 25% of patients between ages 40 to 60 years with no previous diagnosis of hypertension had at least one abnormal screening result during a three-year period.

Table 11: RESULTS FOR HYPERTENSION SCREENING
POPULATION BASED INDICATORS

INDICATOR	DESCRIPTION	ALASKA NATIVE MEDICAL CENTER		KANAKANAK CLINIC		TOTAL	
		RESULT	N	RESULT	N	RESULT	N
Screening Contact Rate	Percent of population who made contact with the health care system at least once within the three year time frame (1-1-74 to 1-1-77).	84%	97	90%	106	87%	203
Screening Rate	Percent of patients making contact who had their blood pressure recorded at least once (in the absence of trauma, pregnancy, intoxication, or under the influence of medication known to elevate blood pressure).	75%	81	56%	95	70%	176
Abnormal Screening Recognition Rate	Percent of patients with a positive BP >90 for whom there was any statement or action indicating recognition of the abnormal result on that visit.	67%	15	80%	15	73%	30
Abnormal Screening Contact Rate	Percent of patients with abnormal screening BP who made contact with the system within 6 weeks of the abnormal BP.	80%	15	60%	15	70%	30
Rescreening Rate	Percent of patients making contact who had a blood pressure recorded within 6 weeks of original abnormal result.	75%	12	100%	9	88%	21
Screening Yield	Percent of patients screened during the time frame, who had one or more diastolic blood pressure readings above 90mm Hg.	25%	61	25%	60	25%	121

Table 12: PROCESS INDICATORS
FOR HYPERTENSION

TITLE	DESCRIPTION	N#	TANANA	N#	MT. EDGE CUMBE	N#	TOTALS
Screening Rate	What percent of at risk patients had their blood pressure checked during the study period?	64	59%	74	55%	138	57%
Recognition of Overdue Screening	On what percent of encounters in which patients came in "overdue" for B/P screening do they actually get their B/P checked (Overdue = No B/P in past year.)	64	23%	74	19%	138	20%
Follow-up of those Screened Positive	What percent of those "screened positive" were rechecked within 2 months. Criteria for "screened positive": Age B/P 10-20 >135/80 mm Hg 20-40 >140/90 mm Hg > 40 >150/95 mm Hg	92	48%	158	56%	250	50%
Missed Diagnosis	On what percent of encounters in which a diagnosis is "indicated", does the provider actually enter a hypertension related diagnosis? (a diagnosis is indicated if a previously undiagnosed patient has had 3 consecutive B/Ps 95 mm Hg diastolic)	6	80%	19	84%	25	83%
Work up Compliance	In what percent of new cases of hypertension was a particular test ordered as a part of the initial diagnostic work up. (Test must be ordered 3 months from date of diagnosis. B/P both arms UA Urine Culture BUN or Creat. FBS Weight EKG Chest X-ray Potassium Fundoscopic Exam	44	34%	84	48%	128	43%
		44	75%	84	70%	28	72%
		44	36%	84	14%	128	22%
		44	43%	84	63%	128	56%
		44	13%	84	39%	128	30%
		44	70%	84	85%	128	80%
		44	30%	84	44%	128	39%
		44	34%	84	44%	128	41%
		44	38%	84	39%	128	39%
		44	55%	84	48%	128	50%
Drug Coverage	What percent of the hypertensive population was "adequately covered" by perscriptions for antihypertensive drugs. ("Adequate coverage" = covered by perscriptions at least 280 days per year.)	26	42%	80	38%	106	40%
Recognition Of Need For Follow-up	On what percent of visits when a patient came in "overdue for hypertension follow-up did the provider document hypertension as a purpose of visit. (Overdue = out of medication more than 5 days or more than 4 months since last B/P check.)	33	100%	245	84%	278	86%

IRON DEFICIENCY ANEMIA

Results for screening for iron deficiency anemia in infants and preschoolers are shown in Table 13 for the Tanana and Mt. Edgecumbe Service Units. Results for the management of patients screened positive are shown for the Anchorage and Kanakanak Service Units in Table 14. The latter data is broken down into indicators that examine contact rates and recognition rates in addition to rates of performance of the various clinical elements.

In general, it appears that the Kanakanak Service Unit performs slightly better than Anchorage, largely due to increased recognition rate in the former.

Table 13:

IRON DEFICIENCY ANEMIA PROCESS COMPUTATIONS

TITLE	DESCRIPTION	N#	Tanana	N#	MT EDGE CUMBE	N#	TOTALS
Screening Rate	What percent of patients received a hemoglobin or hematocrit between 6-24 months of age?	72	44%	101	29%	173	36%
Missed Screening Opportunity Rate	What percent of the patients who encountered the health care system between 6-24 months of age did not have a hemoglobin or hematocrit?	72	42%	101	68%	173	59%

Table 14:

RESULTS FOR IRON DEFICIENCY ANEMIA
POPULATION BASED INDICATORS

INDICATOR	DESCRIPTION	ALASKA NATIVE MEDICAL CENTER		KANAKANAK CLINIC		TOTAL	
		RESULT	N	RESULT	N	RESULT	N
Evaluation Contact Rate	Percent of patients screened positive for anemia (Hct>33 and/or Hgb>11) who made contact with the system within 3 weeks after positive screening.	100%	20	100%	11	100%	31
Abnormal Screening Recognition Rate	Percent of patients making contact for whom there is any statement or action indicating recognition of the abnormal result.	85%	20	100%	11	93%	31
Diagnostic Work-Up Rate	Percent of patients with recognition of abnormal result, for whom any statement of dietary intake was documented.	35%	17	18%	11	27%	28
Treatment Rate	Percent of patients with recognition of abnormal result, who were started on iron therapy within one week of diagnosis.	88%	17	100%	11	94%	28
Contact Rate for Follow-Up	Percent of patients begun on therapy who made contact with the health care system within 3-6 weeks after iron therapy was instituted.	33%	15	73%	11	53%	26
Follow-Up Recognition Rate	Percent of patients contacting the system 3-6 weeks after therapy began for whom there was any statement or action indicating the need for follow-up.	20%	5	75%	8	48%	13
Follow-Up Rate	Percent of patients with recognition of the need for follow-up who received a hemoglobin and/or hematocrit within 3-6 weeks after institution of iron therapy.	100%	1	100%	6	100%	7
Resolution of Anemia Documentation Rate	Percent of patients with a repeat Hct and/or Hgb 3-6 weeks after therapy started, which resulted in a Hct <33 and/or Hgb <11.	100%	1	33%	6	92%	7

URINARY TRACT INFECTION

This tracer study followed a cohort of patients residing in the Anchorage and Kakanak Service Units who had a positive urine culture. As with the iron deficiency anemia, the indicators attempt to separate contact, recognition, and actual task performance. In general, the rates are better than for iron deficiency anemia. More specifically, the recognition rates appear to be much better for urinary tract infections than for anemia. These data are shown in Table 15.

**Table 15: RESULTS FOR URINARY TRACT INFECTIONS
POPULATION BASED INDICATORS**

INDICATOR	DESCRIPTION	ALASKA NATIVE MEDICAL CENTER		KAKANAK CLINIC		TOTAL	
		RESULT	N	RESULT	N	RESULT	N
Evaluation Contact Rate	Percent of patients with a positive urine culture (<100,000 organisms) who made contact with the health care system within 2 weeks of positive culture.	98%	45	79%	19	89%	64
Abnormal Screening Recognition Rate	Percent of patients making contact within 2 weeks, who had any statement or action indicating that positive culture was recognized.	98%	44	100%	15	99%	59
Diagnostic Evaluation Rate	Percent of patients with recognition of positive culture, who had documentation of the history, description of symptoms, temperature, and palpation of the abdomen.	44%	43	67%	15	55%	58
Treatment Rate	Percent of patients with recognition of positive culture, who were placed on an appropriate antibiotic therapy within 2 weeks of positive culture. (Soluble sulfonamide, ampicillin, tetrachine, or nitrofurantion)	98%	43	100%	15	99%	58
Follow-Up Contact Rate	Percent of patients treated who made contact with the health care system within 1-4 weeks after the treatment was started.	74%	42	60%	15	67%	57
Follow-Up Recognition Rate	Percent of patients making contact for whom there was any statement of action indicating recognition of the need for follow-up.	84%	31	88%	9	86%	40
Follow-Up Rate	Percent of patients with recognition of the need for follow-up who received a urine culture within 1-4 weeks after treatment started.	96%	25	88%	9	92%	35
Negative Reculture Rate	Percent of patients treated and followed-up who had a repeat urine culture resulting in <100,000 organisms.	80%	25	88%	8	84%	33

THE CONTINUITY OF HEALTH CARE

In order for the results of the study to be viewed in the proper context, some examination of the health system's performance across tracer conditions is necessary. In this context the study assesses the performance of the system of health care in terms of continuity of the clinical elements of primary prevention, screening, diagnostic evaluation, treatment, and follow-up.

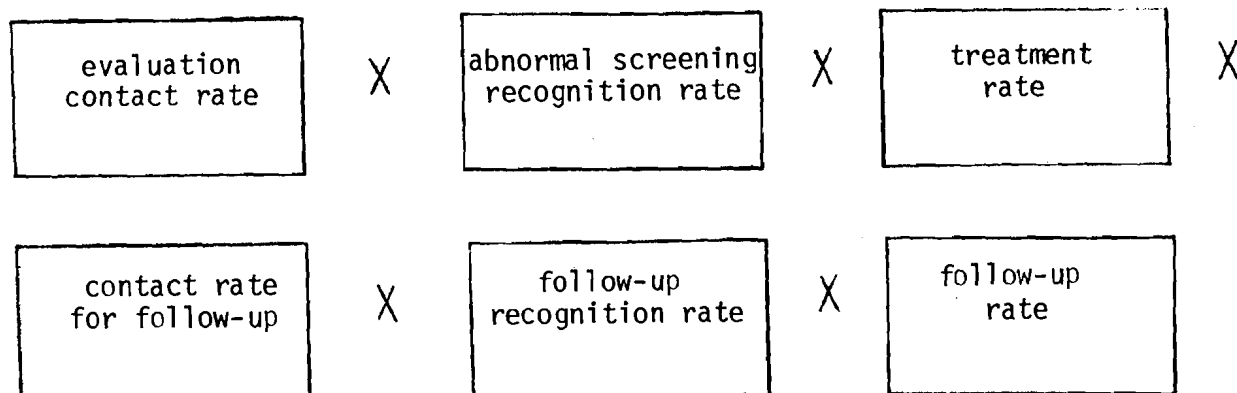
Hypertension, iron deficiency anemia, and urinary tract infections were added to the list of tracers specifically to examine the continuity of health care in greater detail. In general, a required health task is performed only when three basic steps occur. First, there must be contact between the patient and the provider of health services. The need for the health service must be recognized, and finally, the component health care tasks must be performed.

Conventional wisdom would suggest that making contact with the health care system for required services (first step) is the responsibility of the patient. The recognition function is the shared responsibility of the patient (who may state, "I'm here for my follow-up visit.") and the provider who reviews the patient's record. Finally, the performance of the health care task is largely the responsibility of the provider.

The indicators for these tracers were defined in an effort to examine each step of this process independently. Through these indicators, we can examine the contribution to health care of both the patient and the provider and make an assessment of the continuity of the health care process.

Each of these indicators can be viewed as discrete steps in a continuous process. Each can be expressed as a conditioned probability based on empirical data. For example, the "evaluation contact rate" for anemia expresses the probability that an individual with an abnormal screening result will make contact with the system. The "abnormal screening recognition rate" expresses the probability that the abnormal result will be recognized if the contact is made. Likewise, the "work-up rate" expresses the probability that a work-up will be done if the abnormal result is recognized. The probability that a patient with an abnormal screening result will make contact with the system, will have the abnormal result recognized, and receive a diagnostic work-up can be expressed by the product of each component probability.

Examination of the indicator results does not reveal any striking differences in care provided by ANMC and the Kananak hospital. However, closer examination of the conditional probabilities for iron deficiency anemia reveals some interesting trends. The product of all indicators expresses the probability that a patient with an abnormal screening result will make it through each successive step of the process of health care. This mathematical computation is expressed as:



and results in:

$$\text{ANMC: } 1.0 \times .85 \times .88 \times .33 \times .20 \times 1.0 = 0.05$$

$$\text{Kanakanak: } 1.0 \times 1.0 \times 1.0 \times .73 \times .75 \times 1.0 = 0.55$$

Thus the probability that a patient with an abnormal screening result will receive all subsequent health services is ten times higher in Kanakanak than at the ANMC.

The case finding function is an aggregate of screening and problem recognition. Let's consider as an example, iron deficiency anemia results from the Tanana and Mt. Edgecumbe Service Units.

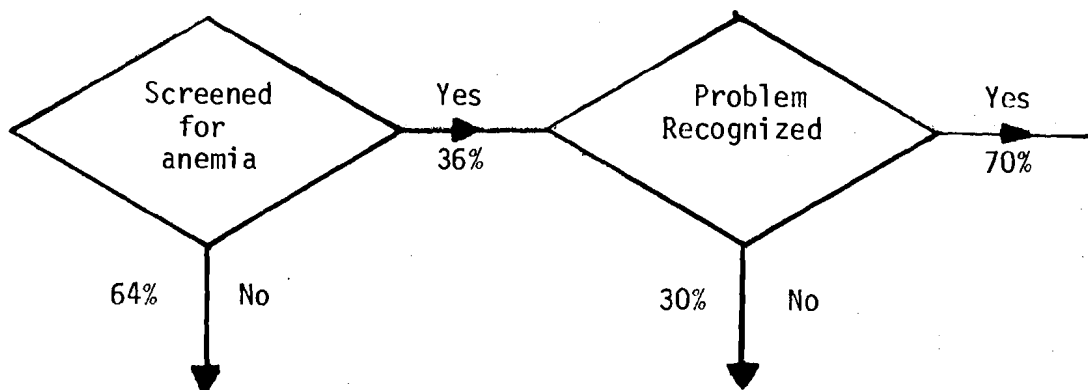


Figure 1:

$$\text{Iron Deficiency Anemia Case Finding Rate} = 0.36 \times 0.70 = 0.25$$

Mathematically, the cross product of screening multiplied by the recognition of positive screening equals the case finding rate. Another way of interpreting this is that the probability that a mildly anemic child will be screened and recognized is 25%, or one chance in four.

The health problem management rate is an aggregate of treatment and follow-up. For example, the "iron deficiency anemia management

rate" is the cross product of the treatment rate and follow-up rate.

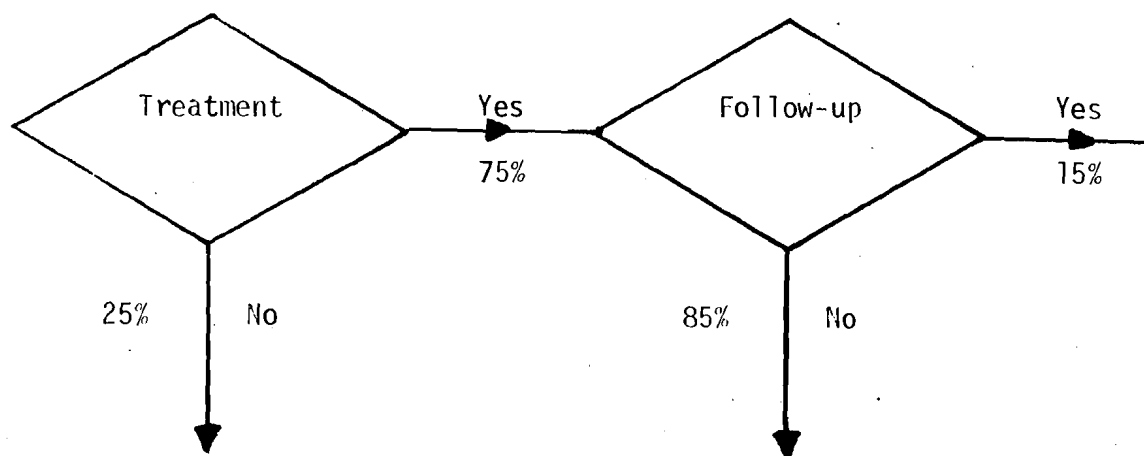


Figure 2:

$$\text{Iron Deficiency Anemia Management Rate} = 0.75 \times 0.15 = 0.11$$

In other words, the probability that an individual given treatment for anemia will be followed-up on to determine if the treatment plan is working and the individual's condition is getting better, worse, or remaining the same is approximately one in ten.

It should be pointed out that the importance of follow-up is proportional to the specificity of the process-outcome relationship. For example, it is well documented in the medical literature that the streptococcal organism is extremely sensitive to the proper dosage of penicillin. The treatment and expected outcome are well established. Clinically, this makes the value of follow-up less important in cases where the proper dosage of injectable penicillin has been used. The importance of follow-up increases in cases where oral penicillin has been administered, and the health system has no assurance that the proper dosage was taken by the patient.

Table 16:
AGGREGATION OF INDICATORS OF
CONTACT, RECOGNITION, AND TASK PERFORMANCE

	ANMC		KANAKANAK	
	n		n	
CONTACT RATES				
Anemia				
1. Evaluation contact rate				
2. Contact rate for follow-up				
UTI				
1. Evaluation contact rate				
2. Follow-up contact rate	.83	234	.83	177
HTN				
1. Screening contact rate				
2. Abnormal screening re-contact rate				
RECOGNITION RATES				
Anemia				
1. Abnormal screening recognition rate				
2. Follow-up recognition rate				
UTI				
1. Abnormal screening recognition rate	.84	115	.90	58
2. Follow-up recognition rate				
HTN				
1. Abnormal screening recognition rate				
TASK PERFORMANCE RATES				
Anemia				
1. Diagnostic work-up rates				
2. Treatment rate				
3. Follow-up rate				
UTI				
1. Diagnostic evaluation rate	.74	240	.72	171
2. Treatment rate				
3. Follow-up rate				
HTN				
1. Screening rate				
2. Re-screening rate				

The "drug coverage rate" of 40% for hypertension is by itself a reflection of the management function. Thus, it indicates that almost half of those who are diagnosed and begin treatment for elevated blood pressure are covered by prescriptions and necessary visits to monitor their condition 280 days per year.

We can explore the contribution of contact, recognition, and task performance by mathematically aggregating the appropriate indicators as shown in Table 16. It is interesting to note that the probabilities of a patient making contact with the health care system is slightly higher than the probabilities of task performance. This finding suggests that discontinuities in health care are not entirely due to failures in patient compliance with a revisit schedule. Further, it is interesting to note that the recognition rates at the Kanakanak clinic are slightly higher than those at ANMC. This may be due in part to the larger and more complex system of health care at ANMC as an adjunct to its higher level of sophistication and specialization.

It is obvious from the results of this evaluation that the health care delivery system has a number of strengths which should be applauded. It is also obvious that certain weaknesses exist and the effectiveness of the various providers could be improved. If one or more of the elements of the process of care are improved, the resultant improvement in "clinical success" may be dramatic. Consider iron deficiency anemia results from Tanana and Mt. Edgecumbe as an example.

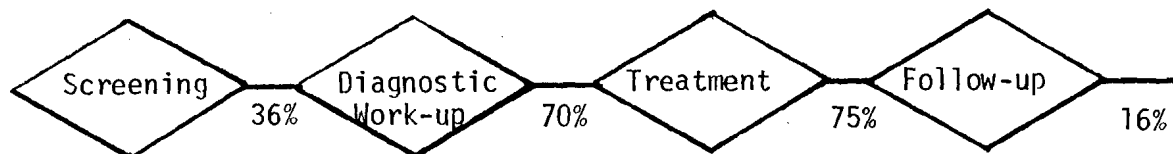


Figure 3:

Clinical elements of the process of care for iron deficiency anemia =

$$0.36 \times 0.70 \times 0.75 \times 0.16 = 0.03$$

If screening were improved to include 75% of the target population, the resultant clinical success would be doubled.

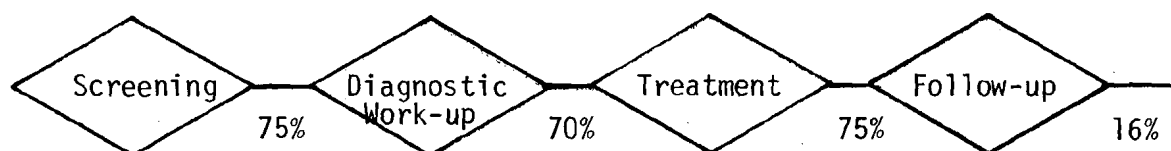


Figure 4:

$$\text{Over-all success rate} = 0.75 \times 0.70 \times 0.75 \times 0.16 = 0.06$$

The effect of altering the screening rate on the overall process of care for iron deficiency anemia

Now if screening, diagnosis, and treatment remain unchanged but follow-up is improved to 50%, there is a three-fold improvement in clinical success.

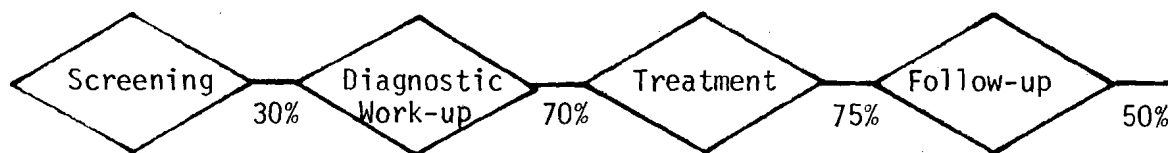


Figure 5:

$$\text{Overall success rate} = 0.30 \times 0.70 \times 0.75 \times 0.50 = 0.09$$

The effect of altering the follow-up rate on the overall process of care for iron deficiency anemia

As a final example, let's consider increasing screening to 75% and follow-up to 50% with all other elements remaining the same. This establishes a 6.6 fold increase over the original result of 3%.

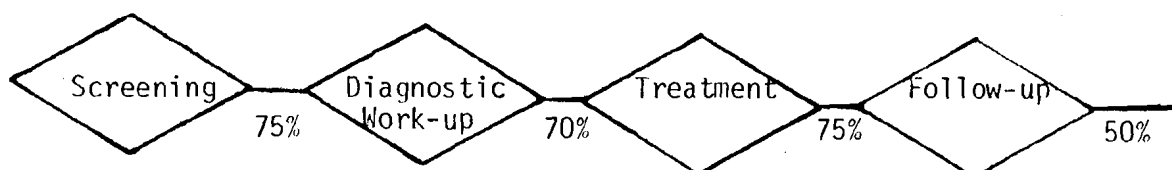


Figure 6:

$$\text{Overall success rate} = 0.75 \times 0.70 \times 0.75 \times 0.50 = 0.20$$

The effect of altering both screening and follow-up on the overall process of care for iron deficiency anemia

Obviously, improving rates at various points in the process of health care can not be accomplished with equal facility. For example, examining the follow-up function for iron deficiency anemia again using data from the Anchorage Service Unit:

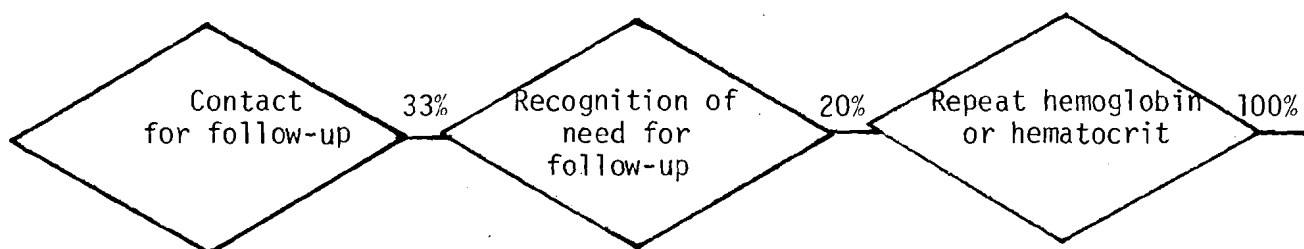


Figure 7:

$$\text{Follow-up success rate} = 0.33 \times 0.20 \times 1.00 = 0.07$$

Follow-up sequence for iron deficiency anemia

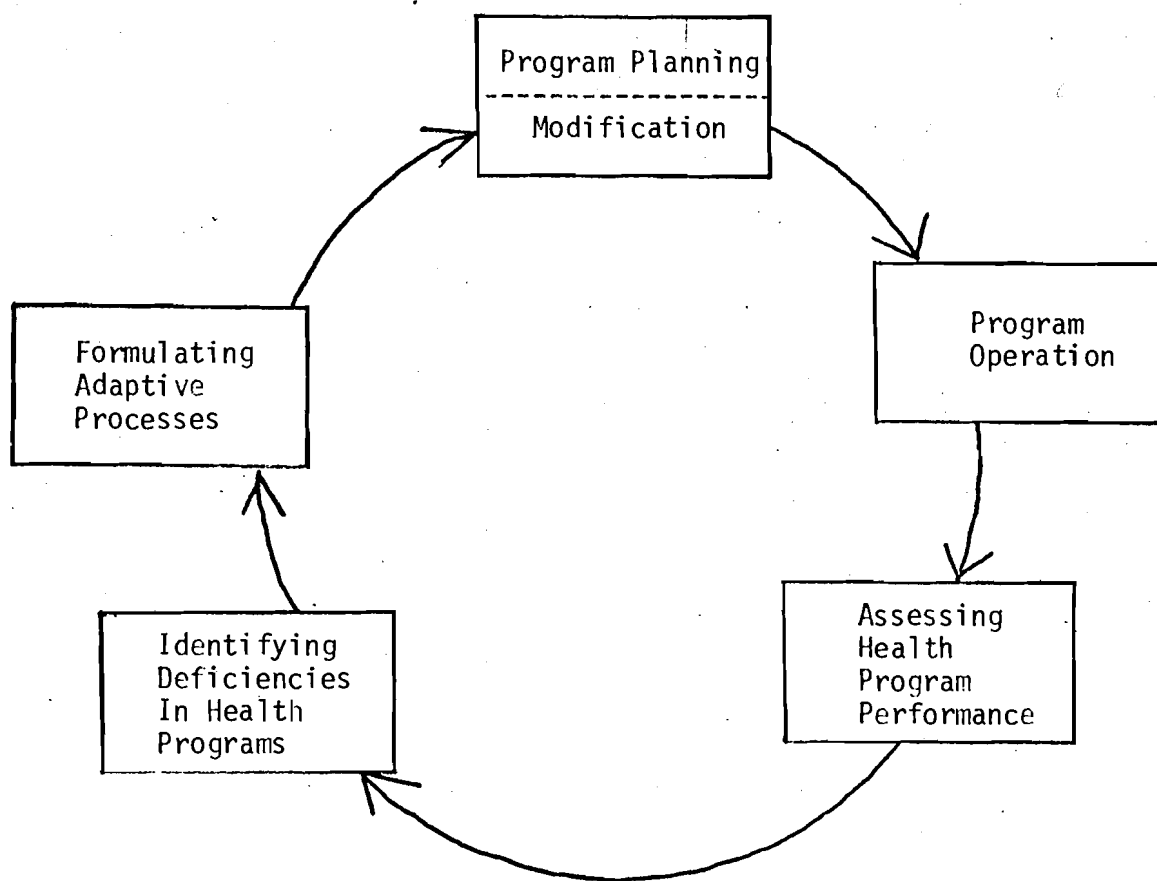
Both the contact rate and the recognition rate are quite low. While it may be quite difficult to change the behavior of the patient to increase the contact rate, there are several viable alternatives to improving the recognition rate. If this were done and the recognition rate were increased to 90%, the resulting follow-up success rate would increase from 0.06 to 0.30.

CONCLUSION

The methodology of this study assesses the quality of health by the use of tracer conditions and indicators of the process of health care. Elements of the process of health care were selected as indicators when they were considered to be essential to high quality health care. The study examined medical records to determine the percent of patient contacts in which the indicator items were provided (provider-based indicators). This method measures documentation of indicator items, rather than the performance of them. Such utilization of medical records as the sources of data is well accepted and its difficulties, understood.¹⁵ 16, 17, 18, 19, 20 Although the recording of objective data, e.g., lab tests, results, prescriptions, usually reflects accurately the performance of those tasks, the recording of other "softer" elements of health care, e.g., education, counseling, almost certainly are under-reported.

In their study for the Joint Commission on Quality Assurance, Osborn, et al.²¹ point out that the major problem in assessing the quality of ambulatory care lies with the relatively poor quality of ambulatory care records. Unlike their study in which they attempted to measure large numbers of health care elements, the current study selected as indicators only those elements felt to be essential to basic health care. Since the performance of the indicators is considered essential to good care, then documentation of their performance becomes part and parcel of quality health care, particularly in a system which derives its strength from a team approach to health care delivery. An improvement in documentation should therefore be considered an intermediate step toward improvement of health care and an appropriate objective of a quality assurance effort.

Although the study results suggest that the Alaska Native Health Service provides health care of a quality comparable to that of other PHS Service Units and the private sector, the primary purpose of the study was to identify areas of relative weakness, which could be improved. This represents the first part of a quality assurance process that is schematized below.



Against explicit criteria for program operation, an assessment of program performance is made, areas of relative deficiency in program operation are identified, and alternatives for strengthening deficiencies (adaptive processes) are formulated. These are merged with other priorities

in program planning and phased into program operation. Obviously such a process requires the input and involvement of health providers, health systems administrators, health planners, and health researchers.

This report represents our assessment of selected parameters of health system performance. The degree to which subsequent steps of the quality assurance process are conducted will determine the ultimate value of this report and the extent to which it contributes to improved health care to the Alaska Native. It is toward that goal that the Health Care Evaluation Project staff submit this report.

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MEMORANDUM

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION
ALASKA AREA NATIVE HEALTH SERVICE, BOX 7-741
ANCHORAGE, ALASKA 99510

TO : See attached list

DATE: April 13, 1976

Refer to : A-OPCS

APR 14 1976

FROM : Stanley Hadley, Jr., M.D., Chief
Office of Patient Care Services

Area Office of the Dept.

SUBJECT: Alaska Native Health Board - Health Care Evaluation Project, Final Report

Attached is the completed report of the past years audit conducted by the Alaska Native Health Board under the direction of Mr. Ed Helmick. At first, I truly had my doubts that this audit would be of value to us. But now that the project has been completed, the report provides us with some very useful information.

I would encourage you to review this report when you are not rushed for time. This audit provides us with a very realistic insight into our own system. In doing so, it points to some deficiencies. An audit is not complete if it points out deficiencies without providing solutions. Therefore, I am requesting that you might look at the deficiencies and then provide us with your recommendations. I request that you forward your recommendations to: Mr. Ed Helmick, M.P.H., P.O. Box 4-1808, Anchorage, Alaska 99509, or myself.

This year, the Alaska Native Health Board has received more money to continue the project. At this time, it is planned to use two new tracers, namely Prenatal Care and Accidents with Lacerations as the specific item. The project plans to continue the Streptococcal/Rheumatic Heart Disease tracer that was used in last years audit. Two additional service units will be used this coming year, ANMC and Bethel. Upon completion of this years project, we will then have five tracers to use in any and all of our service units. It is planned, that is if funding continues to be available, the service units would be reviewed every 2 - 3 years, thus assuring us of follow-up on any recommendations.

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