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THE 1981 CENTRAL ARCTIC AREA HEALTH STUDY:

TOWARDS COOPERATION AND IMPROVEMENT

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EXECUTIVE SUMMARY

The Central Arctic Area Health Study was completed between October, 1980 and March, 1981. Commissioned at the request of the Northwest Territories Department of Health, it sought to review and assess the level of health services and health of the residents of the Central Arctic, to determine the residents wants, and to look at the balance between demands, needs and supply.

In concert, the recommendations form a plan for action in the Central Arctic. However, emphasis is placed upon cooperative developments and the foundation of a productive partnership between government groups and local people.

Each of the recommendations below are listed by chapter title and further discussion of them is contained in the body of the report.

HOSPITALS

- That a hospital facility be developed in the Central Arctic.

- That the proposed facility be located in Cambridge Bay.

- That the existing nursing station in Cambridge Bay be modified, expanded, and designated as the hospital facility for the Central Arctic.

- That the new hospital facility begin as:
  a) a 10-bed inpatient space
  b) a 6-unit self care facility
  c) an outpatient medical and dental program
  d) an expanded public health unit

- That initial modifications and expansion should provide
  a) an operating suite
  b) expanded diagnostic services
  c) emergency room space

- That coincident with the expansion of the facility there should be
  a) development of a proper transient centre
  b) recruitment of a core staff of physicians (to include at least three physicians and one with anaesthesia skills)
  c) development of a paramedic service (involving people from the area)
  d) development of an air ambulance service based in Cambridge Bay

- That transient centres be developed for patients travelling to Yellowknife and/or Cambridge Bay for health reasons.

- That interpreter services should be developed for the hospital facilities in Yelllowknife and Cambridge Bay.

- That a conscious effort should be made to encourage mothers to accompany any child.

TRAVEL TO HOSPITALS AND DOCTORS

- That the Northwest Territories establish an organization responsible for developing and administering a comprehensive patient transport system.

- That Cambridge Bay be designated as a regional centre within the patient transport system and serve as a pilot project for the Northwest Territories.

- That the patient transport service be responsible for health-related travel in the Northwest Territories, including

a) elective travel by patients to physicians, dentists, etc., and by physicians to communities (covering travel in both directions)
b) emergency evacuation of critically ill patients
c) specialized transport requirements of vulnerable groups, e.g. newborns, pregnant women, aged persons

- That the patient transport service be responsible for all aspects related to the housing, reception, and interpreter needs of patients travelling to and from hospital or doctors, including
  a) establishment of transient centers in Yellowknife and Cambridge Bay
  b) ground shelter and transportation via "ambulance" (i.e. a covered, heated, spacious vehicle with CB radio) in each community
  c) establishment of reception services in the Yellowknife airport
     - taxi or transport dispatch procedures
     - 24 hour telephone line to a central interpreter service/ crisis centre
     - escort assistance and liaison with boarding homes and hospital admitting departments
  d) establishment of a health oriented interpreter service; these interpreters would
     - staff a 24 hour crisis line in Yellowknife
     - provide directions and guidance to travellers
     - serve as interpreters in hospitals, nursing stations, and other health settings
     - assist in obtaining informed consent
     - develop information packages for travellers and patients
     - assist patients to maintain contact with families at home

e) maintenance of a registry of licensed and properly inspected boarding homes (including designation regarding hours, smoking or alcohol allowed, language spoken, etc.)
f) establishment of a native foods program for patients in hospital or in the transient centres

- That the patient transport service be responsible for the development of a paramedic system for the Central Arctic and the Northwest Territories.

- That the patient transport service develop an air ambulance system capable of handling all health-related travel in the Northwest Territories.

- That the patient transport service develop specialized teams capable of
  a) managing the at risk or sick newborn
  b) managing the pregnant woman in labor
  c) monitoring and managing the in-transit status of critically ill persons

AVOIDING SICKNESS

- That the Government of the Northwest Territories Department of Health, and Medical Services of Health and Welfare should in concert promote the application of the at risk register for infants.

- That nurses should be encouraged to maintain their current level of maternal and child health programming.

- That some emphasis be put on preventive programming for post-neonates and their parents.

- That environmental health officers develop with local communities a strong well-informed base of activities in regard to water, sewage and garbage issues.

- That health educators cooperate in this effort.

- That health education programs receive a priority rating by the Government of the Northwest Territories and Medical Services and that evaluations be built into all new programming.

- That nutrition receive greater attention, and cooperation continue between health educators and retail outlets.

- That food subsidies be considered by the Government of the Northwest Territories especially for communities which are landlocked, e.g. Pelly Bay.

- That an accelerated program of housing provision be encouraged as an aid to healthy living.

- That health committees be further encouraged; and that they enlarge their mandate to include all aspects of health.

HEALTH CARE WORKERS FOR THE CENTRAL ARCTIC

- That the Government of the Northwest Territories establish its service facility at Cambridge Bay in a way that it has the capacity to serve as a placement for trainees, e.g. nurses, native workers, dental therapists, etc.

- To this end the services of existing adult educators be sought to advise on requirements.

- That the program of single nurse nursing stations be phased out.

- That the living conditions of nurses be improved and consideration be given to community-based housing.

- That all new nurses be given an adequate orientation to the Arctic that is community specific.

- That Medical Services endeavour to "mix and match" nurses within each nursing station so that both public health and acute care areas are covered.

- That nurses prior to arriving at a nursing station be offered upgrading in areas of deficiency, particularly prenatal care.

- That a greater reciprocal accountability develop between nurses and the Zone office of Medical Services.

- That physicians offer on-site continuing education for nurses in the stations.

- That three well-qualified and experienced physicians be hired to be based in Cambridge Bay and travel throughout the Central Arctic. If a facility is developed in Cambridge Bay one should have anaesthetic capabilities.

- That consideration be given to contracting with Yellowknife general practitioners for coverage of assigned communities as an interim measure until a facility is developed in Cambridge Bay or other physicians are hired.

- That the contract with the University of Alberta be reviewed and

for the supply of Resident physicians (if this program is to be continued) to be assured.

- That an accountability be developed between University of Alberta Resident physicians and Yellowknife general practitioners.

- That Resident physicians should not continue to practice in Cambridge Bay without on-site supervision.

- That consideration be given to increasing the duration of the visits of the eye team to each community.

- That consideration be given to increasing the duration of the visits of the dental team to each community.

- That with the increase of specialists at Stanton Yellowknife Hospital more itinerant activities take place, particularly in the areas of paediatrics, psychiatry, geriatrics and obstetrics.

- That the range of Royal College certified specialists at Stanton Yellowknife Hospital be increased, to include Paediatrics and Anaesthetics.

- That programs be put in place for the training of native workers in the areas of
  a) Community Health Representation
  b) Health Education
  c) Lay Midwifery
  d) Lay Dispensing
  e) Interpretation
  f) Medical Evacuation

- That as much training as possible take place in the Central Arctic through the use of visiting tutors.

- That the interpretation services in Edmonton be reviewed by the Government of the Northwest Territories and that consideration be given to establishing a branch of the Interpretor Corps in that city. A southern allowance should be payable.

PROBLEMS WITH SPECIALIZED SERVICES

Alcohol and Substance Abuse

- That the Alcohol and Drug Coordinating Council together with the Department of Health, and Medical Services be proactive and promote community by community investigations into alcohol and substance abuse.

- That all communities be encouraged to set up committees of concern.

- That local alcohol counsellors be appointed in any community that has not banned alcohol.

- That any community that has not banned alcohol should be assumed to be at risk.

- That special attention be given to the education of school children regarding alcohol and substance abuse.

- That special attention be given to the 16-25 year age group and to generate appropriate activities in which they can be involved.

- That a register of all alcohol related child abuses and offences be kept centrally through cooperation between the R.C.M.P., the

Department of Health, and Medical Services.

- That an ordinance be introduced speedily to cover sale or provision to minors and inhalation of intoxicating substances.

- That the Northern Addiction Services Program be provided when necessary with interpreter services.

- That occupational health programs be devised for non-Inuit workers in conjunction with local churches.

- That Cambridge Bay or some other community in the Central Arctic act as the centre for training of native alcohol counsellors.

- That the Territorial Legislature give consideration to increasing the funds available to the Alcohol and Drug Coordinating Council; and that they require detailed evaluation to be built into all future projects.

MENTAL HEALTH SERVICES

- That the recommendations of the Cameron reports, completed in 1980, be acted upon forthwith.

- That an at risk register be established of all cases of mental retardation and accountabilities be developed for their handling.

- That psychiatrists visit all communities on a regular basis acting as backup resources to nursing personnel.

- That psychiatrists shall before visiting take into account the cross-cultural dimensions of their work and be appropriately prepared for the Central Arctic.

- That a cadre of native workers be available to work with psychiatrists as interpreters and follow-up workers in lieu of psychiatrists learning Inuktitut (which would be most desirable).

- That mechanisms be developed whereby non-Inuit can get access to appropriate services; for they have their own problems of social adjustment in the Arctic.

Chronic Care, Long Term Care and Rehabilitation

- That an at risk register of all persons requiring chronic, long term and rehabilitative care should be maintained at the nursing station.

- That the development of services for this group in Yellowknife and the Central Arctic should be encouraged.

- That care by relatives should be encouraged either within a home or at the nursing station.

- That there should be a regular follow-up procedure for these patients on the register.

- That the facility at Cambridge Bay should be developed as a regional follow-up centre, for persons requiring chronic or rehabilitative care.

- That nursing aides/homemakers be encouraged to assist in home nursing of chronic and long term care cases.

- That doctors visiting all communities review all chronic care cases.

Dental, Opthamology, Prosthetics

- That there be a review of the eye team program with special reference to:
  a) authorization process and cost distribution
  b) delivery of glasses
  c) booking of visits in each community and length of stay in each community
  d) cost and damage resistance of frames

- That a policy of issuing a duplicate set of glasses be considered. Duplicates for school-aged children should be kept at school.

- That each community's health committee study the question of dental disease, with special reference to a fluoride supplementation program in the schools.

- That the dental program receive continued support and encouragement.

- That a study of special appliances and prosthetics needs in the Central Arctic be undertaken.

LABORATORY AND DIAGNOSTIC TESTS

- That the use of x-ray equipment in each nursing station be reviewed by a competent radiologic technician.

- Nurses in the Central Arctic should be given an on-site instruction program in the use of the various diagnostic equipment available to them.

- The range of diagnostic tests actually being performed in the nursing stations should be reviewed.

HANDLING INFORMATION

- The Health Management Information System and its use should be examined to assess its capability of meeting the administrative and clinical needs.

- The medical community should be assisted (encouraged) to expedite completion of consultant letters, discharge summaries.

- Patients being discharged from the hospital should be given an information package for delivery to the nursing station at home. This package should contain a simple outline of course in hospital, discharge diagnosis, medical or other treatments required at home, follow-up plans, etc.

- Nursing supervisors from Zone Office should visit the Central Arctic nursing stations on a regular basis. These visits should include a review of nursing station manuals, administrative records systems, and an audit of patient records.

- Nursing stations should have clerical assistance and there should be a training program for these clerks.

- A pilot project on the application of micro-computers in the nursing stations should be initiated to reduce costs and nursing time spent in administration. Such a pilot project should involve the nursing station at Cambridge Bay, and at least two others in the Central Arctic.

- The micro-computer project should include on-site training for

the nurses and development of software specific to their clinical and administrative needs.

COOPERATION FOR CHANGE

- That a Task Force be constructed representing all interested parties to consider and implement an integrated health plan for the Central Arctic. At minimum it should represent the communities, all levels of government, and the K.I.A.

- That the Central Arctic be recognized as an area in which all cultural groups have something to gain by improvements; and that they all be represented in the Task Force.

- That the terms "partnership" and "cooperation" be at the base of operation of the Task Force.

- That the Task Force develop phases of implementation over short and medium terms.

- That the Task Force recognize the need to include both the Charles Camsell and Stanton Hospitals in its membership. These hospitals act as prime resources for native people and require to be coopted.

ACKNOWLEDGEMENTS

Studies of the type undertaken here do not occur without considerable organisation at the local level. We wish to express our deep gratitude to Stella Van Rensburg of the N.W.T. Department of Health, who acted officially in the capacity of coordinator of activities as we visited the communities; but more she was a mentor and friend, and her knowledge of many of the communities enabled us to make fewer mistakes.

As we travelled throughout the Central Arctic we met with nothing other than friendliness and cooperation. Many people spent considerable time with us in an effort to ensure that problems became articulated. Health and social service professionals, church workers, government officials, individual families and settlement committees all devoted themselves to the task of improving health services.

We were privileged to have two accomplished interpreters along with us. The abilities of Kris Kamingoak and Josie Tucktoo were greatly appreciated: they carried out well the task of helping the people of the Central Arctic.

Government officials in Yellowknife and Cambridge Bay (Alice Eisner in particular) assisted our task and were constantly available for discussion.

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CHAPTER 1
INTRODUCTION

1. BACKGROUND TO THE STUDY

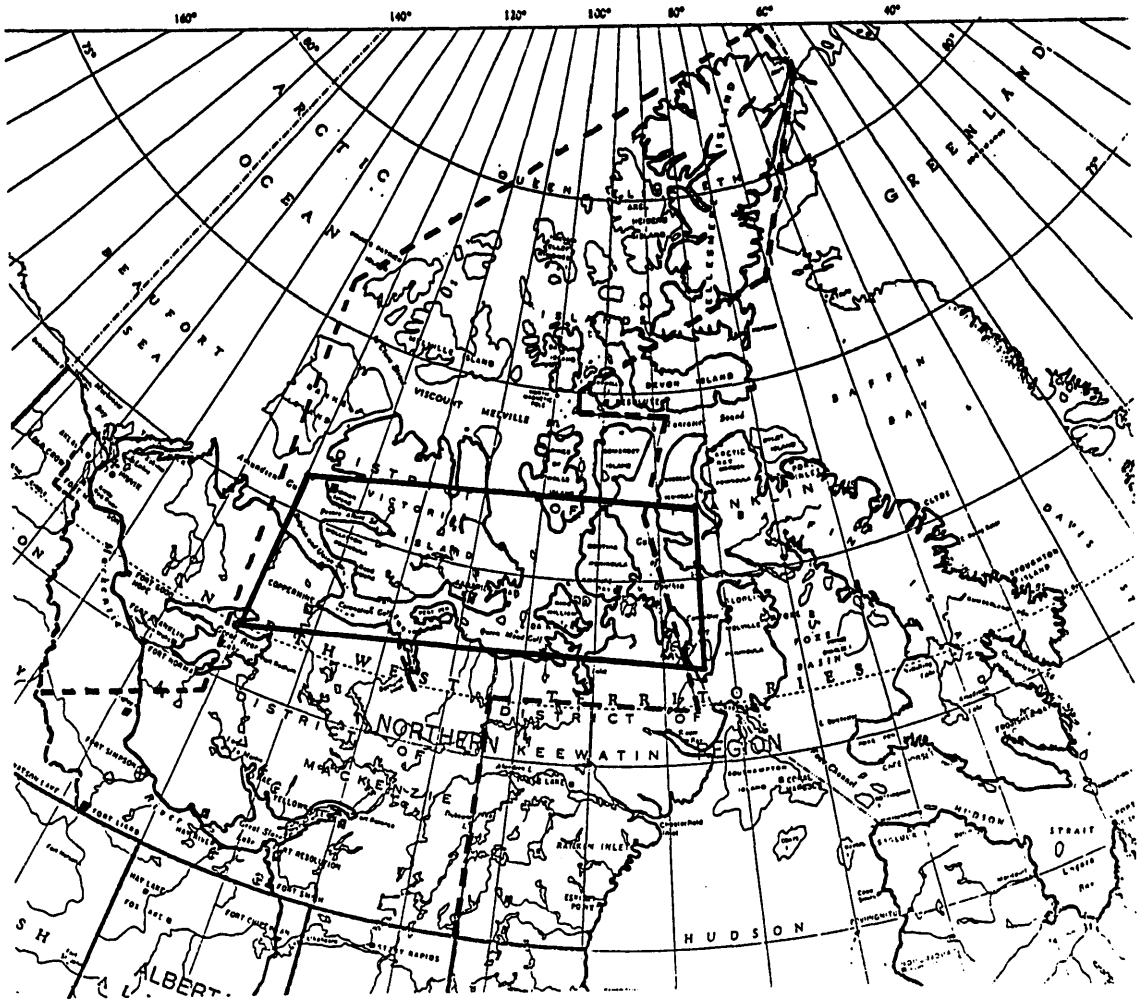
The Central Arctic communities have seen rapid changes over the past ten years. Indeed, if one goes back more than twenty years the number of people living in organized settlements was very small. Now, there are just over three thousand residents in six hamlets or settlements (see Map and Table 1). Travel within the area and to Yellowknife and Edmonton has become a way of life; and with this possibility more people from the South are becoming familiar with this area of the Arctic. Beyond this, oil and gas, mining and other industrial concerns are promoting their interests through exploration; in time this can only aid the rapidity of social change, whether for better or for worse.

There are some other forces at play too which are concerned with government. First, the Northwest Territories are moving towards having provincial status. Second, before this even happens, the Territorial Legislature has recognized the need to decentralize some of the administrative services through a process of creating regions. Thus the Central Arctic gains regional status and Cambridge Bay becomes the regional centre. Third, and somewhere in the future, the Land Claims of the Inuit people remain to be settled and the Nunavut proposals debated; whatever the result further changes can be expected in the Central Arctic.

But in spite of all the political and administrative changes which are occurring or which are proposed the people of the Central Arctic continue to have needs for services--education, housing, transportation, communication and health.

Health services have been considered a problem for some time by the people and the representatives of communities in the Central Arctic. But governments also, both Territorial and Federal,

NORTHWEST TERRITORIES - CENTRAL ARCTIC



have been concerned. Thus, when the Central Arctic Area Planning Council met in mid-1980 and requested a health services study specific to the Central Arctic, agreement was quickly reached with the Territorial Government for this to be undertaken.

2. TERMS OF REFERENCE

The Department of Health of the Government of the Northwest Territories having consulted with all relevant groups in the Central Arctic and elsewhere issued the following terms of reference in July 1980:

1. To identify and evaluate the levels of care presently available, the residents access to care, and discuss the alternative levels of care available to residents of the Central Arctic Area.

   To make recommendations for the improvement of health, and health care delivery throughout the Central Arctic Area, including that available in both organized and unorganized communities, outpost camps, and to travellers on the land.

2. To identify and evaluate the levels of health care and to make recommendations with regard to the following criteria:

   1. comparability with other areas
   2. scope of service
   3. utilization of resources
   4. patient and professional responsibility, and interpersonal relationships
   5. relationship of health care to other community structures
   6. native training programs
   7. economic impact of placing or upgrading a health facility in Cambridge Bay

Of particular importance was item 2, "the scope of service", which was defined as follows:

The extent of care provided in each community (organized and unorganized), outpost camp, on the land, and in the region, such as personnel, equipment, and method of service delivery including the assessment and practicality of:

1. a hospital in Cambridge Bay, Northwest Territories
2. a full-time physician in Cambridge Bay
3. 24-hour, on-duty nursing coverage in selected nursing stations in large communities (as compared to present on-call system after hours).

It was stated that the study was being carried out under the authority of the Territorial Hospital Insurance Programs of the Government of the N.W.T. Department of Health in conjunction with Medical Services--N.W.T. Region, Health and Welfare Canada, and the residents of the Central Arctic Area.

3. THE STEERING COMMITTEE

The consultants for the study reported to a steering committee which was composed as follows:

Mr. Bob Kadlun, President of Kitikmeot Inuit Association
Dr. David Martin, Regional Director, Medical Services, Northwest Territories Region
Mr. Michael Pontus, Assistant Deputy Minister of Health, Government of the Northwest Territories
Mr. Kane Tologanak, M.L.A., Central Arctic.

It was required that the report be submitted to the Ministry of Health, Government of the Northwest Territories; the Area Settlement Councils; the Kitikmeot Inuit Association; the Central Arctic Area Planning Council; and the Minister of Health and Welfare, Government of Canada.

4. APPROACHES TO PLANNING

The consultants, in conjunction with the Steering Committee, proposed that an examination of the Central Arctic Health Services should include an assessment of both "demands" and "needs". "Demands" include the actual use which is made of the presently existing programs, health professionals and facilities such as nursing stations and hospitals in Yellowknife and Edmonton. "Needs" assessment involves reviewing the levels of illness and disability and determining if there are suitable programs, health professionals and facilities available to deal with the problems. What can happen is that people only are able to use what is available and many of their needs go unmet. Appendix A contains a more detailed statement of this approach.

At a very practical level the consultants spent time:

(a) Reviewing information provided by various sections of the Department of Health and other departments of the Government of the N.W.T.

(b) Reviewing information provided by Medical Services of Health and Welfare Canada.

(c) Visiting the communities of Holman Island, Coppermine, Cambridge Bay, Gjoa Haven, Spence Bay, Pelly Bay and Bathurst Inlet. Community meetings were held at each location and individual house visits made in most.

(d) Visiting with health, social service and education professionals in each community. Talking with church workers, R.C.M.P. officers, local government employees (for example those concerned with housing and sewage

disposal), community health representatives, retail store managers, and other interested persons.

(e) Meeting with individual Settlement Councils, and with Health Committees where they existed.

The time available was often short, but a total of nearly four weeks was spent by Drs. Warner and Tonkin, and Ms. Husted, in the communities during December, 1980, and January, 1981. People in the Central Arctic being very mobile through their work were not always in their settlement when visits were scheduled and this was unfortunate, if inevitable.

5. THE REPORT: ITS APPROACH AND STYLE

The terms of reference for the study are broad-ranging but some recommendations are made on almost all of the questions raised.

However, it became clear as documents were reviewed, communities were visited, and both lay and professional concerns were taken into account, that a number of issues emerged. These have been grouped under the chapter headings.

In each chapter the following approach is used:

(a) What services, programs, facilities, etc., currently exist and what is proposed?

(b) How are these services, etc., used; where do people go and for what?

(c) What are the requirements for services, etc.; what are the projections of need; what are people's opinions?

(d) What is the consultant's basis of thinking in making recommendations--the point(s) of departure?

(e) Recommendations.

The main body of the report is written in a way that is easily translated into Inuktitut; and so the amount of complex, specialist language is kept to a minimum. The information contained in the Appendices provides technical back-up and a rational basis for recommendations contained in the report.

CHAPTER 2
HOSPITALS

WHAT EXISTS

There is no hospital in the Central Arctic. Residents of the area must "go out" to hospital. The pattern of hospital utilization by Central Arctic residents has changed in recent years (Table 2). The overall trend has been towards increasing use of the hospital in Yellowknife and a compensatory reduction in the use of the hospitals in Edmonton.

Hospital services for the Northwest Territories can be described as primary or community level hospitals located in Frobisher Bay, Inuvik, Fort Smith, Hay River and Rae-Edzo. The Stanton Yellowknife Hospital serves a mixture of primary and secondary level functions. It offers a community hospital service to residents of the Yellowknife area, and has some specialty services--for example in obstetrics and gynecology--that make it an important resource for the other hospitals in the Territories.

The tertiary, highly specialized services which some patients require are provided by the hospitals within the Edmonton area (and to a lesser extent Montreal and Winnipeg). Some of these services involve trips from Edmonton into the Northwest Territories (for example, the neonatal transport team from the University of Alberta) to pick up patients, or visits by Edmonton-based specialists to Yellowknife.

There is a planned relocation and expansion of the Stanton Yellowknife Hospital. The intent of this construction program includes improvement in physical plant, expansion of diagnostic capabilities, and creation of more specialist opportunities within the Northwest Territories. The result of this expansion will be a greater centralization of health care services in the Northwest Territories, and reduction in reliance on southern-based programs.

While the expansion of the Stanton Yellowknife Hospital is

not within the terms of reference of our study, it will play a big influence on the outcome of any program changes that we will recommend for the Central Arctic.

The development of the nursing station program by Health and Welfare Canada was a major step forward in the provision of health services in the Territories. These nursing stations, staffed by dedicated nurses, have provided exemplary acute episodic care for the people of the Central Arctic. Each nursing station has a number of inpatient beds. These beds were established as a vehicle for on-site care especially for infant and maternity cases. To a certain extent they were also intended to serve as holding areas for patients awaiting evacuation. Collectively these beds represent the equivalent of a 34-bed hospital. Professionals in the Central Arctic no longer see them as a desirable alternative to hospitalization in Yellowknife. A policy that provided incentives for the greater use of nursing station beds could have a great impact on the pattern of utilization of the Stanton Yellowknife Hospital. Table 2 shows the current costs associated with nursing stations in the Central Arctic.

HOW USED

Hospital and nursing station utilization by Central Arctic residents is shown in Tables 3 and 4. The distribution of the hospital caseload in the Northwest Territories generated by Central Arctic residents (especially the number of bed days) reflects the fact that the Central Arctic is the only area in the Territories that has no option but to send patients in need of hospitalization to Stanton Yellowknife Hospital or Edmonton. Changes in the size of the Central Arctic caseload will directly influence occupany rates in the Stanton Yellowknife Hospital.

Most hospital admissions are for traditional medical and surgical reasons although differences in the nature of disease in the Inuit

population have been documented. These differences reflect factors such as climate, nutrition, housing, and genetics. There are also differences due to the population structure in the Northwest Territories. The geriatric population is small in numbers and as a proportion of total populations . . . thus diseases of the elderly are under-represented. By contrast the pediatric population has grown rapidly and generates a substantial caseload (Table 5).

There are differences in the distribution of the caseload between facilities. This is reflected in the diagnostic profiles of the Stanton Yellowknife Hospital versus Edmonton versus nursing stations. Another difference is in how hospital beds are utilized. This can be illustrated by comparing Northwest Territories and Central Arctic hospitalization rates for the pediatric age group with those for British Columbia. These differences reflect a growing trend in the south towards reduction in the length of hospitalization . . . a trend which has not yet had its impact upon hospital utilization in the Northwest Territories. Without a major increase in the size of the population in the Northwest Territories it can be anticipated that occupancy rates at Stanton Yellowknife Hospital will drop, or the length of hospitalization will increase. Neither alternative is attractive or medically desirable.

To summarize: there is no hospital facility in the Central Arctic. The majority of the hospital needs of Central Arctic residents are served by the Stanton Yellowknife Hospital and these needs, while having some features unique to northern and/or Inuit populations, are not substantially different from the medical needs of any other group of people in Canada.

REQUIREMENTS

In discussing hospital requirements for the Central Arctic or the Northwest Territories, it should be recognized that they

cannot be considered in isolation. A number of important factors need to be included in such a discussion:

a) changes in the size of the population in Yellowknife and the Northwest Territories

b) changes in the pattern of disease or methods of treatment

c) changes in the availability (or cost) of services in Edmonton

d) decisions about how many and what type of specialized diagnostic and treatment services are to be developed at Stanton Yellowknife Hospital

e) development of alternatives to traditional inpatient care and reduction of length of hospital stay

f) decisions about how to use beds in the nursing stations.

The population projections for the Northwest Territories, the Central Arctic, and Yellowknife are shown in Table 6. The total population involved is small. This makes it difficult to plan and develop viable programs. A large increase in the number of people living in the Central Arctic is unlikely. However, it is clear that the age profile will change considerably in coming years.

At present there is a large proportion of young people and few old people in each community in the Central Arctic. Birth rates remain high and infant mortality rates are dropping. As a result the size of the pediatric population has increased greatly. This will mean a new wave of adolescents in the next decade and a second wave of new babies a few years later. At the other end of the

age spectrum is the population of old people which will undergo a major increase as well. Thus one can expect that the late 1980's and the 1990's will feature a major demand for maternal and child health as well as for more geriatric services. Both of these areas require more than the average amount of hospitalization. Both are areas where there are suitable alternatives to the use of traditional inpatient hospital services which could be introduced.

The first requirement, therefore, is for a hospital system that can anticipate and adapt to the changes which seem likely to occur within the Central Arctic. Such a system should be based on modern concepts and modern technologies . . . not just the importing of outdated or traditional hospital systems from the south. There is a need for a critical approach to change and to the introduction of innovative programs. The development of alternatives to the traditional system can provide an exciting opportunity for the people of the Central Arctic to participate in the necessary adaptations of their health services.

The second requirement is a more immediate one. The people need to understand and be understood. The most important need expressed by the people in each community meeting we held was the need for more and better interpreter services. There is a government-run interpreter service but it can't meet the demand. There is one hospital-based interpreter at Stanton Yellowknife Hospital, three casual interpreters in Edmonton and none at airports, doctors' offices, etc. The people must often rely upon young children or strangers for help when getting directions, giving a history, or trying to get an explanation of what is happening to them. The people may be placed in a boarding home where only English is spoken. They may arrive in Yellowknife or Edmonton and face weeks of loneliness compounded by lack of people to visit with and talk to. Improvement in interpreter service should

receive high priority as it would do much to alleviate suffering and improve care.

The third requirement is a proper place to stay and access to native or country food. This is a less urgent requirement but now would seem an opportune time to react to this need. The relocation and expansion of the Stanton Yellowknife Hospital should be accompanied by the development of a separate Inuit-run transient centre in Yellowknife itself. This facility should include a close liaison with the Stanton Yellowknife Hospital, the interpreter services, the other local health services, and the transportation system. The center could also serve as a focal point for the development of a native foods program within Yellowknife.

In addition to the above three requirements the people voiced a number of other concerns that will be listed in point form.

Consent: The procedure is for a consent form to be signed prior to evacuation. Interpretation is usually done at the nursing station but is often rushed as there is much paperwork to be done prior to each evacuation. The nurses are not always sure what is planned in the way of treatment (especially surgery), the treatment plans may be changed, and consent forms are complicated and printed only in English. In other words a proper and informed consent is not really obtained and consents obtained in Yellowknife or Edmonton are not well understood by the people.* Nor is it clear if the people really understand the consent process and its implications.

Explanation: The people frequently misunderstand the nature of their illnesses or the type of treatment they have received. This is partly due to the lack of interpreter services, partly due to the strangeness of the hospital and its technology, and mostly due to the feeling the people have that doctors don't take time to explain things to them. People often have trouble understanding instructions about

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*Reibl and Hughes (1980) S.C.C. Decisions, October 7, 1980.

rehabilitation, follow up, etc.

These problems are not restricted to people as patients but also apply to the nurses in each community. All too often the patient returns without any written explanation of the treatment received or the course of events while in hospital. Many weeks may pass before a discharge note finds its way into the nurses' hands. Further, nurses vary in the thoroughness of the notes they send out with patients and it is not always clear why a patient has arrived in a doctor's office or a hospital ward.

Family Contact: The policy and practice of "escorts" and the funding of an accompanying relative is not always clear. The people have mixed feelings about a mother going out with a sick infant. The present system does little to encourage the process of mothers accompanying children and the rules are not the same for everyone. Once a patient is out there is often no contact with family members at home until it is time to return. In some communities an effort is made to keep up the family contacts by phone while in others the nurses will tell people of the news received from Yellowknife or Edmonton.

Coordination: In an area as large as the Northwest Territories, it is expected that there will be problems with coordination. However, there is a need for more effective liaison between nursing station, hospital, and physicians. Patients, specimens, records, and prescribed items, e.g. dentures, eyeglasses, get "lost" with depressing regularity. Doctors' appointments may be missed, changed or greatly delayed. Beds may not be available for admissions arriving in Yellowknife, boarding homes may not be notified of a patient's arrival, and not all investigations are organized in advance. Time wasted works to the disadvantage of patients as it means prolonged stays in Yellowknife, missed flights, and emotional

stress. This lack of coordination is also costly.

Preparation: There are few programs available to prepare patients for what they face in hospital. Such programs are badly needed. Areas to be covered should include the transportation process, admitting and medical office routines, hospital management of pregnancy, x-ray and laboratory examination procedures, going for an operation, recovery and rehabilitation after surgery. The language barrier plus the lack of familiarity with modern hospitals makes it difficult for the people to understand what is going to happen to them. Slide-tape and video programs, preparation for hospital kits that can be used in schools, pamphlets and brochures explaining services need to be more freely available. Instruction sheets on what to do after surgery, etc., need to be developed. All of these materials are needed in Inuktitut and in English.

Services: The people of the Central Arctic were very appreciative of the care they received. The programs at the nursing stations and in the hospitals in Yellowknife and Edmonton were praised and were generally felt to be of good quality. When there were complaints it was usually in the form of not enough nurses, too few or too brief visits by specialists to communities, or the need for a doctor in the Central Arctic. Availability of medications and investigations were not usually mentioned as deficiencies. Specialized rehabilitation services, programs for the handicapped or mentally retarded, mental health and alcohol programs were mentioned but not stressed. Health education, lifestyle and other prevention programs were mentioned only by the professionals in the communities visited.

We were also interested in the response to the question of the need for hospital services in the Central Arctic. The subject did not dominate the open, public meetings. In the communities of Holman Island and Coppermine people enjoyed easy access to Stanton

Yellowknife Hospital and were supportive of the notion of a hospital in Cambridge Bay "if the people there wanted it". In Cambridge Bay the idea of a hospital was favourably received but it was stressed that the people of the eastern part of the Central Arctic were more important to listen to. In the communities of Spence Bay, Pelly Bay, Gjoa Haven, and Bay Chimo there was a general feeling that a hospital in Cambridge Bay would be a good idea but there was general agreement that a second rate hospital was not desirable, that a hospital without doctors would be useless, and that a suitable transient centre would also have to be available. There was a feeling that a hospital in Cambridge Bay would do much to shorten the travel time and to ease the feeling of loneliness, strangeness, and separation that people experienced on going to Yellowknife. There was also a clear feeling in some communities that alcohol abuse in Yellowknife or in Cambridge Bay is a problem that they wished to avoid and that any planned hospital facility should provide protection for non-drinkers.

When people were asked to describe what they thought a hospital facility in Cambridge Bay might do or include they had great difficulty. It became clear that the term "hospital" could be taken to mean many different things. Much work remains to be done to help people in the Central Arctic clarify what it is they would like to see develop. Some wanted a hospital like Stanton Yellowknife Hospital; others thought a 10-30 bed unit might be good. Some wanted a place where babies could be delivered and operations performed. Others wanted a place where the old people could be treated.

PHILOSOPHY

The development of a hospital facility in the Central Arctic should be given a high priority but only in conjunction with

development of appropriate support services and personnel.

We believe a hospital facility should be developed in Cambridge Bay and that it should serve all of the Central Arctic. The proposed facility should begin as an expansion and modification of the existing nursing station in Cambridge Bay. The expansion process should be gradual and should involve the people of the Central Arctic in all phases of its development and execution. Before new facilities are developed existing ones should be more adequately used. Personnel and programs are of a higher priority and with minimum modifications the present facilities could serve a broader range of functions.

There is no data on which to base the hospital bed requirements for the Central Arctic. The existing nursing station in Cambridge Bay has an equivalent bed capacity of ten, six adult and four paediatric. The upper limit of requirements for the area can only be guessed; and it is more appropriate to think in terms of a viable size for a unit, namely 10-30 beds. We recommend, therefore, in terms of the lower end of the range because, first, there would be an instant demand for this complement, and, further, any additional demand should be channelled towards other facilities (e.g., self-care), or other programs. A self-care unit is analogous to a "care by parent" unit but is capable of accepting patients of all ages. Patients admitted require day time nursing, medical or other treatment and/or observation, but can care for themselves, or be cared for by family members during evening and nighttime periods.

To be effective programs in the Central Arctic need a base of operations. The proposed facility for Cambridge Bay could serve that purpose. The facility should not only provide a vehicle for involving the people in planning and running their own programs in the health field, but should also be a training ground for native workers in the health care field. The CHR program* in the Central Arctic is not functioning. New job opportunities can and should be created. The Cambridge Bay program would offer a focus for developing pilot projects in this regard.

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* denotes the Canada-wide Community Health Representative program initiated in the 1960's by the Medical Service Branch, Department of National Health and Welfare Canada.

The advantages of a facility are clear: travel time will be reduced; a base of operations will exist for medical staff; and diagnostic capabilities will increase. The disadvantages must be weighed, however. They are: increased costs; patient flow could be fragmented through the exercising of patient choice; and unnecessary utilization may occur.

RECOMMENDATIONS

1) That a hospital facility be developed in the Central Arctic.

2) That the proposed facility be located in Cambridge Bay.

3) That the existing nursing station in Cambridge Bay be modified, expanded, and designated as the hospital facility for the Central Arctic.

4) That the new hospital facility begin as:
   a) a 10-bed inpatient space
   b) a 6-unit self care facility
   c) an outpatient medical and dental program
   d) an expanded public health unit.

5) That initial modifications and expansion should provide
   a) an operating suite
   b) expanded diagnostic services
   c) emergency room space

6) That coincident with the expansion of the facility there should be:
   a) development of a proper transient centre
   b) recruitment of a core staff of physicians (to include at least 3 physicians and 1 with anaesthesia skills)
   c) development of a paramedic service (including people from the area)
   d) development of an air ambulance service based in Cambridge Bay.

7) That transient centres be developed for patients travelling to Yellowknife and/or Cambridge Bay for health reasons. These should

be separate facilities suitably located in each community and should be staffed and run by the community. The centres should ensure the availability of native foods and interpreter services. The centres should prohibit alcohol use and limit smoking. None of these requirements can be guaranteed in boarding houses.

8) That interpreter services should be developed for the hospital facilities in Yellowknife and Cambridge Bay. These interpreters should be given a sound grounding in medical terminology and in basic anatomy and physiology. The interpreter service should be given resources to produce patient information packages, consent forms in Inuktitut, slide-tapes, etc.

9) that a conscious effort should be made to encourage mothers to accompany any child. This is particularly important for children who are vulnerable to the effects of separation, i.e. all children under 5 years and children under 10 years who do not have English language skills or school experience. There should be included provision of supports within the home community (e.g. childcare, homemaker) and other efforts to shorten the length of time both mother and child are away from home.

CHAPTER 3

TRAVEL TO HOSPITALS AND DOCTORS

WHAT EXISTS

Getting there is half the battle! Anyone who has travelled in the North knows that travel is expensive, time-consuming, and not always comfortable. Much of the focus is upon getting patients a seat on a plane in or out of a community or on the question of "who pays". There is little or no emphasis on what happens to people during that process. There is no system, but rather a set of disjointed pieces that somehow or other manages to get the job done.

There are a substantial number of patient transfers and reverse transfers in the Central Arctic. These transfers are shown by individual community in Table 7. It is difficult to assess trends in the number of transfers because conditions within each nursing station greatly influence the number of patients being sent out. For example, single nurse stations and stations that do no midwifery will send out more patients. However, the present trend is clearly towards sending people out for all but the simplest of acute episodic care. The nursing stations do not encourage use of their inpatient beds . . . even for holding of patients prior to evacuation. Any reversal of this practice of under-utilizing the inpatient beds in nursing stations would appreciably change the travel pattern in the Central Arctic.

There are regularly scheduled flights into most communities in the Central Arctic. These planes may come in twice a week or more (weather permitting) (Appendix B). There are also charter flights available via Cambridge Bay or Yellowknife. Emergency evacuations are by charter and planes can arrive in three to twelve hours depending on weather and the location of the emergency. As shown in Table 8, most of the patient travel is on regularly scheduled flights. We understand that schedule changes are being introduced and that there will be an increase in the number of flights available

in the Central Arctic. However, distances will remain great (Table 9).

The flight crews and staff of the principal commercial carriers demonstrate care and concern for patients in transit. However, they have little understanding of what is wrong with a particular patient and no training in how to manage a crisis in flight. The flight crews do not demonstrate any knowledge of Inuktitut and would be hard-pressed to deal with patients who do not understand English (in the absence of an interpreter). Some planes do carry oxygen and a first aid kit. Most planes have no discernible emergency medical equipment and one wonders if it is available and in good working order.

Ground level transport and stretcher transfer of patients is crude . . . and dangerous in bad weather. Stretcher patients are transported to and from the airplane on the back of open trucks. They are lifted onto planes under manual techniques (a danger of slipping) and wait in the planes in below zero weather until the plane is airborne. Some airstrips have little or no shelter and there is no ambulance system in the communities.

There is no systematic checking or monitoring the patient's condition at each stage of the patient transfer. The escort process is not standardized and relies largely upon who is available.

We did not have a chance to observe the evacuation of a critically ill patient, but did have a chance to talk with the nurses who often accompany these cases. They travel with a heavy burden of luggage, much of it survival gear. There is a very well equipped "medical bag" that travels with them. Unfortunately these nurses are usually from a public health background and have limited experience in or confidence with management of critically ill patients. We understand that efforts are underway to involve hospital nurses in the patient transit service. This is a step we would encourage but still find it difficult to see how effective anyone would be in flight (so little space to maneuver in) or when on the ground (the planes

are cold) in the event of a crisis.

The transfer of critically ill newborns is a slightly different situation. Cold exposure is a real threat to young children and infants. Special incubators are available but we did not have a chance to see them in use. Several nursing stations had incubators that were non-functional (for example, no battery packs). We understand that on occasion the neonatal transport team from the University of Alberta will come to pick up infants from the communities. More commonly this transport flows between Yellowknife and Edmonton.

Escorts are a major problem in the Central Arctic. The responsibilities of an escort are not clearly defined and patients are often left to their own devices. Infants and children do not normally go out in the company of their mothers or other close relative. Teenagers are used as escorts for young children or old people. Teachers, nurses going out on leave, other adults are often prevailed upon to act as escorts. Taking a nurse away from the nursing station in order for her to serve as an escort is costly and means that the nurse who is left behind is under an extra workload.

Reception of patients at either end of their journey is haphazard. This is a particular problem at Yellowknife and in Edmonton. Patients end up in the airports with no idea of where to go or how to get there. They are not always met and often do not speak enough English to get the necessary directions--a particular problem in Edmonton. The people become very dependent and easily confused in these situations. It is a tribute to the way that the people in the North help each other that things go as well as they do. However, the experience leaves the people with bad memories of going out for care and makes them understandably reluctant to go out a second time.

The timing of patient travel is a special problem. Acute situations must be assessed as to whether they can wait until the

next scheduled flight or whether a charter is required. Charters are expensive and authorization is not easily obtained. In fact, once the doctor and nurse have made the clinical decision to evacuate a patient, authorization for the medical evacuation must be cleared with a clerk in Yellowknife. Nurses are frequently resentful of this person's authority. Thus there is an indirect pressure to delay evacuation until a regular flight is available. Many elective procedures can be planned well in advance but it often occurs that the reason for evacuation has changed over time . . . a normal phenomenon. However, there is a tendency, once the wheels have been set in motion, to send the patient out anyway.

More problematic is the evacuation of women on or before the 36th week of pregnancy. Airline policy dictates that tickets for pregnant women can be issued for travel prior to 36 weeks, but not after. This policy leads to prolonged absences from the family during the late prenatal period. Combined with the growing reluctance to do deliveries in the nursing station, this leads to a significant population of pregnant women who are absent from their husbands and children for periods of six to eight weeks. This is an extreme hardship for those at home and for the women who must sit around in Yellowknife and await their due date.

HOW USED

The pattern of utilization of medical evacuations has not changed much over time. These evacuations are for a range of urgent and elective situations. They include visits to doctors' offices, hospital admission, and outpatient investigations or treatment. The majority of the patient flow is to Yellowknife but some is to Edmonton and some is to Cambridge Bay. Patients also go out for non-medical reasons. Some of these are funded by social services, some are funded by other government agencies--e.g. teachers going to

conferences or workers going out for training--and some are paid for by the people themselves.

The majority of medically-related travel is paid for by someone other than the patient. A special committee (the Medical Repatriation Committee) has been meeting to discuss the present methods of payment and who is responsible for what portion of this travel cost. In this state of flux there is much misunderstanding as to the actual policy regarding travel and all too often the people of the Central Arctic are not fully aware of what the current policy is.

Not all travel is patient travel. A large number of professionals are on the move within the Northwest Territories. This group includes: visiting teams of specialists, e.g. eye team, dentists, pediatricians, etc.; consultant or supervisory personnel, e.g. mental health specialists, public health inspectors, health educators, etc.; nursing station personnel going out on leave or coming in as replacements, etc. All of this travel is paid for out of government funds. Many of these travellers add a burden to the nursing station personnel since they usually stay at the nursing station. While we have no data on this aspect of the pattern of utilization of nursing station inpatient beds it would appear that the "hotel" function of the nursing station is more active than its inpatient care function . . . at least with respect to use of its beds.

REQUIREMENTS

It is difficult to estimate the needs for travel to and from hospitals and doctors in the Northwest Territories. Much will depend upon where the patients travel to. A decrease in the amount of travel to Edmonton will likely occur as the facilities available in Yellowknife are developed. Introduction of a hospital facility and physicians in Cambridge Bay would redirect a lot of patient traffic from Yellowknife to Cambridge Bay. A change in the pattern

of utilization of nursing station inpatient beds would also have a profound impact on the amount of travel necessary. Increasing the number of specialist teams travelling in the Central Arctic would also have an effect.

The people of the Central Arctic have learned to depend on the DC3 for many things. It is a reliable aircraft and generally gets the job done. For some the airplane is a frightening thing and even for the most experienced traveller the flights have their tense moments. The advent of television and development of better information programs on travel policy will likely modify the people's understanding and expectations.

The people's requirements will likely increase in sophistication, e.g. faster planes, more regular flights, greater comfort and safety. The question is whether this sophistication will extend to the point of demanding a better process of patient travel . . . at least for the most vulnerable groups in the Central Arctic: infants and newborns, the aged peoples, pregnant women, the trauma victim and other critically ill persons. As the people become exposed to services available to others elsewhere (e.g. paramedics, air ambulances, ground transport and reception programs), they will surely begin to ask more questions about travel to hospital and doctors than they do now.

PHILOSOPHY

We believe that the patient transport process is an important part of the health care system. This is particularly true in the Northwest Territories where travel and language problems add an extra burden to people when they are sick. The present way of handling patient travel to and from hospital and/or doctors can hardly be called a system. From our perspective (not necessarily that of the people of the Central Arctic) the need for a proper

transport system is of higher priority than a hospital facility in Cambridge Bay.

We do not believe that a system can or should be developed overnight. We do believe it should be introduced as a non-commercial government-run system. The scope of the system should cover the entire patient transport process, i.e. reception and dispatch, ground transportation and shelter, escort and in-transit care, air-ambulances, and paramedic services. Such a system should include employment and training opportunities for the people of the Central Arctic (at all levels of the program).

A number of government and commercial agencies are involved in the patient travel process in the Northwest Territories. However, the kind of communication and planning that goes on in the present multi-agency approach leaves too many chances for mishap and misguided practices. Too much is left to luck and individual good will. It would be preferable if a new organization were established to handle all aspects of the process. This would require considerable transfer of authority, change in policy, and allocation of new monies. As health services in the Northwest Territories become increasingly sophisticated the present non-system will not be able to serve the growing demands for safe, efficient, high quality transportation and reception services. Government must be prepared to face the added financial burden that a proper transport services will entail . . . the rewards will be great.

RECOMMENDATIONS

1) *That the Northwest Territories establish an organization responsible for developing and administering a comprehensive patient transport system.*

2) *That Cambridge Bay be designated as a regional centre within*

the patient transport system and serve as a pilot project for the Northwest Territories.

3) That the patient transport service be responsible for health-related travel in the Northwest Territories, including:
   a) elective travel by patients to physicians, dentists, etc., and by physicians to communities (covering travel in both directions)
   b) emergency evacuation of critically ill patients
   c) specialized transport requirements of vulnerable groups, e.g. newborns, pregnant women, aged persons

4) That the patient transport service be responsible for all aspects related to the housing, reception, and interpreter needs of patients travelling to and from hospital or doctors, including:
   a) establishment of transient centers in Yellowknife and Cambridge Bay
   b) ground shelter and transportation via "ambulance" (i.e. a covered, heated, spacious vehicle with CB radio) in each community
   c) establishment of reception services in the Yellowknife airport
      - taxi or transport dispatch procedures
      - 24 hour telephone line to a central interpreter service/ crisis centre
      - escort assistance and liaison with boarding homes and hospital admitting departments
   d) establishment of a health oriented interpreter service; these interpreters would
      - staff a 24 hour crisis line in Yellowknife
      - provide directions and guidance to travellers
      - serve as interpreters in hospitals, nursing stations, and other health settings

- assist in obtaining informed consent
- develop information packages for travellers and patients
- assist patients to maintain contact with families at home

e) maintenance of a registry of licensed and properly inspected boarding homes (including designation regarding hours, smoking or alcohol allowed, language spoken, etc.)

f) establishment of a native foods program for patients in hospital or in the transient centres

5) That the patient transport service be responsible for the development of a paramedic system for the Central Arctic and the Northwest Territories. Good examples exist in British Columbia and Saskatchewan.

6) That the patient transport service develop an air ambulance system capable of handling all health-related travel in the Northwest Territories.

7) That the patient transport service develop specialized teams capable of

a) managing the at risk or sick newborn

b) managing the pregnant woman in labor

c) monitoring and managing the in-transit status of critically ill persons

8) That the patient transport service serve a liaison and patient advocate role with the other areas of the health care system. Much can be done to increase the efficiency and humanity of patient care in the Northwest Territories. For example:

a) The care of pregnant women has shifted to greater reliance on hospital based services in Yellowknife. This is probably a healthy trend but is very unpopular with the people in the Central Arctic. Combining better

medical services with at risk scoring, ultra-sound estimation of gestational age, and a proper air ambulance service would make it possible for pregnant women to stay in their communities until much closer to their due date.

b) *Development of specialized care teams that could move into a nursing station and remain there until a critically ill patient is stabilized and more safe to transport would help the nurses to feel more secure and would make travel less traumatic for patients.*

c) *A health oriented interpreter service could develop a family contact program for patients away from home for long periods of time. Using audio and video cassettes they could talk with patients and record their messages for shipment home. Live television and radio could also be used as a special program of family contact.*

d) *Infants and children under the age of eight years do not handle separation from family and home very well. Any mother should be able to accompany her child to hospital. In fact their presence should be encouraged by the patient transport service. Provision of "Care By Parent" type units in Yellowknife and Cambridge Bay could assist this process and would provide an excellent opportunity to help mothers learn how to care for their sick infants.*

9) *Transport of critically ill patients places stress upon all--including the nurses who escort them. Much could be done to relieve them of unnecessary burdens. Flights often involve extra stops because oxygen supplies need to be replenished ... equipment failure and replacement is inefficiently handled ... the extra burden of survival gear, luggage, etc., could be assumed by others ... there are many ways to help all concerned feel better and work better.*

CHAPTER 4

AVOIDING SICKNESS

WHAT EXISTS

The idea of avoiding sickness receives as little attention in the Central Arctic as it does elsewhere. The emphasis in most health service programs is upon acute, episodic care. This is understandable given the often dramatic nature of illness, especially when hospital facilities and doctors are several hundred miles and many hours away.

However, the Government of the Northwest Territories and the Medical Services Branch have made commendable inroads in dealing with the prevention of illness. Over the years there have been significant decreases in the deaths of children in their first year of life because of a vigorous maternal and child health program; and much credit must go to nursing station personnel, the better level of transportation and correspondingly raised level of access to doctors and hospitals for prenatal care and delivery. In the following picture, the quite dramatic effect of programs can be seen in the number of children compared with the number of adults in the Pelly Bay community. (It is noted that this is an extreme example and in part reflects the influenza epidemic of twenty years ago.) There has been a steady downward shift in child health problems in the Northwest Territories, and this holds true for the Central Arctic too. Table 10 shows the considerable success of immunization programs in the Central Arctic communities.

Within the environment several key areas exist which can, if properly dealt with, help people avoid sickness. These are adequate housing, and appropriate treatment of water and sewage, and garbage collection.

Remarkable progress has been made in the housing field and none of the many houses we visited had difficulties with heating systems providing sufficient heat, although adequate ventilation is

of more concern in that respiratory problems may be the result. In homes occuped by Inuit, however, there are often many people in each house and this has been associated by some researchers as having a bearing upon the levels of hospitalization for intestinal infections, infections of the skin, infections of the middle ear, and burns. The standard of housing varies considerably and no rationale has existed for the distribution of adequate quantities of new housing until recently. The Housing Needs Study approach instituted by the Northwest Territories Housing Corporation is innovative and gives communities useful guidelines by which they can set out requirements and determine priorities.

At the base of much public health activity is the provision of good water, the processing of sewage and the removal of garbage. In Appendix C a detailed breakdown is given of the activities of each community in this regard. In broad terms each community is responsible for treating and distributing its own water through some sort of tanker system. The handling is often erratic and the type of quality control poor. People do not like high levels of chlorination and this is frequently abandoned under pressure. For sewage, the honeybag system works well in winter, but relies upon prompt removal in the spring and summer months when dogs and children can easily rip the bags apart. Garbage disposal is by burning and/or collection and again is more problematic in the warmer months. Some communities organize groups of school children to assist in collection and clean-up.

An environmental health officer based with Medical Services in Yellowknife travels to the communities regularly but can act only in a consultative role. It is not clear who takes definitive responsibilities for environmental hazards between his visits. Nurses tend towards acute, episodic care and often have little training in the area of public health or time and interest to carry out this role.

Certain other more minor environmental hazards exist such as skidoos and rabies, but problems with these are relatively small. Some communities have passed ordinances regarding the age of eligibility for skidoo riding, and also maximum speeds and curfews, and this is claimed to be beneficial preventively. Rabies occurs in waves and is dependent upon the carrier characteristics. Whilst the Inuit residents appear clear about the action to be taken in a case, for example, of a dog being bitten by a rabid fox, the white population are sometimes less clear. Normally, disposal of the affected animal should be immediate.

Communicable disease incidence varies from year to year, but in the three-year period, 1978-80, no particular trends are evident (see Table 11). However, gonorrhea remains a problem (Table 12) and constant surveillance is necessary here as with other diseases.

Nutritionally balanced diets are a problem in many communities because food is either not available or too costly, or both. Each community visited had at least one retail store and variably the new Food Guide Colour Coding was being introduced in The Bay. School children receive training in the use of this, and it appears a valuable investment of time. Otherwise diets are high in protein, high in sugar ("empty" calories), but low in other vital areas.

Schools also play a vital part in children's dental health. This, in conjunction with the excellent work done by the dental therapists (where they exist), can form the baseline of a critically important health education area. Preventively it is matched only by the shower programs operated by the schools. Currently children are supplied one toothbrush per year together with daily vitamin pills. No fluoride supplementation is provided. Dental <u>care</u> as opposed to <u>treatment</u> is a vital preventive program.

Alcoholic problem prevention is a major concern in the Arctic, sufficient that some communities have banned alcohol

altogether. The results of alcohol over-indulgence are pervasive and if curbed can see significant reductions in violence, child abuse, injuries, etc. This area was raised by many people and as an issues has been dealt with specifically in Chapter 6.

Dental therapists provide an important source of preventive health care, but are only located in two communities, although they visit others.

HOW USED

The most popular and used areas of preventive services are the maternal and child health programs. All nursing stations see this as an important task, and with both varieble effort and success endeavour to see all pregnant women and girls. Immunization levels are high for Inuit school children but the figures may be suspect if there are many non-attendees. However, the figures are much lower for non-Inuits (see Table 10).

Health committees, where they exist, see as their prime function the promotion of high standards in the water, sewage, and garbage area. In this role they use the advice of the Environmental Health Officer and nurses. There is, however, a certain flexibility in these arrangements and problems continue to exist.

Housing priorities are usually set by the settlement or hamlet Housing Committee but they work within externally imposed constraints, i.e. the number of new houses provided by the Housing Corporation. Local jealousies do exist in regard to allocation and this should improve with the new approaches being used by the Housing Corporations.

REQUIREMENTS

As was suggested at the outset of this chapter, little community demand was shown in the area of prevention or promotion; thus the requirements are those generated from the ideas of health and social service professionals practicing in the communities, as

much as the consultants.

In relation to children it would appear necessary to further promote "at risk" registers to enable better case funding and support activities to occur. There continues to be a high post-neonatal mortality rate (that is, after 28 days of age) compared with southern Canada, and this will be reduced with better risk identification. This will become increasingly important as the current child population becomes child-bearing, with a consequent rise in the proportion of the dependent population. Indeed there is some indication that unless birth control methods become popular the next ten years will see dramatic increases in the younger age groups. Much program emphasis will be needed at this end of the age spectrum.

No particular comments were received about housing--probably because of the rapid increase in both quality and availability over the past ten years. However, there is an urgent need particularly in Coppermine, Holman Island and Pelly Bay for more good quality housing.

Communities were vocal about water quality, claiming that chlorine tends to ruin good water. It appears to be administered haphazardly, and in the past often to excess. Further community education is needed both on the purification of water and the disposal of sewage and garbage.

Food availability at reasonable cost was remarked upon frequently, particularly in the eastern settlements. Pelly Bay pays $2.20/lb for flown-in food, being landlocked all year. Other communities receive deliveries by barge, at a cost of 44¢/lb. Some form of subsidy is clearly needed if a nutritional balance is to be maintained.

PHILOSOPHY

The avoidance of sickness should be made a high priority

if the Central Arctic communities are to develop any true state of self-sufficiency. The communities show a resourcefulness which can be capitalised upon through encouragement of self-help. To this end health education should be emphasized as being of prime importance.

RECOMMENDATIONS

1) That the Government of the Northwest Territories Department of of Health, and Medical Services of Health and Welfare should, in concert, promote the application of the at-risk register for infants.

2) That nurses should be encouraged to maintain their current level of maternal and child health programming.

3) That some emphasis be put on preventive programming for post-neonates and their parents.

4) That environmental health officers develop with local communities a strong well-informed base of activities in regard to water, sewage and garbage issues.

5) That health educators cooperate in this effort.

6) That health education programs receive a priority rating by the Government of the Northwest Territories and Medical Services and that evaluations be built into all new programming.

7) That nutrition receive greater attention, and cooperation continue between health educators and retail outlets.

8) That food subsidies be considered by the Government of the

Northwest Territories especially for communities which are landlocked, e.g. Pelly Bay.

9) That an accelerated program of housing provisions be encouraged as an aid to healthy living.

10) That health committees be further encouraged; and that they enlarge their mandate to include all aspects of health.

11) That the technical and training recommendations contained in Appendix C be acted upon.

CHAPTER 5

HEALTH CARE WORKERS FOR THE CENTRAL ARCTIC

WHAT EXISTS

For the residents of the Central Arctic the nurses are their general practitioners and the doctors their specialists. It is the nurses, however, that are the backbone of the health service and they are all employed through the McKenzie Zone of Health and Welfare Canada's Medical Services. They work in nursing stations (which are a recent development of the last thirty years), of which there is one in each of the six Central Arctic communities. The people of Bay Chimo receive assistance from a lay dispenser.

The nursing stations, which were described earlier in Chapter 1, form the vital primary care functions for each community but, in addition, have some in-patient capacity (see Table 3a). The staffing pattern of each station varies (see Table 13). Cambridge Bay is the largest having a total of ten staff, including four nurses and a doctor, when one is available, on rotation through the University of Alberta Medical School; and there is also a full time dental therapist. Coppermine and Gjoa Haven both have three nurses, Spence Bay two, and Holman Island and Pelly Bay one. A dental therapist works in Spence Bay but the position is vacant in Coppermine. There are a number of other important health related workers involved in social services, housing, alcohol counselling, etc.

Various other health workers travel to the Central Arctic, some on a regular schedule, others more spasmodically. The Eye Team travels through each community three times each year staying for between one and a half and three days at each. The dentist is less regular, and considerable problems exist in securing an adequate supply of qualified dental assistance; he, too, stays only briefly

in each community. Physician services are provided but on an irregular basis. There has been no permanent doctor in the Central Arctic since 1979 when Dr. Paul Hibbert left Cambridge Bay. Now, through a contract with the University of Alberta, medical residents from either the rotating internship or the family practice programs spend three months at the Cambridge Bay nursing station and are available to travel throughout the area. However, there is no guarantee of coverage (only guarantee of payment), because the University does not always have a resident who is on the rotation involving Cambridge Bay. One other doctor currently lives in Holman Island but cannot be considered permanent. She has, under contract, offered services in that community and in Coppermine. 1979 visits are summarized in Table 14.

Other services amanate from Yellowknife (environmental health and mental health from within Medical Services; paediatric and psychiatric outpatients from Stanton Hospital). Finally, it must be considered that a large number of health professionals in private practice in Yellowknife and Edmonton, and in Charles Camsell, University and other hospitals ultimately look after residents of the Central Arctic.

Proposals are afoot to increase the number of nurses in the Central Arctic, and a new policy of Medical Services is to make nursing stations dual-nurse operations at a minimum. A new facility is planned for Holman Island during 1981 to accommodate an extra nurse. At the present time the level of dental services particularly is under review, as is the need for increased physician services throughout the Central Arctic; these would involve both general practitioners and specialists.

HOW USED

Use of health service professionals depends upon a number

of factors. Three principal issues are: the supply of manpower; the availability or accessibility during the time when the supply is there; and the degree of ease that the patient feels when meeting with the provider of care.

Fairly good information is available on the use made of physicians by Central Arctic residents. In summary the physicians--general practitioners or specialists--tend to act in a specialist capacity when they see patients who have been sent from the Central Arctic area to Yellowknife or Edmonton. When there are visits to the area itself, even with screening by nurses, they tend to duplicate the role the nurse normally plays, only with more knowledge they are able to provide a more sophisticated response. This can create problems for nurses if residents become 'dependent' upon doctors during the short time they are in a community. This situation arises particularly in Cambridge Bay with the current arrangements given that a doctor's presence is not always guaranteed. Anything which undermines the communities' acceptance of the nurses should be regarded as deleterious.

Information on the use of other health professionals is at best anecdotal at this time, although the Management Information System may be a valuable source in the future. Nurses undertake the bulk of the work and generally are on call twenty-four hours a day in rotation: this is particularly hard in one-nurse stations. While the role of a community nurse states that they will be involved in a mixture of acute and preventive activities, the former predominates. This comes about as a result of the pressure for acute, episodic care from communities, together with a predilliction on the part of nurses to do what they know best. Indeed this is natural given the type of background and training which predominates. However, some nurses are active with health committees and "consult" on specific matters of public health such as water and sewage treatment and garbage disposal.

It is debatable as to where and how health education is best carried out. Much work is done in the prenatal area by nurses with the nursing station, and the level of home visiting for this and other reasons varies. Home visiting in itself requires that nurses feel comfortable in the community, that they have been well oriented to the setting and have the confidence to do their work away from the nursing station. We found the level of home visiting to vary considerably although a clear policy exists related to expectations and accountability for this area of practice. The same was true in relation to health education in the schools: there was uncertainty on the part of both the educators and the nurses as to what activities could be expected.

In sum though, nurses are the mainstay of the primary care system and act as general practitioners, public health workers, emergency service workers and at times engage in midwifery and minor surgery. The role while potentially exciting also has its hazards--principally those associated with lack of preparation for the task and lack of orientation to the Arctic.

Community Health Representatives are a group that is in short supply. Where available and operating in the desired way--as liaison workers between the nurses and the community--they form a vital link in health services provision. However, more often they end up as nursing assistants or interpreters, thereby limiting their real value to the nurses or the communities.

Other principal service providers are the specialists--physicians, the eye team, and the dentists. All are used heavily when available; but the problem exists of the elapsed time between visits and the amount of time spent in each community at each visit. All groups are used to their maximum, but in the case of the eye team it was observed that increased publicity is needed of their visits.

The final (and external) source of manpower is Medical

Services personnel concerned with environmental and mental health, and with social development. These people can, of necessity, only act as consultants to local health, welfare and housing committees. Care should be taken particularly in the area of social development not to ignore local custom, or to impose activist approaches more appropriate to southern or ghetto settings. We found the communities' structures to be very secure and local capabilities considerable: any outsider intervening in an activist way is inappropriate and potentially damaging.

REQUIREMENTS

It is difficult to estimate the needs for different types of health manpower. In the case of the Central Arctic the population is unlikely to increase significantly over the next five years; but there appear to be needs not currently being met.

On the supply side it is unacceptable for single nurse nursing stations to continue, and it is helpful to see a new policy emerging from Health and Welfare Canada. Nurses cannot, on the other hand, act without backup from Yellowknife. Support from this source in the last two to three years has been lacking, particularly at the Zone level. As a result the nursing staff are disillusioned and skeptical about their role. While salaries have risen considerably, work and living conditions have not. The level of turnover is very high (see Table 15). It must be recognized that a four-nurse station really means three nurses (allowing for off-duty, holidays, medivacs, etc.), that a three-nurse stations really means two, etc. The evidence of one nurse being left to satisfy the needs of a community of over 700 people for several weeks is shocking and displays a disregard for both the community and personnel and a lack of accountibility within the managerial and policy structure. Any program of implementing a 24-hour on-duty coverage at nursing stations must be held off until current problems of nursing manpower and turnover have been resolved.

It is recognized that the underfill situation for nurses (less qualification than is normally raquired for a position) is a difficult one to remedy, but it results in lack of confidence and lack of leadership and professional activity within a nursing station. It is exacerbated by the lack of orientation given to nurses as they travel to new posts in the Central Arctic. We heard of many instances of nurses passing directly through Yellowknife or staying only twenty-four hours on their way north.

In recent times, in line with Canadian government immigration policy, there has been a reduction in the number of foreign-trained nurses, most of whom had midwifery training, coming to Canada. This has resulted in more women leaving their communities to have babies. Now, often it is lay midwives who have the greatest level of expertise. However, deliveries should be carried out by well-trained personnel, preferably in hospital, whenever it is possible.

Community feelings tended towards protection of nursing personnel, even though they were recognised as a transient group. There was some urging on the matter of midwifery at the community level, where appropriate; and a general statement of requirement for well-qualified people who are experienced. Nurses were felt to work hard for little reward, and in southern terms the issue of "burn-out" was raised frequently.

Physicians coverage of the Central Arctic appears to be low, and raises questions of how universally accessible their services should be. Certainly people are flown out (often for quite minor things) but many of these trips might be avoided by closer physician surveillance. With the involvement of Yellowknife general practitioners and the increase in specialists at Stanton Hospital it should prove easier to have doctors visit the Central Arctic communities. This would be highly desirable and improve case identification and management.

Community reactions were quite similar and emphasized the need for regular visits (not necessarily by the same doctor) by

well-qualified physicians who would stay sufficiently long to meet the demand. Doctors located at a Cambridge Bay facility were seen to be the answer. Some disquiet was expressed over the University of Alberta residents who were regarded as students, and if that program is to continue considerable public relations work is needed and some accountability of the residents to Territories-based doctors is required. To be consistent and comparable with other parts of Canada it would be expected that at least three well-qualified and experienced physicians would reside in the Central Arctic. The ratio of physicians to population would be approximately 1:1000 and still be much less than the 1:632 for the rest of Canada reported in 1971. The increased ratio in the Central Arctic could only be entertained because nurses act as nurse practitioners. It might be concluded that it would be almost impossible to have one doctor resident in Cambridge Bay but that three would form a critical professional mass. They could be supplemented by doctors in training who would then properly be described as legally and educationally "supervised".

The eye and dental teams have increased their visits over the years, but they are still insufficient. There is no criticism in terms of standards, only of amount of time spent in the Central Arctic. In this we would concur with the community residents and suggest that where possible increased attention be given to this important area.

The emphasis on prevention is not one often raised by consumers whether in the south or the north. Thus relatively little reaction was obtained in community meetings to this notion. However, health professionals, church workers and the R.C.M.P. all drew attention to the need for increased effort in relation to mental breakdown, alcohol problems, suicide and child abuse (alcohol associated). There are no quick answers but the area needs to be highlighted in the work of each health and social service professional, and considerable psychiatric and other back-up provided

from Yellowknife to generate activity at the community level. At another point in the preventive framework greater encouragement is needed for increased dental therapy activities.

One final manpower group, and not directly associated with health, are interpreters. Communication between provider and patient which is of a high order is of the utmost importance. In Edmonton it was found that only three interpreters of Inuktitut were available and that they were employed on a casual hourly basis; none had any interpreter training. Further it was claimed by a Medical Services worker that these interpreters knew all the dialects of the Arctic! Apart from the discussion of a hospital for Cambridge Bay, interpreters featured as the most frequently mentioned complaint all across the Central Arctic, but particularly in the east. Yellowknife is less problematic, but the problem still exists. We recognize this to be a very serious issue and cannot accept that ad hoc arrangements (e.g. a child being used to interpret for an old person) are satisfactory. This constitutes a major gap in manpower provision.

PHILOSOPHY

It is believed that a detailed review should be made of the supply, training and orientation, continuing education and skill level of all types of health manpower in the Central Arctic.

If a facility is developed in Cambridge Bay it should serve as a regional training centre for physicians and allied health professionals who are undertaking their main training elsewhere. Encouragement should be given to increasing the number of native trainees; and this would occur with more localised training. Such a centre would ensure a better orientation to the Arctic than can presently occur in Yellowknife.

RECOMMENDATIONS

1) That the Government of the Northwest Territories establish its service facility at Cambridge Bay in a way that it has capacity to serve as a placement for trainees, e.g. nurses, native workers, dental therapists, etc.

2) To this end the services of existing adult educators be sought to advise on requirements.

3) That the program of single nurse nursing stations be phased out.

4) That the living conditions of nurses be improved and consideration be given to community-based housing.

5) That all new nurses be given an adequate orientation to the Arctic that is community specific.

6) That Medical Services endeavour to "mix and match" nurses within each nursing station so that both public health and acute care areas are covered.

7) That nurses prior to arriving at a nursing station be offered upgrading in areas of deficiency, particularly prenatal care.

8) That a greater reciprocal accountability develop between nurses and the Zone office of Medical Services.

9) That physicians offer on-site continuing education for nurses in the stations.

10) That three well-qualified and experienced physicians be hired to be based in Cambridge Bay and travel throughout the Central Arctic. If a facility is developed in Cambridge Bay one should have anaesthetic capabilities.

11) That consideration be given to contracting with Yellowknife general practitioners for coverage of assigned communities as an interim measure until a facility is developed in Cambridge Bay or other physicians are hired.

12) That the contract with the University of Alberta be reviewed and for the supply of Resident physicians (if this program is to be continued) to be assured.

13) That an accountability be developed between University of Alberta Resident physicians and Yellowknife general practitioners.

14) That Resident physicians should not continue to practice in Cambridge Bay without on-site supervision.

15) That consideration be given to increasing the duration of the visits of the eye team to each community.

16) That consideration be given to increasing the duration of the visits of the dental team to each community.

17) That with the increase of specialists at Stanton Yellowknife Hospital more itinerant activities take place, particularly in the areas of paediatrics, psychiatry, and geriatrics and obstetrics.

18) That the range of Royal College certified specialists at Stanton Yellowknife Hospital be increased, and to include paediatrics, and anaesthetics.

19) That programs be put in place for the training of native workers in the areas of

a) Community Health Representation
b) Health Education
c) Lay Midwifery
d) Lay Dispensing
e) Interpretation
f) Medical Evacuation.

20) That as much training as possible take place in the Central Arctic through the use of visiting tutors.

21) That the interpretation services in Edmonton be reviewed by the Government of the Northwest Territories, and that consideration be given to establishing a branch of the Interpreter Corps in that city. A southern allowance should be payable.

CHAPTER 6

PROBLEMS WITH SPECIALIZED SERVICES

In this chapter a number of special problems are dealt with. These items should be regarded, however, as being very central to better services in the Central Arctic. They were separated out in this way because as we travelled through the communities either they, or we as consultants, felt that some special attention was needed in order to solve the problems and difficulties.

ALCOHOL AND SUBSTANCE ABUSE

WHAT EXISTS

"Alcohol" is a term that is familiar to all who live in the Central Arctic. However, "substance abuse" is an expression which is used less and requires some introduction. Substances include such items as gasoline, vanilla, hairspray, antifreeze, solvent, enamel paint, Pam, etc., which are either swallowed or their fumes are inhaled. The outward effects may appear to be the same as alcohol, but inside they do much damage to various parts of the body, particularly the brain.

At the moment the number of programs and personnel available to deal with these problems is small, while in some communities alcohol should be considered as a major problem of almost epidemic proportions.

In 1980, only Spence Bay and Cambridge Bay had programs that were funded by The Alcohol and Drug Coordinating Council. The Spence Bay program aimed directly at the residents of the community. It sought to provide a diversionary recreational drop-in centre for young people; and at the same time a community awareness program was instigated through films, radio and posters. A less direct effort in 1978 in Cambridge Bay, aimed at providing information to native social service workers, R.C.M.P. personnel,

nurses and others through the medium of a workshop. Now there is also an Alcohol Centre which provides education in schools, training to native workers and a court worker. There is no live-in rehabilitation activity.

In the Territories as a whole $800,000 was spent in alcohol and drug abuse in the fiscal year 1979/80 with about $63,000 allocated to the two activities mentioned above.

The R.C.M.P. and the nursing stations bear the brunt of the outcome of alcohol and substance abuse with little support from the communities. Legislation is not applicable to the inhaling of intoxicating substances, only the consumption (although it is understood the Department of Health is working on changes here). The Interdict List, which operates under Section 84(1) of the Ordinance to Provide for the Purchase, Sale and Consumption of Liquor in the Northwest Territories, has led to some relief through both its voluntary and involuntary clauses.

Some communities in the Central Arctic have chosen in recent years to go dry, notably Pelly Bay and Gjoa Haven. But the feeling is that there is a gulf between the opinions of the young and the old, and that the younger group will vote for alcohol to be reintroduced when the occasion arises. Cambridge Bay now has restrictions and here, as in other drier communities the R.C.M.P. report a significant reduction in crimes of violence, child abuse and attempted and completed suicide. The most condemning statement against alcohol came from one R.C.M.P. officer who estimated that a case of liquor arriving in the settlements was the equivalent of one beating, two child abuses and two abandoned wives.

The church workers also play a significant role in alcohol abuse prevention combining with the R.C.M.P. and teachers. Particular problems exist in some communities with regard to direct consumption by eight and nine year olds; and many children are reported absent from school due to drinking bouts by their parents.

Out of the Central Arctic there exists the Northern Addiction Services Project in Yellowknife which provides a semi-protective setting for people attempting withdrawal from the effects of acute intoxication; there is also a non-residential long-term recovery program. No information was available on the level of its use by Central Arctic residents, but a problem could exist in that Inuit interpreters are not readily available at the centre.

HOW USED

Decisions to seek funds and offer programs to those suffering from alcohol and substance abuse problems must be made at the settlement level. This requires both recognition and acceptance that a problem exists. In essence, only one community (Spence Bay) has opted for any direct activity, and in this it is far ahead of the other communities in the Central Arctic which still permit alcohol.

REQUIREMENTS

Alcohol was a problem rarely raised by permanent residents of the communities. Yet the providers of care, including the R.C.M.P. and the church workers, raised the issue consistently.

Much of the concern related to children and youths. Children who otherwise receive little discipline are physically abused by the parents when they are drunk when the lack of self-control of their children becomes more evident and upsets their parents. In Cambridge Bay it was remarked that with the higher restrictions only a few families will be drunk at any one time thus leaving other homes for the children to go to. Of concern here is also the alcohol problems of the whites; their children cannot easily move to other homes and the drinking is more institutionalised through clubs and informal social gatherings.

The 16-25 year age group are remarked upon as having particular problems. Having recently left school, they often have no work and yet they have not taken up traditional activities of hunting and moving out to summer camps. They are a generation in transition for whom boredom is a way of life.

All in all it can only be projected that alcohol and substance abuse will get worse if communities do not request preventive programming. All communities are in states of rapid transition and change, and with this comes social pressures. The non-Inuit communities are also under stress due to moves to the north and equally they tend to ignore the problem.

PHILOSOPHY

It is evident that communities, whether they are in the south, the north, or the Arctic, all have difficulties in making an assessment of their weakness and fragilities. This is especially true when there is a considerable amount of social change. For effective alcohol programs to operate the problem has first to be identified and then highlighted. Communities should be involved in this process but major assistance is needed from a central authority who would then seek local cooperation. Centrally it is a matter of who is to take the lead.

RECOMMENDATIONS

1) *That the Alcohol and Drug Coordinating Council together with the Department of Health and Medical Services be proactive and promote community by community investigations into alcohol and substance abuse.*

2) *That all communities be encouraged to set up committees of concern.*

3) That local alcohol counsellors be appointed in any community that has not banned alcohol.

4) That any community that has not banned alcohol should be assumed to be at risk.

5) That special attention be given to the education of school children regarding alcohol and substance abuse.

6) That special attention be given to the 16-25 year age group and to generate appropriate activities in which they can be involved.

7) That a register of all alcohol related child abuses and offences be kept centrally through cooperation between the R.C.M.P., the Department of Health, and Medical Services.

8) That ordinances be introduced speedily to cover sale or provision to minors and inhalation of intoxicating substances.

9) That the Northern Addiction Services Program be provided when necessary with interpreter services.

10) That occupational health programs be devised for non-Inuit workers in conjunction with local churches.

11) That Cambridge Bay or some other community in the Central Arctic act as the centre for training of native alcohol counsellors.

12) That the Territorial Legislature give consideration to increasing the funds available to the Alcohol and Drug

Coordinating Council; and that they require detailed evaluation to be built into all future projects.

MENTAL ILLNESS AND RETARDATION

WHAT EXISTS

In the Central Arctic itself there is no formal capability of dealing with either mental illness or retardation. Of course, many families and communities accept problems of this nature as part of the way of life. If someone is a little strange they are tolerated, and if retarded many members of a family take responsibility for their care. In addition priests and church workers engage in marital and family counselling.

Until recently there was little hope of psychiatric assessments or good specialist evaluations for mental retardation short of going to Edmonton. Now there is one psychiatrist at Stanton Hospital with another due to arrive, but plans are uncertain pertaining to services for the Central Arctic. It seems likely that retarded and multiply handicapped children and adults will still go to Edmonton.

A detailed community assessment of Holman Island and Cambridge Bay has been completed by Moira Cameron, formerly a mental health coordinator with Medical Services. It is a very thorough and sensitive piece of work and demands close attention in its description as to the availability of services and as to its recommendations.

HOW USED

Currently there is very little in the way of services and programs and hence the use is low too. Most of the concern is for

children and here much can be done if it is done early, especially if there are problems due to lack of environmental stimulation. However, parents have to spend considerable periods in Edmonton if they are to receive service; and the acceptance of retardation tends to predicate against this happening.

Some visits have been arranged to psychiatrists in Yellowknife, but mental illness problems demand follow-up of a careful nature and in the communities this has proved difficult to do. Further, compliance to medication is low without such follow-up.

PHILOSOPHY

Mental illness and retardation should not be viewed as separate items from the physical care part of the health system. Further, in some instances, they fall within the preventive part of the spectrum. In the case of mental illness (including suicide) much of it is reactive (that is reacting to the situation of the community and the surroundings). The multiple causes of this are complex, but rapid social change is at the basis of much stress induced illness, both physical and mental.

RECOMMENDATIONS

1) *That the recommendations of the Cameron reports, completed in 1980, be acted upon forthwith. They are as follows:*

Re. Holman Island
A community-based Alcohol Committee with a three-fold mandate is suggested:
a) to offer counselling services to those families requiring them

b) to heighten awareness of the damage caused to families from alcohol

c) to examine the lifestyle factors that cause people to turn to alcohol as problem solution.

A formal assessment of mental health needs is required, and:

a) health-care personnel must be given seminar and/or workshop experience in identifying conditions that could well lead to morbidity in this area

b) when a Health Committee is formed, it should be given access to seminars on the topic of mental health, with particular emphasis on the need to verbalize emotional conflict as such, rather than translating conflict into somatic terms.

Re. Cambridge Bay

In addition to supporting existing programs Ms. Cameron suggests the following:

a) provision of seminars and discussion groups on parenting, to be available both to care workers and to parents themselves

b) a drop-in centre where mothers and small children could play and learn together

c) provision of a day care center which is more than a babysitting service

d) seminars on mental health related topics and development of counselling skills for professional care givers.

2) That an at risk register be established of all cases of mental retardation and accountabilities be developed for their handling. This would follow up on the Survey of Handicapped Persons completed recently.

3) *That psychiatrists visit all communities on a regular basis acting as backup resources to nursing personnel.*

4) *That psychiatrists shall before visiting take into account the cross-cultural dimensions of their work and be appropriately prepared for the Central Arctic.*

5) *That a cadre of native workers be available to work with psychiatrists as interpreters and follow-up workers in lieu of psychiatrists learning Inuktitut (which would be most desirable).*

6) *That mechanisms be developed whereby non-Inuit can get access to appropriate services; for they have their own problems of social adjustment in the Arctic.*

CHRONIC CARE, LONG TERM CARE AND REHABILITATION

WHAT EXISTS

To date most activities in these areas have taken place in Edmonton. But the advent of the new Stanton Hospital and the arrival of more specialties will change this.

People having problems in these areas require a great amount of coordination of care. In the chronic and rehabilitative categories this is particularly true because people move between the place of residence and a treatment centre over a period of time.

At the present time the Charles Camsell, Royal Alexandra and University Hospitals are the main centres of activities and people maintain contact with them once the acute episode of care has passed. Communication is difficult with travel arrangements, interpreters, scheduling admissions, etc. The Charles Camsell provides

facilities for patients requiring in-hospital long term care.

HOW USED

It can be assumed that much of the service in these areas is provided for the over 55 year age group. The pattern is for longer periods of stay with consequent disruptions to home life.

Rehabilitation is difficult to classify because it occurs across a variety of ages, with young people requiring services for an injured hand to older people in a post-stroke or heart attack situation.

REQUIREMENTS

Given the age distribution of people in the Central Arctic the demand for these services is not great. Tuberculosis is the most chronic condition in terms of numbers, although new cases are now relatively rare. Little comment was made about these problems at community meetings but in some individual homes the difficulties were observed to be acute.

Many families cope, but only just. Their relatives are bed-ridden and are dependent upon them. They in turn depend upon local nursing staff for back-up; they often felt it was not there. Sometimes when a doctor was in the settlement they would receive a visit, but not always.

PHILOSOPHY

In general terms these areas are the Cinderella of health services but as populations in the Central Arctic survive more into old age the difficulties will increase. In the south the problems have only been

recognized recently; in the north there is a chance to plan. Relatives by and large want to offer care and this should be facilitated.

RECOMMENDATIONS

1) *That an at risk register of all persons requiring chronic, long term and rehabilitative care should be maintained at the Nursing Station.*

2) *That the development of services for this group in Yellowknife and the Central Arctic should be encouraged.*

3) *That care by relative should be encouraged either within a home or at the nursing station.*

4) *That there should be a regular follow-up procedure for these patients on the register.*

5) *That the facility at Cambridge Bay should be developed as a regional follow-up centre for persons requiring chronic or rehabilitative care.*

6) *That nursing aides/homemakers be encouraged to assist in home nursing of chronic and long term care cases.*

7) *That doctors visiting all communities review all chronic care cases.*

DENTAL: OPTHAMOLOGY: PROSTHETICS

These seemingly different areas share a number of common features, at least in terms of the concerns raised by the people we talked to.

WHAT EXISTS

There are two sources of dental care in the Northwest Territories--dentists and dental care therapists. Both are in extremely short supply. For example only 10 of 17 dental therapist positions are filled. There are two dental therapists in the Central Arctic. The dental therapists and the members of the eye team make regular visits to the communities of the Central Arctic. The dental therapist moves out from his/her home base in the Central Arctic and spends a month or more working in another community. The eye team moves out from Yellowknife and spends a week to ten days travelling between communities in the Central Arctic. The eye team gets to each community about two or three times per year.

Visits by dentists and opthamologists are less frequent and are of shorter duration. There are no immediate prospects for an increase in the number or availability of these specialists in the Central Arctic. Because some patients require fitting of prosthetics such as dentures the infrequent visits of these specialists means long waits between assessment of needs and provision of a satisfactorily completed/fitted prosthesis.

Manufacture of prosthetic devices, especially those made to special order, is usually done in Edmonton. Artificial limbs, braces, dentures, special lenses are available via Edmonton. Professionals in Yellowknife are generally satisfied with the quality and availability of these products. Problems have been experienced in handling the administrative side of these needs. The paperwork involved in getting approvals generates delays. Mail service and problems of collecting costs add to the difficulties and delays of three to four months in the process often result.

HOW USED

Emphasis is upon identifying school-aged children in need of these services. Screening exams for vision, hearing, and dental needs are done in the schools. Nurses draw up lists of people to be seen when a specialist or team comes into a community. Notices are placed in prominent places, e.g. stores, church, school. The visiting specialists usually work out of the nursing station and most people try to arrange appointments when specialists make these community visits.

Special prosthetics are usually arranged for when people are in Yellowknife or Edmonton. Some people make private arrangements to have their teeth fixed and eyes checked when they are in Yellowknife on other business. This is especially true of the non-Inuit population some of whom get all of their elective health care done in their home cities in the south.

REQUIREMENTS

The dental needs of the Central Arctic are overwhelming. It is generally felt that the adult population is beyond salvage. The people of the Central Arctic must radically change their attitudes and oral health practices if there is to be any hope of meeting their dental needs. A more modern concept of dental care seems a long way off.

There is no fluoridation or fluoride supplementation in the Central Arctic communities. There is little or no orthodontics, no peridontics, no quadrant work under general anaesthesia, and very little crown and bridge work. These are all services that should be offered only when the prevailing problem of rampant caries has been overcome.

For the present adult needs are expressed in terms of

pulling teeth and trying to keep ahead of the cavities ("drill, fill, and pull"). Adults are most concerned with obtaining properly fitting dentures. Dentists are never happy working under these types of conditions.

In the Central Arctic the stress is upon the school-aged child. School programs include free vitamins and toothbrushing each day. The dental therapists work in the schools and with the teachers. They have a good approach and experience demonstrable success. Unfortunately recruitment problems are such that after several years of good work in a community a therapist decides to move on and no one replaces him. It is only a matter of time before the community's dental health is back to the position before there was ever a dental therapist.

The opthamologic services are more closely matched to need. They suffer from distribution and cost problems and there is some concern about the quality of frames available to people, but few Central Arctic residents who need glasses are without them. Given the length of time it takes to get broken glasses fixed or replaced the eye team encourages people to get two pairs of glasses.

The need for other prosthetic devices was not great and seemed to be absorbed by the Edmonton-based services. However, there is no inventory of the availability or working order of such devices (esp. hearing aids).

PHILOSOPHY

Wherever possible specialist services should be taken to the communities. While the eye team's visits are often rushed and short they seem to be effective. The dental problems are not likely to be solved by flying visits from a visiting dentist. Where native people have been trained as dental therapists and where they have stayed in communities for any length of time they seem to be effective.

Dental health requires understanding and active participation on the part of the individual. The communities of the Central Arctic need to play a more responsible role in this area if they wish to have a better level of dental services developed for their people. Without this commitment there is not enough money or personnel to deal with the problems.

RECOMMENDATIONS

1) That there be a review of the eye team program with special reference to:
   a) authorization process and cost distribution
   b) delivery of glasses
   c) booking of visits in each community and length of stay in each community
   d) cold and damage resistance of frames

2) That a policy of issuing a duplicate set of glasses be considered. Duplicates for school-aged children should be kept at school.

3) That each community's health committee study the question of dental disease, with special reference to a fluoride supplementation program in the schools.

4) That the dental program receive continued support and encouragement.

5) That a study of special appliances and prosthetics needs in the Central Arctic be undertaken.

LABORATORY AND DIAGNOSTIC SERVICES

WHAT EXISTS

There are no organized laboratory or diagnostic services in the Central Arctic. Each nursing station has X-ray equipment and some diagnostic equipment (e.g. hemoglobinometer, urine tests). The nurses are expected to operate these pieces of equipment and be able to interpret the results. Unfortunately they are not shown how to use the equipment and must learn for themselves.

More complicated investigations and all microbiology must be sent out to Yellowknife. The laboratory at Stanton Yallowknife Hospital acts as a clearing house for specimens sent out from the nursing station. Specimens get lost or arrive in a useless state with great regularity. Given the turnaround time involved one wonders why people bother.

HOW USED

It is not clear how laboratory services are used by the nurses. Many have little or no training in what to do with an abnormal test result and one suspects that the nurses take specimens because they have been advised to do so without having an idea where to proceed from there.

Some lab work is done as part of disease surveillance, e.g. chest X-rays and sputums for T.B. Other lab work is routine in management of clinical situations such as pregnancy or V.D. These seem to be adequately done although results are slow to return to the nursing station.

REQUIREMENTS

Laboratory tests that are routine or can be used for surveillance provide no real problems. The major areas for concern are the proper use of X-rays and the introduction of more clinically useful tests. These areas require constant quality control and proper training for those who do the tests.

The nurses express reservations about their ability and inclination to use the diagnostic equipment available to them.

PHILOSOPHY

The availability and use of laboratory investigations in nursing stations requires reassurance that there is quality control. In addition the tests procedures available on site should be ones which are not too time consuming and which have frequent use in clinical work.

RECOMMENDATIONS

1) That the use of X-ray equipment in each nursing station be reviewed by a competent radiologic technician. Safety of equipment and patient-staff protection procedures should be reviewed on a regular basis.

2) Nurses in the Central Arctic should be given an on-site instruction program in the use of the various diagnostic equipment available to them.

3) The range of diagnostic tests actually being performed in the nursing stations should be reviewed. Further, consideration should be given to adding an office type incubator for minor cultures of throat and urine.

CHAPTER 7
HANDLING INFORMATION

WHAT EXISTS

The information system in the Northwest Territories can be roughly divided into clinical and administrative systems. To use the word systems is really inappropriate because the word suggests more organization than really exists.

The Northwest Territories and the federal government each operate a record system. These are fiscal and administrative systems and are not clinical in nature. There is a new Health Management Information system in place which is designed to give Regional office (Health and Welfare) a better sense of the activities at each nursing station. There is a complicated system of handling payments for hospital, medical office, dental, and other patient services. In the latter system, the Northwest Territories acts as the paymaster and collects the accounts from a variety of sources. Both of these systems are centralized and computer based. They have produced some of the data generated in this report. The effectiveness of these systems will not be examined further in this report.

The physicians, the hospitals, other members of the health service team all keep clinical records on patients seen. The physician's, dentist's, and other individual practitioners records are not part of any information network. In essence they are treated as private documents. Hospital records are also treated as private documents but are more subject to scrutiny during accreditation visits and therefore tend to have some degree of uniformity. The clinical records system in the Northwest Territories is largely out of the control of government. Sometimes this is a shortcoming--for example, this report has little direct information on the nature of illness or nature of services rendered to patients in hospital or in private practitioners' offices. In essence we can tell you how much was spent on patient care but not why the patients

needed that form of care. Hopefully this will change once the MIS is fully operational.

The nursing stations in each community are the only place where these two systems of clinical and administrative information come together. In fact the nursing stations are caught in between the two information flows. They are the recipients of information--consultation letters and hospital discharge summaries on individual patients and policy guidelines, memos, and reports on the community or the nursing station's functions. They are also expected to generate information--consent forms and case histories to go out with patients, daily and monthly activity reports, etc.

Each nursing station reports to Zone office in Yellowknife and through Zone to the Region in Yellowknife. Nurses are expected to keep in touch with doctors and other health workers (on an individual patient basis). They are also expected to keep registers of special risk infants, chronic disease patients, patients to be seen by visiting teams (e.g. eye team, dentists, etc.) and so on. It all represents an overwhelming amount of paperwork.

In addition to keeping up with patient care and maintaining the patients' clinical records, the nurse must also administer the nursing station. This means ordering supplies, maintaining a drug inventory, sending out specimens and checking results returned, ensuring building maintenance and supervising staff hours, etc.

To meet these demands each nursing station has a double set of books. The first is created by the Region or Zone office and consists of a variety of forms for recording clinical contacts, ordering drugs or other supplies, arranging transport, etc. The second set of books is an individualized clinical record system which consists of a set of file cards, or a notebook, or a daysheet that the nurse has developed as her own means of keeping track of what is going on. Some of these systems are quite thorough and others have fallen into disuse.

HOW USED

The combination of record systems used in the nursing stations seem inefficient and unreliable. The first system (developed by Region) is imported, becomes a source of frustration, and as a consequence is not always reliably or uniformly applied. The second system is useful to the nurse who set it up but often is not continued by her successor. In view of the rapid turnover of nursing personnel in the Central Arctic there is a high probability that the second system will fail within two years of being instituted. The first seems to be failing already.

When a new nurse arrives at a nursing station she hopes there is some one there to orient her. Chances are there won't be. Faced with a sick infant (whose mother doesn't know what went on when the child was out) the new nurse may not be able to find a clinical record for the child. If she finds the record she may not have much information to go on. Consultant letters and discharge summaries on patients who have been sent out may not have arrived yet and won't be available to her. So she is on her own this time.

The new nurse must also plow through a mountain of policy memos and back orders for equipment and supplies in order to find out why there is no blood pressure cuff or why the vacuum cleaner doesn't work.

If the new nurse is lucky she can get help by phoning the nearest nursing station to find out what to do. If she is lucky the nurse she is replacing will have stayed around long enough to get her oriented to the nursing station. By and large the nurses in the Central Arctic do not seem that lucky.

REQUIREMENTS

The paperwork never diminishes without a major change in

individual practices and organizational philosophy. The high staff turnover in the Central Arctic requires a different approach to managing health information than is currently being used.

The system must meet the day to day needs of the nurses and must deal realistically with the problem of getting a new nurse every six to twelve months. The information system must help to orient the nurse to her new station and to streamline the amount of paperwork she must do. The system must also be more responsive, i.e. turnaround time on requests for supplies, equipment, etc. must be shortened. The system must be less petty and less impersonal. The system should provide the nurse with an assessment of how well she is doing and how her goals for care are being met.

None of the nursing stations visited had a good feeling about the paperwork they faced. All expressed a need for reliable clerical help. All had a backlog of incomplete records, forms, etc. A review of completed daily records and ICDA codings show a high degree of inconsistency and a high degree of error in assigning diagnostic codes.

PHILOSOPHY

Administrative records must be useful and accurate. For this criterion to be met there must be a critical reappraisal of the record system in use in the Northwest Territories. Standardization of records in each nursing station will require efforts and a commitment of resources. Without this effort and commitment any central, computer based record system is likely to prove worthless. The nurses are more likely to provide reliable data if they can do so effortlessly and at the same time advance the quality of their work.

Information flow in a clinical situation should receive highest priority. The nurses need easy, rapid access to clinical

data on their patients. Consultant letters, discharge summaries, and results of lab work should be more readily available. The process of preparing a clinical resumé on patients being sent out should be streamlined. Current medical information--especially related to use and choice of medications--should be more accessible.

RECOMMENDATIONS

1) *The Health Management Information System and its use should be examined to assess its capability of meeting the administrative and clinical needs.*

2) *The medical community should be assisted (encouraged) to expedite completion of consultant letters, discharge summaries.*

3) *Patients being discharged from hospital should be given an information package for delivery to the nursing station at home. This package should contain a simple outline of course in hospital, discharge diagnosis, medical or other treatments required at home, follow-up plans, etc.*

4) *Nursing supervisors from Zone office should visit the Central Arctic nursing stations on a regular basis. These visits should include a review of nursing station manuals, administrative records systems, and an audit of patient records.*

5) *Nursing stations should have clerical assistance and there should be a training program for these clerks.*

6) *A pilot project on the application of micro computers in the nursing stations should be initiated to reduce costs and nursing time spent in administration. Such a pilot project should involve the nursing station at Cambridge Bay, and at*

least two others in the Central Arctic.

7) The micro computer project should include on site training for the nurses and development of software specific to their clinical and administrative needs.

8) The micro computer system should have sufficient capacity to:
   a) maintain an inventory of supplies by category of item, e.g. medications, equipment, and by date of delivery and expiry
   b) maintain clinical risk registers, e.g. chronic disease, immunization schedules
   c) maintain an episode of services file on each patient
   d) provide monthly statistics on patients seen, by diagnosis, age, sex, etc.
   e) maintain a clinical summary on each patient--age, sex, family members, major events
   f) maintain pertinent clinical information of drug doses, toxicity, and contra-indications, etc.
   g) provide a medication "alert" process for identifying potentially dangerous drug or condition interactions on specific patients or clinical situations
   h) provide self instruction programs or "help" facility
   i) generate a diagnostic code and categories of work to replace the present forms
   j) provide an archwing disc system compatible with the central MIS system.

9) The Zone should develop a plastic I.D. card for each patient which can be used with a stamp machine. This will reduce the number of times nurses must fill in identifying information on forms of various kinds. These cards can be produced in duplicate with one kept by the patient and one kept at the nursing station.

CHAPTER 8
COOPERATION FOR CHANGE

INTRODUCTION

At the outset of this report note was made of the very rapid changes which the Central Arctic and other areas of the North are undergoing. Altering health services should, in this context, be received as just another one of the changes which are going to affect the people and the communities of the Arctic Coast and Islands.

Change at times can be unruly, and can be deliterious. The management of change is important. Indeed, if it is to be successful at all, all people, groups and organizations must participate in decision making.

PHILOSOPHY ON "CHANGE"

There appears to be a consensus within the Northwest Territories and in Ottawa (by the Inuit Tapirisat of Canada) that control of health services should, where feasible, operate at the community and regional level. This is an important statement, and one about which the consultants agree. It must be recognized, of course, that some programs and facilities are of overwhelming territory-wide importance and that central development is required. However, no matter the organizational level at which change is to take place it should be a priority for consultations to have occurred.

SPEED OF CHANGE

There have been many advances in health services in the Central Arctic in the last twenty years. Whereas in earlier times many people died for lack of treatment when, for example, influenza swept through a community, now deaths are more associated with accidents and violence (that is, problems often associated with

social disorder). Table 16 displays these for 1979, and Coppermine is particularly notable. Much more emphasis now is needed to prevent bad occurrences. This should go hand in hand with the development of programs and facilities which help people after they become sick.

But what of future changes? They will affect all the inhabitants of the Central Arctic but they will also have an impact upon nurses, doctors and other health professionals who practice there. Neither medicine, nor nursing, has in the past shown themselves to be able easily to accommodate to change. It will be difficult for them to work with many of the recommendations made in this report (although in time it is hoped the advantages would become obvious). Of particular difficulty will be the idea of the Central Arctic Region taking more control, and of communities exercising more responsibility for the kind of health services they receive. There will need to be a tolerance displayed from all sides during these periods of change.

PRIORITIES FOR CHANGE

The emphasis in this report has been upon the development of programs first and facilities second. It is important that people have a good program for assisting their speedy and safe travel; a good program of dental care which stipulates prevention of tooth decay; and a better system of interpreters. Where facilities are considered the call is for adaptation and more appropriate use of what exists, but allowing for flexibility as needs develop further. There will need to be cooperation and understanding between the various parties in the setting of priorities and it is vital that this occur immediately.

We wish to identify and acknowledge the valuable work completed for other reports, notably the following:

(a) The Mackenzie River Area Health Services Study (Gordon Friesen [Canada], 1975)

(b) The Central and Eastern Arctic Health Services Study (Health Care Plan, Department of Social Development, N.W.T., 1977)

and

(c) An Assessment of Hospital Services in Yellowknife and Observation on Health Services in the Northwest Territories (Graham Clarkson, 1978)

Each one has contributed to developments in the Central and other parts of the Arctic. However, it is unfortunate that there does not appear to be in existence at this time any overall plan which integrates all areas of the health services. Such a plan could have emerged from the combination of these studies, but would need a high level of organizational cooperation.

WHO IS INVOLVED IN CHANGE? AND WHY?

The consideration of these questions strikes at the heart of the problem. At the moment, at minimum, two levels of government have an interest in the affairs of the Central Arctic--the Northwest Territories Government, and the Federal Government of Canada. The former acts as a payment agency for services given to people and communities; in the future it will be concerned with the orderly transfer of responsibility of services to its mandate. The latter makes payment to the Northwest Territories government for service contracts, but, in addition, is the main supplier of services through Health and Welfare Canada; in the future it has to be careful not to be seen to abrogate its responsibilities to native people without due consultation.

At the political level also are the K.I.A. and the I.T.C., with a principal interest in land claims, but who are very aware of

the health and other social needs of the Inuit people.

At the local level are the individuals, their communities, the hamlet and settlement councils, and the new region to be set up and based in Cambridge Bay.

The requirement is for them all to work in a partnership to promote the necessary changes. But fundamentally it must be accepted that communities and political bodies make demands for services, facilities and money; and governments act as allocators of resources in what is always a resource-short situation.

THE PHASING IN OF RECOMMENDATIONS

It will be recognized that the recommendations contained in this report cannot, nor should be, all implemented at once. The amount of change that would be required is too great; the personnel need to be obtained; programs would have to be designed; housing is not available; and budgets would have to be allocated. Further, it has been indicated that in the fiscal area, at least, cost-sharing arrangements would need review. Currently the Federal Government provides the majority of health dollars for nursing station operation (see Table 17). Thus their involvement in future planning is critical.

"Phasing in" is an important element of new programs and facilities. An example of this would be the recommendations pertaining to Cambridge Bay. Here we have suggested the following:

IMMEDIATE: A review of the University of Alberta Residency Program regarding Cambridge Bay.

: The development of a contract with Yellowknife general practitioners to work from Cambridge Bay and cover all the Central Arctic communities.

MEDIUM TERM: Expand and adapt the Cambridge Bay Nursing Station.
: Develop Cambridge Bay as a training centre in cooperation with Fort Smith and other educational bodies.

The costs involved in an immediate sense would be relatively small, but long term requirements would be considerable. However, while the cost of a new facility in Cambridge Bay would be somewhere between $3,800,000 and $5,500,000 in current dollars, an adapted facility would be significantly less. But new housing might be required for up to thirty people* and their families, a significant increase for the settlement. It is not possible to provide precise cost estimates until a functional plan is developed. The only potential saving area would be in medical evacuation costs; but if a new paramedical service is provided this would take up the slack.

The message here is clear and has two parts:

There will be no reduction in the cost of services being provided to the Central Arctic if services are to have comparability to those provided in the south.

But if the right of accessibility to services is to be guarded (even reasonable accessibility) then increased expenditures must occur.

If the recommendations of this report are implemented a number of benefits can accrue for the people of the Central Arctic. These are: an improvement in episodic care through the earlier recognition and transport of critically ill patients; simple elective care can be more readily handled locally; chronic and rehabilitative care can be more actively pursued; compliance in health promotion can be enhanced;

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* Physicians, nurses (who would have vacated all nursing station annex beds), dental therapists in training, alcohol counsellors in training, paramedical staff, other trainees, visiting specialists, adult educators, etc.

patient satisfaction will be raised; and the communities will become more knowledgeable about their health and health services.

RECOMMENDATIONS

1) That a Task Force be constructed representing all interested parties to consider and implement an integrated health plan for the Central Arctic. At minimum it should represent the communities, all levels of government, and the K.I.A.

2) That the Central Arctic be recognized as an area in which all cultural groups have something to gain by improvements; and that they all be represented in the Task Force.

3) That the terms "partnership" and "cooperation" be at the base of operation of the Task Force.

4) That the Task Force develop phases of implementation over short and medium terms.

5) That the Task Force recognize the need to include both the Charles Camsell and Stanton Yellowknife Hospitals in its membership. These hospitals act as prime resources for native people and require to be coopted.

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APPENDIX A

PLANNING APPROACHES

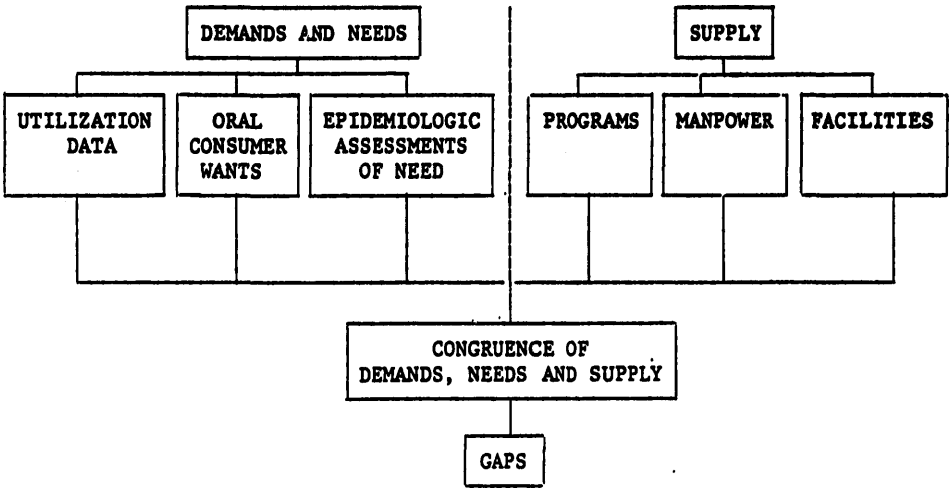
PLANNING APPROACHES

Planning, until quite recently, in many parts of Canada has been a "top-down" affair. That is, members of a particular bureaucratic group or planning agency made up of professionals of different hues adopted a bureaucratic-rational model and prescribed, in an autonomous way, what the future would hold for any particular population or sub-group.

This was particularly true in health, where a large amount of professional and technical knowledge is often required in order that decisions can be made. The late 1960's and the early part of the 1970's saw a significant shift, with the consumer of services gaining pre-eminence. In southern Canada, patients' rights groups emerged, local elections were run to determine membership of health and human resources boards, and Ministers of Health formalized the consultative process through bodies such as District Health Councils.

An attempt has been made in this report to combine these two modes of thinking. Evidence was gathered from central office bureaucrats from various departments of government, both Territorial and Federal; consumer views were sought on an individual and group basis in the communities; as many professional and lay workers as possible were interviewed in the communities. But the information gained in this way was combined with data available regarding utilization and costs of services and with material concerning the supply of programs, manpower and facilities. The figure following capsulates the approach.

THE DEMANDS/NEEDS/SUPPLY MODEL



In this way no one set of data predominates in the planning process, but at the same time the information and views of various of the interested parties becomes melded into a cohesive statement of future requirements. The consultants saw their job as one of assessing the congruity (or otherwise) of the demand/need and the demand/need/supply portions of the model and determining gaps remaining to be filled.

It is rare, almost to the point of non-existence, for there to be a state of equilibrium in the delivery of health services, and this would only occur when supply, demand, need, and want are in balance.

More often the following conditions prevail:

Want>Need
- when consumers disagree over:
e.g. the necessity for house calls
e.g. whether antibiotics are required for mild upper respiratory infections

OR

Need>Demand
- when the poor fail to request additional health services despite the lowering of economic barriers to access

OR

Demand>Need
- when communities after building health care facilities still find it difficult to attract and keep primary care clinicians

OR

Use<Supply
- some authorities have suggested that elective surgical procedures such as cholecystectomies are more common in locales with large numbers of surgeons

OR

Quantity>Quality
- when a profusion of unsolicited laboratory screening test results are shown not to benefit patients admitted to hospital.

In this study each of these possibilities will be reviewed with the exception of the last, i.e. Quantity>Quality, which is outside the terms of reference.

The art of the planning process is to promote a state of equilibrium and, indeed, to aim at achieving a maximum quality of life in the health area. The Government of the Northwest Territories summarizes its goals in a similar way when it says that it is striving

for:

> "The provision of the highest quality of care most economically and reasonably capable of being provided in the N.W.T."

The planning approaches used in this study, whilst of importance, must be subservient to the strategies introduced to promote change (the essence of planning). This matter is dealt with in considerable detail in the last chapter of the report.

One final note is of importance, however. In cultural groups where much emphasis has been placed upon survival, the orientation in many areas of life is towards the present--what actually exists, rather than what might exist is important. This places the notion of putting planning proposals forward as problematic; planning is essentially concerned with future and with change. In any cooperative action involving government departments and the people of the Central Arctic it will be necessary to exercise a planning approach which embodies concrete proposals, rather than abstract ideas. Only then will changes be well understood.

APPENDIX B

COMMUNITY PROFILES

COMMUNITY PROFILES

HOLMAN ISLAND

Location: situated on the west side of Victoria Island. The settlement is built on the shoreline of Queen's Bay, overlooking the Amundsen Gulf.

Origin: The first townsite, east of Queen's Bay, was established in 1940, after the arrival of a Hudson's Bay Post and a Catholic Mission. But in 1964, due to lack of space, the settlement moved to the present location.

Population Base:[1] 336

Housing: As of January 1981, the Northwest Territorial Housing Corporation (NWTHC) manages sixty family dwellings, of which 32% are public housing and 68% are northern rentals. The former provide residents with running water, via an internal pressure water distribution system; flush toilets, emptying into sewage pump-out tanks; bathing facilities; furnace; and an electric range and refrigerator. The latter do not have either running water, bathing facilities or flush toilets. Heating and cooking is fueled by oil.[2]

In addition, the NWTHC owns four public buildings, used as warehouses, workshops, offices, etc.

The 1980 activities involved the construction of six new hourses and one public building. The Corporations'

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[1] Source used was Population Estimates, December 31, 1979, Bureau of Statistics, Executive Committee, Secretaria, Govt. of the N.W.T.

[2] The details given on the Northern Rental and Public Housing facilities apply, too, to the other communities.

1981 undertakings are the building of eight additional public housing units, four 4-bedroom and four 3-bedroom, and the upgrading of some of the northern rental units.

In Holman Island, as in the other five communities studied, there are in addition to the NWTHC housing stock government dwellings and various commercial, religious, institutional, and recreational buildings.

Economic Base: Income is derived from hunting/fishing/trapping; wage employment (for example, nursing station, department of public works, the Bay, settlement council), and the arts and craft industry. Tourism, and social assistance play a lesser role.

Government: Settlement Status: The local government of the Northwest Territories administers many of Holman Island's activities and services. Community participation re. needs comes via the council, which consists of eight elected individuals. They, in turn, consult the various standing committees of the settlement, such as: Recreation, Health and Sanitation, Public Works and Nuisance, and in the near future, Welfare.

Religion: The Anglican Church and the Roman Catholic Church are established here. The former has a resident lay minister but the latter presently does not have a priest.

Transportation: Air Travel Distance From Yellowknife: 500 miles.
Air Travel Distance From Cambridge Bay: 275 miles.
Air travel: serviced twice weekly by the North West

Territorial Airways; charters available. Marine travel: barge, carrying annual supplies, arrives once during the summer.

Communications: CBC television and radio. Mail service. Telephone: Northwestel. Cables and telegrams: Northwestel.

Social Services: Holman Island does not have a resident field worker; however, the social worker from Coppermine assumes responsibility for the community. Additional facilities are two short term foster homes.

Law Enforcement: These services are provided by the R.C.M.P. detachment in Coppermine.

Education: The "Ulukhaktok Elihavik" school teaches kindergarten through Grade 9.

Medical Services: The nursing station contains 2 inpatient beds, a clinic, a reception area, and a supply room. Attached to this work area is the nurses residence. Plans exist to upgrade the living facilities to accommodate another nurse. The staff now includes one nurse; a janitor who also interprets; and a cleaning woman. The community health representative position is vacant. Additional medical services, that is, beyond the nurses, ideally are:

a) a general practitioner's visit, approximately every six weeks;
b) a pediatrician, an opthamologist, and an ear-nose-throat specialist's visit two or three times a year;
c) a dentist's visit every two to three months.

This schedule of medical services applies to the other communities, with the exception of Cambridge Bay, which is supposed to have a resident doctor. In reality, often these visits do not occur.

Public Services:

1. Community Hall: run by the settlement council; used for games, pool, meetings, wedding receptions, etc.
2. Water Supply: delivered to households by truck, two to three times a week.
3. Sewage Disposal: honey bags collected and holding tanks cleaned out, two to three times a week.
4. Garbage: combustible materials burned in fuel drums outside of the houses; non-combustibles picked up by collectors.
5. Fire: volunteer corps.
6. Alcohol: available from Yellowknife.
7. Power: delivered by the Northern Canada Power Commission (NCPC).
8. Road Maintenance and Clearage.

Recreation: community hall; hunting/fishing/trapping; school playground.

Commercial Services: Holman Eskimo Co-op Ltd. (store and motel); Hudson's Bay.

CAMBRIDGE BAY

Location: situated on the sout-east coast of Victoria Island.

Origin: In the 1920's the missionaries, the Bay, and the R.C.M.P. established themselves at Cambridge Bay. But it was not

until the 1940's and 1950's, with the introduction of the LORAN BEACON and the DEWline site, that the Inuit, owing to the wage employment opportunities, settled here.

Population: 864

Housing: The bulk of housing is managed by the NWTHC. They manage 146 family dwellings, of which 50% are Northern rentals and 50% are public housing; 6 public buildings; and 2 NWTHC staff units. The most recent construction (1980) upgraded 4 northern rental units and built 2 four-plexes.

Economic Base: The significant income source comes from full-time wage employment with the numerous government agencies. This will increase in April, 1981, when Cambridge Bay becomes the regional centre for the MacKenzie Zone. Other economic activities are: construction on a seasonal basis; mining and oil companies; hunting/fishing/trapping; crafts; private business; tourism; and social assistance.

Government: Settlement Status: The organizational structure parallels Holman Island but functional differences clearly exist. The local and territorial governments' presences are more visible, owing to the many district offices--housing, social services, education, transportation--located here. This resulted because of Cambridge Bay's central locale, mainly regarding transportation lines, to the other Central Arctic communities. Secondly, the Welfare and Health committees, as mentioned previously in Holman Island's profile, are not active. Finally, other influencing bodies, such as the Alcohol and Drug Committee, the Education Committee, and the KIA's Central Arctic Area Office operate independent

of the formal government structure.

Religion: The Anglican, the Roman Catholic, and the Pentecostal Churches are represented. All three have a resident clergyman or priest.

Transportation: Air Travel Distance From Yellowknife: 450 miles. Air Travel: serviced four times weekly by Northwest Territorial Airways and four times weekly by Pacific Western Airlines. Charter airline "Ken Borek" stationed here. Marine Travel: barge service provided during summer.

Communication: CBC television and radio. Telephone, cables and telegrams--Northwestel. Monthly newspaper. Mail. R.C.M.P. operated radio.

Social Services: The Area Superintendent, Department of Social Services, resides in Cambridge Bay. He is responsible for the programmes in these six communities of the Central Arctic. Cambridge Bay exclusively has three social workers (one university-trained and two Inuit with little formal training).

Additional facilities are:

1. Alcohol Drop-in Centre
2. Eight-bed Transient Centre--now closed.
3. A.A. group which meets weekly.
4. Three short term and three long term foster homes.
5. A juvenile court committee.

Law Enforcement: A three-man R.C.M.P. detachment works in the community.

Education: The "Ilihakvik" school teaches kindergarten through to Grade nine. An adult education and a home management programme also operates.

Medical Services: The nursing station is comprised of

a) an inpatient area, with eight adult beds and two to three cribs;
b) a dental clinic;
c) diagnostic and treatment area;
d) public health room;
e) reception space; and
f) a kitchen.

The staff complement is:

a) four nurses;
b) one medical practitioner; however, this position is difficult to fill and to maintain on a continual basis;
c) one dental therapist;
d) one janitor;
e) one secretary;
f) one cleaning woman;
g) one maintenance man.

Both the community health representative and interpreter positions are vacant.

Staff accommodation consists of a nurses' residence attached to the station, with five bachelor units, a common lounge, and a laundry room; and a house for the doctor.

The communities of Bathurst Inlet and Bay Chimo receive medical services from this station. In addition, the general practitioner, when present, and the dental therapist conduct clinics in the other settlements.

Public Services

1. Community Hall--movies, dances, meetings, bingo.
2. Water Supply--delivered by truck, one to six times a week, depending upon the household's or building's consumption and the size of the storage tank.
3. Sewage disposal--honey bags picked up on a regular basis. Holding tanks pumped out one to six times a week, depending on the number of occupants, the building use, and the tank size.
4. Garbage Disposal--same as Holman Island.
5. Fire--protection provided by volunteer brigade, a truck, and an alarm system.
6. Alcohol--available from Yellowknife.
7. Power--supplied by NCPC.
8. Road Maintenance and Clearage.

Recreation: curling and skating rinks; hunting/fishing/trapping; school gymnasium; Boy Scouts; library; skidooing; community hall activities.

Commercial Services: Ikaluktutiak Co-op Ltd. (store and motel); Hudson's Bay.

PELLY BAY

Location: Pelly Bay is situated on the west side of Simpson Peninsula. The settlement named after it lies at the mouth of the Kugajuk River, which is one of the many rivers draining into this Bay.

Origin: In 1935 a Roman Catholic Mission was erected at the present

town site. Still, the Inuit continued to practice their traditional nomadic lifestyle. It was in 1961, when a school was built, they started to reside permanently in Pelly Bay.

Population: 281

Housing: The NWHTC manages 50 houses, of which 84% are northern rentals and 16% are single family detached (Sec. 43); however in the spring of 1981 10 of the northern rentals will undergo renovation to convert them to public housing status. In addition, there are 2 public buildings.

Economic Base: The major sources are derived from the hunting/fishing activities and the arts and crafts. Wage employment is less than the other communities owing to fewer government (N.W.T. and federal) positions. Social assistance, too, supplements the income for some families. The Co-op plans to build a motel, hoping to encourage tourism and to create jobs.

Government: Hamlet Status: The political body consists of the council, the mayor and eight committees, which are: Health, Social Service, Housing, Co-op, Community Club, Social Development, Hunters and Trappers, and the Church Council.

Religion: The Roman Catholic Mission is the only church in Pelly Bay. The resident priest also travels to Spence Bay and to Gjoa Haven.

Transportation: Air Travel Distance from Yellowknife: 700 miles.
Air Travel Distance from Cambridge Bay = 450 miles.

Air Travel: serviced two times weekly by the Northwest Territorial Airways. Serviced, when traffic warrants, from First Air Lines (Pelly Bay to Hall Beach once a week). Private charters available. Marine Travel: summer barge service.

Communication: CBC television and radio. Telephones--Northwestel. Mail. Cables and telegrams--Northwestel.

Social Services: An Inuit social worker resides here and receives advice from the Social Service Committee.

Law Enforcement: Administered by the R.C.M.P. in Spence Bay.

Education: The "Kugaarjug" school teaches kindergarten through to Grade 9. Some adult classes (e.g. cooking) are held in the school.

Medical Services: The nursing station consists of a diagnostic and treatment clinic; an office and a reception area; and an inpatient area, which includes one adult bed, one midwifery bed, and one cot. The nurse's residence is adjacent to this work space. The staff included are one nurse, one part-time janitor/interpreter, and one part-time cleaning woman. The community health representative position is vacant.

Public Services:

1) Community Hall: games, movies, dances
2) Water Supply: delivered by truck three times a week
3) Sewage Disposal: honey bags collected and holding tanks pumped out two-three times a week.

4) Garbage Disposal: same as Holman Island.
5) Fire: volunteer corps.
6) Alcohol prohibition.
7) Power: supplied by NCPC
8) Road Maintenance and Clearage.

Recreation: hockey; hunting/fishing/trapping; boating; skidooing; games.

Commercial Activities: Koomiut Co-op Ltd., store and transient centre; Crafts Shop, Economic Development, Government of the North West Territories.

COPPERMINE

Location: situated on Coronation Gulf at the mouth of the Coppermine River.

Origin: The site traditionally has been a camp for hunting and fishing parties. With the arrival of a Bay post and an Anglican Church mission around 1927 it became an established settlement. In the 1960's Coppermine experienced a rapid population increase owing to people arriving and settling here from outlying camps.

Population: 766

Housing: The NWTHC housing stock consists of 149 units (as of January 1981), 65% of which are northern rentals and 35% public housing. Also there are 4 public buildings and 1 staff unit. In 1980, one four-plex, containing single

units, was constructed. The plans for 1981 include the building of seven four-bedroom and five three-bedroom dwellings, and one four-plex.

Economic Base: The main means of livelihood are hunting/fishing/trapping; mining and oil work in nearby industrial sites; arts and crafts; wage employment; and social assistance. During the summer a fair amount of construction occurs, thereby increasing the labour force.

Government: Settlement Status: The organizational structure parallels Holman Island. Coppermine plans to gain hamlet status in 1981. This will increase the decision-making power of the elected council.

Religion: Three churches, Anglican, Roman Catholic, and Pentecostal, all with resident clergies, are active in the community.

Transportation: Air Travel Distance from Yellowknife: 325 miles. Air Travel Distance from Cambridge Bay: 100 miles. Air Travel: serviced four times weekly by the Northwest Territorial Airways; charters available. Marine Travel: barge service provided during summer.

Communication: CBC television and radio. Telephone--Northwestel. Cable and telegrams. Mail.

Social Services: These include one full time university social worker and one native worker. They receive advice from the Welfare Committee, which consists of three native residents. Additional facilities are one short term and four long term foster homes.

Law Enforcement: A three-man R.C.M.P. detachment covers Coppermine and Holman Island.

Education: The "Kugluktuk" school teaches kindergarten through Grade nine. An adult education centre also operates.

Medical Services: The nursing station consists of an inservice area--four adult beds, two pediatric beds, three newborn cots; a large treatment clinic room; a reception-office space; and a public health room. The nurses' residence are attached to this service area. The staff is three nurses, a janitor, a cleaning woman, a community health representative, and a part-time clerk. The Health Committee presently is non-functional. Refer to Holman Island to review itinerant medical services.

Public Services:

1) Community Hall--closed.
2) Water Supply--the laundry and bathhouse, nursing station, school, and a few government residences get water from an utilidor line. The rest of the community, that is, the majority receive water via a truck. Delivery is two to three times a week.
3) Sewage--honey bags collected and holding tanks pumped out on a regular three times a week schedule. The school's holding tank is pumped out five times a week.
4) Garbage--same as Holman Island.
5) Fire--a voluntary corps and a fire truck provide protection. A fire alarm system triggers them into action.
6) Alcohol--available from Yellowknife.
7) Power--the NCPC generating plants ensure an adequate

power supply.

8) Road Maintenance and Clearage

9) Public Bathhouse and Laundry Facilities.

Recreation: Scouts; school gymnasium (volleyball, basketball, etc.); pool hall; library; hunting/fishing/trapping; skidooing; boating; school playground.

Commercial Services: Coppermine Eskimo Co-op Ltd.; Hudson's Bay Co.; Games Hall; Igloo Inn--motel.

SPENCE BAY

Location: situated on the southwest coast of the Boothia Peninsula. The settlement lies at the head of the Bay.

Origin: The present community was established in 1947 when the Fort Ross settlement, comprising an Hudson's Bay post and Inuit moved to Spence Bay.

Population: 470.

Housing: As of January 1981 seventy-nine NWTHC houses exist: fifty-four per cent are northern rentals and the remainder, forty-six per cent are public housing. In addition there are three public buildings and four NWTHC staff units. The 1980 activities consisted of upgrading ten northern rentals to public housing status.

Economic Base: Economic activity revolves around wage employment; hunting/fishing/trapping; and arts and crafts.

Government: It presently is a settlement, but plans to attain an hamlet status in 1981. The political organization is similar to the other settlements mentioned previously. The committee structure is extensive.

Religion: The Roman Catholic and the Anglican churches are active.

Communication: CBC television and radio. Northwestel telephone, telex, and telegram.

Transportation: Air Travel Distance from Yellowknife: 625 miles. Air Travel Distance from Cambridge Bay: 175 miles. Air Travel: serviced four times weekly by the Northwest Territorial Airways; charters available. Marine Travel: barge service during the summer.

Social Services: An Inuit worker assumes these responsibilities, with the advice of the Welfare Committee. Additional facilities are two long term foster homes and an alcohol programme (i.e. a teenage drop-in centre).

Law Enforcement: Protection is provided by a two-man R.C.M.P. detachment.

Education: The "Keeveak" school teaches kindergarten through to Grade nine. Also, an adult education programme operates.

Medical Services: The nursing station consists of: a diagnostic and treatment area; a dental clinic; an office and reception space; a public health room; and an inpatient facility, which has two cribs, two adult beds, one maternity bed, and two bassinettes. The nurses' residence is attached to the

station. The manpower includes two nurses, one dental therapist, a janitor/interpreter, a cleaning woman, and a secretary. The community health representative position is vacant.

Public Services:

1) Community Hall
2) Water Supply--delivered to households by truck two to three times a week and to nursing station by a piped system.
3) Sewage Disposal--honey bags collected and holding tanks pumpted out two to three times a week.
4) Garbage Disposal--see Holman Island
5) Fire--volunteer corps, one centrally located siren, and one mini-pump.
6) Alcohol--available from Yellowknife.
7) Power--delivered by NCPC.
8) Road Maintenance and Clearage.

Recreation: skidooing; boating; skating; fishing/hunting/trapping; games in school gymnasium; adult education classes.

Commercial Services: Paleajook Co-op Ltd. (store and motel); Hudsons Bay Co.; Craft Store--closed currently.

GJOA HAVEN

Location: situated on the southeast coast of King William Island.

Origin: Gjoa Haven was named after Ronald Amundsen's boat, the first explorer of the North West Passage in the early 1900's.

Subsequently, in the 1920's, the Hudson's Bay, the Anglican Church, and the Roman Catholic Church established bases in Gjoa Haven. Soon after it became a permanent settlement.

Population: 493.

Housing: Currently there are eighty-six NWTHC houses, of which forty-three per cent are northern rentals and fifty-seven per cent are public housing. Also, two public buildings exist. In 1980 ten northern rentals received upgrading to public housing status. The plans for 1981 are to construct ten houses (three 4-bedroom and seven 3-bedroom).

Economic Base: Income is generated from permanent and seasonal wage employment; arts and crafts; hunting/fishing/trapping; and social assistance.

Government: Settlement Status: The organizational structure parallels Holman Island. Gjoa Haven plans to gain hamlet status in 1981.

Religion: Both the Roman Catholic and the Anglican Church are established in Gjoa Haven. The former has a resident lay priest.

Transportation: Air Travel Distance from Yellowknife: 575 miles. Air Travel Distance from Cambridge Bay: 175 miles. Air Travel: serviced four time weekly by Northwest Territorial Airways. Marine Travel: summer barge service.

Communication: Telephone--Northwestel. Mail. Cables and telegrams. No television or radio.

Social Services: Administered from Cambridge Bay. The resident social worker position is vacant. Additional facilities are one short term foster home and a juvenile court committee.

Law Enforcement: The Spence Bay R.C.M.P. detachment assumes responsibility for this community. They usually visit every six weeks.

Education: The "Kakertak" school teaches kindergarten through to Grade nine. Also, an adult education programme operates.

Medical Services: The nursing station consists of a diagnostic and treatment clinic; an office and waiting room; a public health area; and an inpatient area which includes two medical beds, two maternity beds, and two cribs. The residence adjoins the station. The staff includes two nurses, a clerk, a maintenance man, and a cleaning woman. The community health representative position is vacant.

Public Services:

1. Community Hall--meetings, games, dances, bingo. It is run by the settlement council.
2. Water Supply--delivered by truck two to three times a week.
3. Sewage Disposal--honey bags collected and holding tanks pumped out two to three times a week.
4. Garbage--same as Holman Island.
5. Fire--volunteer service.
6. Alcohol prohibited.
7. Power--supplied by NCPC
8. Road maintenance and clearage.

Recreation: skidooing; boating; hunting/fishing/trapping; games and sports in school gymnasium.

Commercial Activities: Eskimo Co-op Ltd.; Crafts Shop--Government of Northwest Territories Economic Development; Hudson's Bay Co.

BAY CHIMO

Location: Situated at the mouth of Bathurst Inlet.

Population: 66

Housing: The houses are owned by the residents. Public buildings are the school and the post office.

Economic Base: The major income sources are hunting, fishing, and trapping.

Government: Bay Chimo does not have settlement status. It is recognized as an outpost camp.

Religion: The clergy from Cambridge Bay visit.

Transportation: Air travel: private charter. Land travel: skidoo to Cambridge Bay in winter. Water travel: boat to Cambridge Bay in summer.

Communication: Mail delivery. Radio contact with Cambridge Bay via the Wildlife Services.

Social Services: Administered by Cambridge Bay.

Law Enforcement: Same as above

Education: A native trained teacher conducts primary school. Then the children board in Cambridge Bay and attend the school there.

Medical Services: A lay dispenser manages the common illnesses. She receives supervision from the Cambridge Bay nursing station. In addition, the staff (the nurses and the doctor) hold clinics in the settlement. Frequency of these visits is unknown but appears irregular.

Public Services:

1. Community Hall - nil.
2. Water Supply - melt ice blocks.
3. Sewage Disposal - carry honey bags away from the town site; no designated dump.
4. Garbage - same as Holman Island.
5. Fire -
6. Alcohol -
7. Power - school operates on a small generator. The houses use kerosene oil.

Recreation: - hunting/fishing/trapping
- skidooing
- games

Commercial Services: store.

SOURCES

1. Environmental and Planning Engineer Consultancy (EPEC) Western Ltd., The Draft Copies of Community Profiles, 1980.

2. Government of Northwest Territories. Explorers' Guide, 1980, of Canada's Arctic.

3. McKenzie Zone. Department of Health and Welfare, Canada.

4. Underwood McLellan and Associates Ltd., Gjoa Haven General Development Plan, April 1976.

5. Underwood McLellan and Associates Ltd., Cambridge Bay General Development Plan, February 1977.

6. Underwood McLellan and Associates Ltd.; Coppermine General Development Plan, 1979.

APPENDIX C

DOMESTIC WATER SUPPLIES AND SEWAGE TREATMENT METHODS
CENTRAL ARCTIC AREA

DOMESTIC WATER SUPPLIES AND SEWAGE TREATMENT METHODS
CENTRAL ARCTIC AREA

(A) WATER

The potability of the domestic water supplies in six communities in the Central Arctic area, viz Cambridge Bay, Coppermine, Holman Island, Spence Bay, Pelly Bay and Gjoa Haven, will be commented on under the following headings.

(1) Source

Water is obtained from surface sources--lakes and wells. As such it may be readily open to contamination. In general, however, it would appear that because of isolation from human habitation little occurs with the possible exception of Spence Bay and Gjoa Haven. In Spence Bay the water source is very close to the settlement and in Gjoa Haven in the summer people pass close to the source to go fishing, etc.

Recommendations

In order to minimize contamination by humans, it is suggested that:

1) All sources of drinking water be posted, indicating that they are a source of drinking water, and prohibiting any recreational use.
2) No human habitation be permitted near to the water source.
3) Roads be kept at a distance from the water source.

(2) Quality

(a) Microbiological

It would appear from local information that regular evaluation of the microbiological quality is not being carried out and very few reports of analyses are available.

Recommended

That total and faecal coliform counts be carried out on all sources of drinking water once per week.

(b) Chemical

In all instances it would appear that there has been inadequate evaluation of the chemical characteristics of the drinking water. Very few reports of chemical analyses are available and those available were incomplete.

Recommended

1) A chemical analysis of all drinking water sources be carried out at least yearly.

2) That all water supplies have the following chemicals measured:

- antimony	- cadmium	- selenium
- arsenic*	- chromium*	- silver
- barium	- cyanide	- sulphate
- boron	- lead*	- uranium
	- mercury*	- nitrates/nitrites*

* Most communities have had an evaluation made of these levels.

Because there is little or no use of pesticides in these areas, it would appear unnecessary at this time to measure these in the water.

In all areas the water would appear to be deficient in fluoride, thus causing excessive dental caries in young children and subsequently in their later life.

The following comments are made on specific water sources:

CAMBRIDGE BAY

An updated chemical analysis of water supply lake showed excessive:

turbidity - 10 J.T.U. (maximum acceptable 5 J.T.U.)

and iron - 0.9 mg/litre (maximum acceptable 0.3 mg/litre).

While excess iron is only an aesthetic problem (e.g. stained clothes on washing), excess turbidity will protect microorganisms from the effect of disinfection.

It is possible that these excessive readings are not representative of the actual water quality. Nevertheless it is vital that adequate evaluation of this water be made on an ongoing basis and if it does not measure up, the source be abandoned.

SPENCE BAY

From the two chemical analyses and the three faecal and three coliform counts available, this water may be of unacceptable quality. Amongst several laboratory reports we have two: one taken at nursing station showing 130 total coliforms per 100 ml., and an undated chemical analysis showing:

cadmium - 0.0115 mg/litre (maximum acceptable 0.005 mg/litre)

iron - 1.96 mg/litre (maximum acceptable 0.3 mg/litre).

The excess iron is only of aesthetic importance. However, the cadmium is more than twice the acceptable level. Excess intake of cadmium is related to kidney disease. There is no evidence that this is occurring but on the other hand it has not been investigated.

Again these levels may not be representative of the true water quality. But they are indicators that the water quality must be fully evaluated on an ongoing basis with reference to:

1) sources of microbiological contamination, and
2) excess cadmium levels,

and if it does not measure up to acceptable standards the source abandoned.

(3) Treatment

Because of the fact that drinking water comes from surface supplies, it should be mandatory that the water be disinfected. Otherwise one cannot ensure a potable supply at all times.

One of the communities uses a chlorinator (Cambridge Bay), three use manual chlorination (Gjoa Haven, Coppermine and Holman Island), and two do not chlorinate (Pelly Bay and Spence Bay). It appears that the manual chlorination is not carried out in a standardized fashion.

Recommendations

1) Chlorination of all supplies just before truck distribution
2) Coliform counts on treated water at least once per week
3) A manual on chlorination procedures be drawn up and followed by the operators
4) Chlorine residuals be regularly carried out on the treated water

(4) **Distribution**

With the exception of one short line to a nursing station direct from the storage tank in Spence Bay, the water distribution is by tank truck.

It would appear that in most instances the trucks are not disinfected and clean uniforms are not being used by the operators.

Recommendations

1) That tank trucks be regularly disinfected and that a manual for this be drawn up for the operators.
2) That clean uniforms be worn by the operators at all times.
3) That where it is difficult or impossible to disinfect a tank truck that it be replaced by a suitable vehicle.

GENERAL RECOMMENDATIONS

(1) That the 1978 Canadian Drinking Water Quality Guidelines be adopted as regulations for the Northwest Territories.

(2) That training courses for operation be held on a regular basis.

(3) That the residents of these areas be given information on the importance of potable water to their health.

(4) That the Medical Services Branch of the Federal Department of National Health and Welfare continue to be responsible in seeing that adequate monitoring of the water quality is carried out and that they be given resources to carry this out.

(5) That the responsible authority when informed by the Health Department of a health hazard take immediate and adequate action to remove this health hazard.

(B) SEWAGE TREATMENT

Human sewage at the residences are disposed into (a) a plastic bag known as a honey bag; or (b) a pump out tank. It is subsequently taken to an area away from the residences and dumped.

It is obviously unreasonable and/or impossible because of the climatic conditions to have collection systems with treatment plants, septic tanks and field systems or some of the other systems used and found satisfactory in more southerly climates. Nevertheless human wastes must be handled in a fashion which will not facilitate spread of pathogenic microorganisms in the community.

The main problem would seem to be with the honey bags at break up and in the summer, which are often ripped open by animals and humans with the contents being spread over a fairly large area.

RECOMMENDATIONS

(1) Where possible that pump out tanks, with low volume flush toilets, be used and that government give monetary support towards attainment of this objective.

(2) That where pump out tanks are not possible the honey bucket be considered to replace the honey bag.

(3) That the material from the pump out tank and the honey bags be deposited in a lagoon area which:

a) will be fenced to keep out animals and non-authorized humans

b) will not allow liquid seepage to spread into surrounding water or areas of human habitation

c) will be sufficiently far away from settlements to avoid unacceptable aesthetic conditions, e.g. smells

d) that the lagoon area be covered over with soil or other acceptable material when it is full

e) that the Medical Service Branch, Health and Welfare, ensure that the above is carried out.

(4) That training courses for operators be held on a regular basis.

(5) That the residents of these areas be given information on the importance of proper sewage disposal to their health.

APPENDIX D

TABLES

TABLE 1

POPULATION BY COMMUNITY, JUNE 1, 1980

	TOTAL	INDIAN	INUIT	OTHER STATUS
Cambridge Bay	884	9	686	189
Coppermine	767	0	727	40
Gjoa Haven	505	0	471	34
Holman Island	346	0	308	38
Pelly Bay	277	0	265	12
Spence Bay	469	0	447	22
Total Central Arctic	3,248	9	2,904	335
Total N.W.T.	45,990	8,505	15,650	21,835

TABLE 2

NURSING STATIONS--OPERATING EXPENSES, 1979-80

	CAMRIDGE BAY	COPPERMINE	GJOA HAVEN	HOLMAN ISLAND	PELLY BAY	SPENCE BAY
SALARIES & WAGES						
Nursing	141,618	103,349	62,456	47,870	35,971	93,045
Administration	945		3,734	21,370	21,392	7,038
	142,563	103,349	66,190	69,240	57,363	100,083
SUPPLIES & SERVICES				*	*	
Radiology/Lab.	80	85	236			178
Freight & Postage	3,853	2,517	2,524			2,208
Printing, Stationary, Etc.	1,099	388	705			217
Telephone & Telegraph	9,163	5,679	4,042			3,382
Travel & Convention	16,061	9,091	9,897			15,994
Other	19,473	9,446	6,602			7,903
Housekeeping Supplies	1,007	103	1,014			480
Plant Operation - Fuel, Water, Electricity	66,510	24,371	31,428			27,434
Plant Maintenance						
Building	8,582	1,610	-			-
Equipment	6,931	15,438	2,036			4,498
Other	8,880	-	-			-
Food	11,160	8,042	5,370			7,829
Other Supplies	139	-	-			-
	147,938	76,770	63,854			70,123
EMPLOYEE BENEFITS	37,251	32,460	26,475			23,354
MEDICAL AND SURGICAL SUPPLIES	2,265	4,643	2,336			3,141
DRUGS	9,883	18,755	11,179			12,347
TOTAL OPERATING EXPENSE	$339,900	$235,977	$170,034			$209,048

Source: 1979-80 ANNUAL RETURNS (HS 1 & 2)

* No information obtained by N.W.T. Region, Medical Services

TABLE 3

HOSPITAL UTILIZATION BY CENTRAL ARCTIC RESIDENTS (SEPARATIONS)

LOCATION	1976/1977	1977/1978	1978/1979	1979/1980
Stanton Yellowknife	322	283	275	451
Frobisher Bay/Inuvik	7	7	13	16
Other	6	6	2	(0)--
Nursing Stations	134	128	106	107
Edmonton	137	144	100	76

Extracted from Annual Reports on Health Conditions in the Northwest Territories, 1976-1980.

TABLE 4(a)

INPATIENT DAYS BY NURSING STATION -CENTRAL ARCTIC, 1979

	NUMBER OF BEDS/CRIBS	DAYS		
		ACUTE CARE	NEWBORN	TOTAL
Cambridge Bay	7/2	26	6	32
Coppermine	8/2	36	12	48
Holman Island	4/2	32	15	47
Gjoa Haven	5/2	46	20	66
Spence Bay	6/1	24	3	27
Pelly Bay	4/2	15	2	17

Source: Medical Services Branch, Northwest Territories Region

TABLE 4(b)

OUTPATIENT VISITS BY NURSING STATION -CENTRAL ARCTIC, 1979

Cambridge Bay	5,680
Coppermine	4,512
Holman Island	1,743
Gjoa Haven	3,439
Spence Bay	4,187
Pelly Bay	2,087

TABLE 5

BIRTHS FOR MACKENZIE ZONE, 1980

	LIVE BIRTHS	OTHER BIRTHS
Inuit	108	6
Indian	141	1
Other Status	326	4
Total	575	11

TABLE 6

POPULATION PROJECTIONS--CENTRAL ARCTIC
1978-1988

	POPULATION ESTIMATES 1978	POPULATION PROJECTION 1983	1988	PERCENT GROWTH TOTAL	ANNUAL
Cambridge Bay	853	975	1112	30.4	2.7
Coppermine	803	930	1085	35.1	3.1
Gjoa Haven	464	527	604	30.2	2.7
Holman Island	328	378	439	33.8	3.0
Pelly Bay	287	320	365	27.2	2.4
Spence Bay	454	516	600	32.2	2.8

Note: The figures are calculated assuming zero migration, and fertility and migration rates to be constant.

Source: Population Projections--Community Tabulations, Northwest Territories, 1978-1988, Statistics Section, Government of the N.W.T.

TABLE 7

AIR EVACUATIONS FOR CENTRAL ARCTIC COMMUNITIES, 1979

	NUMBER
Cambridge Bay	115
Coppermine	140
Holman Island	22
Gjoa Haven	80
Spence Bay	93
Pelly Bay	42

TABLE 8

COSTS OF MEDICAL AIR TRAVEL, CENTRAL ARCTIC
JUNE, 1979-APRIL, 1980

AIRLINE	CHARTER	SCHEDULED	
		ESCORT	PATIENT
PTARMIGAN	65,008.07	--	--
NORTHWARD	28,779.85	8,575.50	45,927.06
NORTHWEST TERRITORIAL	3,778.93	8,726.35	28,240.38
P.W.A.		2,713.80	2,188.20
ALT AIR	6,082.50		
	$103,649.35	$20,015.65	$76,355.64

TOTAL: $200,020.64

Note: With charter flights costing from $1,000-$5,000 each, it becomes clear that the majority of air evacuations take place on scheduled airlines.

TABLE 9

CENTRAL ARCTIC AIR DISTANCES (MILES)

YELLOWKNIFE TO	CAMBRIDGE BAY	450
	COPPERMINE	325
	HOLMAN ISLAND	500
	GJOA HAVEN	575
	SPENCE BAY	625
	PELLY BAY	700
CAMBRIDGE BAY TO	GJOA HAVEN	175
GJOA HAVEN TO	SPENCE BAY	175
SPENCE BAY TO	PELLY BAY	100
CAMBRIDGE BAY TO	HOLMAN ISLAND	275
HOLMAN ISLAND TO	COPPERMINE	175

TABLE 10(a)

IMMUNIZATION LEVELS BY AGE
CAMBRIDGE BAY, 1979

MIDYEAR POPULATION SERVED	IMMUNIZATION AGENTS	% FULLY IMMUNIZED		% PARTIALLY IMMUNIZED	
		INUIT	OTHER	INUIT	OTHER
INFANT	B.C.G.	84.2	100		
Inuit: 19	D.P.T.	94.7	100		
Other: 4	SABIN-POLIO	94.7	100		
	LIRUGEN	68.4	100		
	OTHER	-	-		
PRE-SCHOOL	B.C.G.	82.5	57.1		
Inuit: 86	D.P.T.	91.8	90.4	5.8	9.5
Other: 21	SABIN	91.8	90.4	5.8	9.5
	LIRUGEN	-	-		
	RUBELLA	-	-		
	M.M.R.	-	-		
	RUBEOLA	79.0	76.1		
SCHOOL-AGE	B.C.G.	89.6	52.0		
Inuit: 222	D.T.	98.1	92.0	1.8	8.0
Other: 25	LIRUGEN	88.7	48.0		
	RUBELLA	97.7	64.0		
	SABIN-POLIO	98.1	92.0		8.0
	MUMPS	19.8	44.0		
	D.P.T.	-	-		
	RUBEOLA	-	-		
ADULT	B.C.G.	-	-		
Inuit: 410	TETANUS	82.1	41.3	0.4	
Other: 58	SABIN-POLIO	89.7	51.7	0.4	
	DIPHTHERIA	77.3	36.2		
	TABT	-	-		
	FLUZONE	-	-		

Note: Population totals were taken from immunization reports submitted through nursing stations.

NO REPORT ON IMMUNIZATION STATUS WAS AVAILABLE FOR 1979
FOR COPPERMINE.

TABLE 10(b)

IMMUNIZATION LEVELS BY AGE
GJOA HAVEN, 1979

MIDYEAR POPULATION SERVED	IMMUNIZATION AGENTS	% FULLY IMMUNIZED		% PARTIALLY IMMUNIZED	
		INUIT	OTHER	INUIT	OTHER
INFANT	B.C.G.	100	100		
	D.P.T.	91.3	100	8.6	-
Inuit: 23	SABIN-POLIO	91.3	100	8.6	-
Other: 1	LIRUGEN	91.3	-		
	OTHER	-	-		
PRE-SCHOOL	B.C.G.	92.5	100		
	D.P.T.	100	100		
Inuit: 67	SABIN	100	100		
Other: 5	LIRUGEN	-	-		
	RUBELLA	-	-		
	M.M.R.	82.0	80.0		
	RUBEOLA	-	-		
SCHOOL-AGE	B.C.G.	100	-		
	D.T.	100	100		
Inuit: 174	LIRUGEN	100	100		
Other: 5	RUBELLA	100	100		
	SABIN-POLIO	100	100		
	MUMPS	100	100		
	D.P.T.	-	-		
	RUBEOLA	-	-		
ADULT	B.C.G.	0.5	10.0		
	TETANUS	98.3	20.0		
Inuit: 182	SABIN-POLIO	98.3	20.0		
Other: 20	DIPHTHERIA	95.0	40.0		
	TABT	-	-		
	FLUZONE	-	-		

Note: Population totals were taken from immunization reports submitted through nursing stations.

TABLE 10(c)

IMMUNIZATION LEVELS BY AGE

HOLMAN ISLAND, 1979

MIDYEAR POPULATION SERVED	IMMUNIZATION AGENTS	% FULLY IMMUNIZED		% PARTIALLY IMMUNIZED	
		INUIT	OTHER	INUIT	OTHER
INFANT	B.C.G.	90	100		
Inuit: 10	D.P.T.	90	100	10	
Other: 1	SABIN-POLIO	90	100	10	
	LIRUGEN	40	-		
	OTHER	-	-		
PRE-SCHOOL	B.C.G.	100	100		
Inuit: 28	D.P.T.	96.4	100	39.2	
Other: 3	SABIN	96.4	100	39.2	
	LIRUGEN	-	-		
	RUBELLA	100	100		
	M.M.R.	-	-		
	RUBEOLA	35.7	33.3		
SCHOOL-AGE	B.C.G.	22.9	-		
Inuit: 87	D.T.	96.5	100	3.4	
Other: 1	LIRUGEN	100	100		
	RUBELLA	100	100		
	SABIN-POLIO	96.5	100	3.4	100
	MUMPS	100	100		
	D.P.T.	-	-		
	RUBEOLA	-	-		
	PPT 5TU	48.2	100		
ADULT	B.C.G.	-	-		
Inuit: 141	TETANUS	98.5	100		
Other: 17	SABIN-POLIO	98.5	-		
	DIPHTHERIA	-	-		
	TABT	-	-		
	FLUZONE	7.0	-		
	PPD 5TU	1.4			
	TYPHOID CHOLERA	-	-		

Note: Population totals were taken from immunization reports submitted through nursing stations.

TABLE 10(d)

IMMUNIZATION LEVELS BY AGE

PELLY BAY, 1979

MIDYEAR POPULATION SERVED	IMMUNIZATION AGENTS	% FULLY IMMUNIZED		% PARTIALLY IMMUNIZED	
		INUIT	OTHER	INUIT	OTHER
INFANT	B.C.G.	100	-		
	D.P.T.	100	-		
Inuit: 9	SABIN-POLIO	100	-		
Other: 0	LIRUGEN	22.2	-		
	OTHER	-	-		
PRE-SCHOOL	B.C.G.	100	100		
	D.P.T.	100	100		
Inuit: 34	SABIN	100	100		
Other: 1	LIRUGEN	-	-		
	RUBELLA	-	-		
	M.M.R.	100	100		
	RUBEOLA	-	-		
SCHOOL-AGE	B.C.G.	100	100		
	D.T.	98.1	100		
Inuit: 107	LIRUGEN	100	100		
Other: 1	RUBELLA	100	100		
	SABIN-POLIO	98.1	100		
	MUMPS	100	100		
	D.P.T.	-	-		
	RUBEOLA	-	-		
ADULT	B.C.G.	46.2	-		
	TETANUS	83.3	-	24.0	20
Inuit: 8	SABIN-POLIO	100	-		
Other: 10	DIPHTHERIA	40.7	-		
	TABT	-	-		
	FLUZONE	9.2	-		

Note: Population totals were taken from immunization reports submitted through nursing stations.

TABLE 10(e)

IMMUNIZATION LEVELS BY AGE

SPENCE BAY, 1979

MIDYEAR POPULATION SERVED	IMMUNIZATION AGENTS	% FULLY IMMUNIZED		% PARTIALLY IMMUNIZED	
		INUIT	OTHER	INUIT	OTHER
INFANT	B.C.G.	100	-		
	D.P.T.	100	-		
Inuit: 8	SABIN-POLIO	100	-		
Other: 0	LIRUGEN	100	-		
	OTHER	-	-		
PRE-SCHOOL	B.C.G.	100	100		
	D.P.T.	100	100		
Inuit: 48	SABIN	100	100		
Other: 2	LIRUGEN	-	-		
	RUBELLA	-	-		
	M.M.R.	100	100		
	RUBEOLA	-	-		
SCHOOL-AGE	B.C.G.	-	100		
	D.T.	100	100		
Inuit: 168	LIRUGEN	-	-		
Other: 2	RUBELLA	-	-		
	SABIN-POLIO	100	100		
	MUMPS	-	-		
	D.P.T.	-	-		
	RUBEOLA	-	-		
	M.M.R.	100	100		
ADULT	B.C.G.	-	-		
	TETANUS	97.4	-	0.5	
Inuit: 198	SABIN-POLIO	98.4	-		
Other: 20	DIPHTHERIA	94.9	-		
	TABT	-	-		
	FLUZONE	-	-		

Note: Population totals were taken from immunization reports submitted through nursing stations.

TABLE 11

COMMUNICABLE DISEASES - 3 YEAR STATUS BY COMMUNITY (1978-1980)

	Cambridge Bay	Coppermine	Holman Island	Pelly Bay	Spence Bay	Gjoa Haven
Hepatitis A	1	-	-	-	1	-
Measles	67	45	2	7	-	12
Meningococcal Meningitis	-	-	1	-	-	-
Hemophilus Meningitis	-	-	-	1	1	-
Rubella	2	2	-	-	-	1
Salmonella (confirmed)	1	-	-	-	-	-
Gastroenteritis	-	70	6	57	20	13
Influenza-like illness	110	17	58	128	50	130
Mumps	1	-	-	1	-	3
Chicken Pox	-	5	3	1	7	42
Trichinosis	-	-	-	-	3	-

Note: a) no cases of syphilis were reported;

b) numerous cases existed of diphtheria carriers, but no cases as such.

Extracted from Medical Services records.

TABLE 12

GONNORHEA - 3 YEAR STATUS
BY COMMUNITY (1978-1980)

	Cambridge Bay	Coppermine	Holman Island	Pelly Bay	Spence Bay	Gjoa Haven
Confirmed	220	97	4	8	20	9
Unconfirmed (treated)	193	52	3	7	20	7

Extracted from Medical Services Records.

TABLE 13

STAFF STRENGTH (ESTABLISHMENT) BY NURSING STATION, 1980

Staff Strength (Establishment)	Gambridge Bay	Coppermine	Gjoa Haven	Holman Island	Pelly Bay	Spence Bay
Doctor	1*	-	-	1° (p/t)	-	-
Nurses	4	3	3	1	1	2
Housekeeper /Janitor	2	2	1	2 (p/t)	2 (p/t)	2
Dental Therapist	1	1 (vacancy)	-	-	-	1
Ward Aide	1	1	-	-	-	-
Clerk	1	1	1 (vacancy)	1 (vacancy)	-	1 (p/t)

* on rotation from University of Alberta--on service contract

° wife of co-op manager--on service contract

TABLE 14

VISITS OF HEALTH PERSONNEL BY DURATION (DAYS)*

TO CENTRAL ARCTIC COMMUNITIES, 1979

	General Practitioner	Specialists	Dentists	Federal Medical Staff
Cambridge Bay	-	7/1*	-	-
Coppermine	9/3	-	-	-
Holman Island	-	4/2	10/2	10/2
Gjoa Haven	6/2	-	-	-
Spence Bay	-	-	-	-
Pelly Bay	5/5	-	-	-

Source: Medical Services Branch, Northwest Territories Region.

TABLE 15

LEVEL OF NURSING TURNOVER - CENTRAL ARCTIC COMMUNITIES, 1978-1981

	POSITION	STRUCK OFF STRENGTH	TAKEN ON STRENGTH
Cambridge Bay	- MNR-103	2	3
	- MNR-267	4	4
	- MNR-269	3	3
	- MNR-274	3	3
Coppermine	- MNR-74	4	5
	- MNR-79	4	5
	- MNM-365	2	2
Gjoa Haven	- MNR-294	4	5
	- MNR-295	4	4
Holman Island	- MNM-300	2	2
Pelly Bay	- MNR-131	1	1
Spence Bay	- MNR-271	2	2
	- MNR-505	2	2

Note: Where more staff were taken on strength than those that left, the excess relates to term employment.

Source: Memorandum from Acting Zone Director, March 3, 1981.

TABLE 16

CAUSES OF DEATH, BY COMMUNITY, 1979

	Cause of Death
Coppermine	
Male - 26 years	Intracerebral Hemorrhage
Male - 24 years	Asphyxiation
Male - 50 years	Bled to Death--Stab Wounds
Female - 25 years	Bled to Death--Stab Wounds
Male - 25 years	Gunshot to Head and Stab Wounds
Female - 74 years	Pneumonia
Female - 17 months	Pneumothorax
Cambridge Bay	
Female - 17 years	Smoke Inhalation
Male - 3 months 18 days	Suspected Asphyxiation
Male - 33 years	Incineration
Gjoa Haven	
Male - 73 years	Cardiorespiratory Arrest
Female - 7 months	S.I.D.S.
Spence Bay	
Male - 63 years	Cardiac Arrest
Female - 8 hours	Resp. Distress Syndrome
Pelly Bay	
Female - 66 years	Influenza
Female - 90 years	Pneumonia
Female - 2 years 4 days	Asphyxia

TABLE 17

MEDICAL SERVICE PROGRAM: FEDERAL-TERRITORIAL COST SHARING, 1980, BY NURSING STATION [1]

NURSING STATION	% HEALTH & WELFARE CANADA	% GOVERNMENT N.W.T.
Coppermine	94.40	5.60
Holman Island	94.40	5.60
Cambridge Bay	86.10	13.90
Gjoa Haven	95.10	4.90
Spence Bay	95.10	4.90
Pelly Bay	95.10	4.90

Source: National Health and Welfare Printout--Shared Station Costs, N.W.T.

[1] The cost sharing is based on the proportion of Inuit and Dene to Euro-Canadian, taken from the 1971 Census. It is not expected to change significantly after the 1981 Census.