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LONG-TERM CARE INSTITUTIONALIZATION: AN ANALYSIS OF FACTORS INFLUENCING SELECTION BY ELDERLY PERSONS AND THEIR FAMILIES

Varney, Joyce Mitchell, Dr.P.H.
University of Hawaii, 1987

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LONG-TERM CARE INSTITUTIONALIZATION:
AN ANALYSIS OF FACTORS INFLUENCING SELECTION
BY ELDERLY PERSONS AND THEIR FAMILIES

A DISSERTATION SUBMITTED TO THE GRADUATE DIVISION OF THE UNIVERSITY OF HAWAII IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PUBLIC HEALTH

MAY 1987

By
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ACKNOWLEDGEMENTS

I express my appreciation to Mr. Renji Goto, Director of the Governor's Executive Office on Aging in 1983. He willingly consented to allow me to use their survey data of community-living elderly persons for comparison purposes in this research.

I am also grateful to the Japanese Women's Society for generously providing a scholarship which helped to defray the costs of conducting the survey interviews.

I am especially appreciative of the help and encouragement of my two committee chairmen. Dr. Cyrus Roseman saw me through the written and oral comprehensive exams and Dr. William Wood tirelessly and meticulously guided the data analysis and writing of the dissertation.

Finally, this would not have been possible at all without the understanding, support and assistance of my family, especially Sheldon.
ABSTRACT

The context in which this research was conceptualized was characterized by four important phenomena. They were, the increasing proportion of elderly persons in the population of the United States and especially in Hawaii, the sharply rising costs of medical care and other programs serving the elderly, controversy over the effectiveness of past efforts to assist older persons, and lack of agreement concerning what needs to be done to improve their situation.

The primary purpose of the research was to add to the understanding of factors which predispose elderly persons to be admitted to LTC facilities. New knowledge could be used by elderly persons, their families, and health professionals in making informed decisions regarding the selection of LTC services. Comprehensive data concerning persons utilizing different types of LTC would also assist planners and policy makers in preparing for the increasing numbers of elderly persons in the population by identifying problem areas and suggesting possible solutions.

The study was designed to answer the following questions: 1) are there statistically significant differences in social and economic resources, mental and physical health, and/or ADL abilities among older persons in three levels of long-term care, 2) are there
statistically significant associations between pairs of selected variables relating to persons in three levels of care, 3) does ethnicity make a difference in the above findings (Japanese and Caucasian) 4) which variables predict institutionalization, and 5) are there statistically significant differences in the level of disability of older persons in free-standing and hospital-based ICFs, or for-profit and not-for-profit ICFs?

This research utilized the results of two surveys for its comparison data. One survey, conducted by the State of Hawaii Executive Office on Aging, collected data on community-living elderly, the other was conducted by the researcher and collected data about elderly persons when they were about to enter an intermediate care facility. Both surveys used the same basic instrument. The EOA data on community-living elderly persons were divided into two study groups, those using home care services and those who were not. This resulted in three comparison study groups, 1) those entering an ICF, 2) those receiving home care (HC), and 3) those not receiving Home care (NHC).

The dependent variable was "level of care" with the three possible outcomes listed above. The independent variables were more than 200 factors in the instrument about which data were collected.
Univariate procedures found substantially important and statistically significant differences among persons in the three study groups in each of the categories of variables examined. Pearson product-moment correlations revealed numerous statistically significant relationships between pairs of variables relating to persons using the three levels of care.

Discriminant analysis determined the extent to which nineteen selected variables placed individuals into the respective groups more accurately than by chance (33%). The combination of variables proved to be a strong predictive model, accurately placing ICF and NHC persons 93% to 95% of the time. Using a categorical modeling procedure called CATMOD, which is a maximum likelihood logistic regression analysis procedure, seven variables were found to be significant predictors of level of care.

Analysis of variance was used to determine statistical differences between two pairs of ICF types. No statistically significant difference was found in level of disability among persons in free-standing and hospital-based ICFs. There was a statistically significant difference (p =< .05) in level of disability of persons in for-profit and not-for-profit ICFs. Persons in the latter were more disabled.

Compared to community-living elderly, this research found persons about to enter ICFs were predominantly older,
female, Japanese, without a living spouse, with low income, living with someone at the time, using many more home care services, and with fewer caregivers as long as needed. They experienced poorer physical and mental health, suffered from incontinence more often, had more fractured bones, were more functionally impaired, and used more ambulation aids.

Important predictors of long-term care level identified by maximum likelihood logistic regression were: advanced age, lack of a caregiver as long as needed, poor eyesight, self-rating of health, incontinence, the interviewers' ADL Score and the interviewers' Cumulative Impairment Score (CIS). The final item is an index including measures of social and economic resources, mental and physical health, and ADL abilities (activities of daily living).

This research corroborates the review of studies by Hendricks and Inui (1986), in that the use of home care services did not appear to diminish utilization of nursing homes. Persons entering ICFs were using many more home care services than other elderly persons in the study. However, it is possible that home care may delay institutionalization and is most likely more acceptable for elderly persons.

Certain predictors of institutionalization identified in this study such as age, lack of a caregiver, poor
eyesight, self-rate of health and ADL abilities substantiate findings of Mainland investigators. However, unlike certain other studies, this research did not find that mental health, living alone, or marital status predict institutionalization. Many more elderly persons about to go into a nursing home were living with someone than elderly persons in the the other two study groups.

It appears that other researchers have not examined incontinence as a possible predictor. It was determined to be an important predictor of institutionalization in this work. The three best predictors were age, the interviewers' ADL Scores and the interviewers' composite CIS scores. CIS scores included mental and physical health factors along with social and economic resources and ADL abilities. This tends to lend credibility to the instrument as an appropriate assessment tool for elderly persons.

There are many important reasons for identifying predictors or risk factors of institutionalization. It provides the possibility of targeting programs and services to those most at risk. It also helps planners and policy makers develop a future health care system which will be appropriate for serving increasing numbers of elderly persons. Identification of predictors may help target funding toward the most needed services and channel further
research in a direction which will answer critical questions.

Once there is an awareness of risk factors, focused educational programs can alert service providers and/or families to early signs of problems so treatment can be started before a condition worsens. For example, if incontinence is detected early, and if appropriate treatment is provided, some of the problems can often be ameliorated. Even small improvements can sometimes increase the person's comfort and decrease the amount of care required.

Knowledge of predictors of institutionalization and results of comprehensive studies of the elderly provide data which suggest a focus of attention for further research.

Recommendations generated from this research included the following:

There is a need for basic research in the area of incontinence among the elderly including the physiological, social, and behavioral aspects of the problem. Because over 25% of persons entering ICFs in this study had suffered fractures, research is also suggested regarding the serious problem of falls and fractures among older persons. Studies should address both physiological and environmental causes.
While gerontologists are beginning to understand certain things about client variables, there needs to be more research on system variables such as the availability of services, reimbursement for services, criteria for eligibility for services, and accessibility and appropriateness of services.

Policy research on the entire spectrum of questions regarding the economics of caring for elderly persons needs to be conducted. This should include study of the expenditure of public and private funds for older persons and how present policies affect their economic well-being.
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<td>Activities of Daily Living</td>
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<tr>
<td>BADL</td>
<td>Basic Activities of Daily Living</td>
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<tr>
<td>CIS</td>
<td>Cumulative Impairment Score</td>
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<td>DOH</td>
<td>Department of Health</td>
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<td>EOA</td>
<td>Executive Office on Aging (Governor's)</td>
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<td>GAO</td>
<td>Government Accounting Office</td>
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<td>Home Care Study Group</td>
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<td>Health Surveillance Program (DOH)</td>
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<td>ICF</td>
<td>Intermediate Care Facility</td>
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CHAPTER I
INTRODUCTION AND STATEMENT OF THE PROBLEM

Background of the Problem

Concern has been increasing in recent years regarding the framing of appropriate governmental policies and the planning of suitable services to alleviate problems of elderly persons in our population. The heightened emphasis on elderly concerns is largely due to the following three important phenomena: (a) the forecast of a continuing trend of increasing proportions of elderly persons in U.S. and world populations; (b) the sharply increasing cost of medical care during the late seventies and early eighties; and, (c) controversies regarding the effectiveness of public policies targeted toward the elderly.

The proportion of elderly in the total United States population has been steadily increasing. In the early 1900s, the elderly (those 65 years of age and older) represented only 5% of the population but by 1980 the proportion had more than doubled (11%). It is expected to increase to 12% by the year 2000 and to reach 16% by 2020 (Soldo, 1980; Hauser, 1983). Because of voluntary immigration, the elderly in certain areas of the United States such as Florida have already reached 16% of the population (Gurland, Bennett and Wilder, 1981). Other developed countries show a similar trend of increases in
proportion of elderly persons occurring at varying rates (Myers, 1982).

The rapid increase in the proportion of elderly persons in the U.S. population is due primarily to increased life expectancy due to successes in the control of neonatal and post-partum death rates, high fertility rates in the late 19th and early 20th centuries, immigration waves prior to World War II, and increasing interest and research in geriatric care (Soldo, 1980). In Hawaii in 1983, the proportion of elderly in the population was 8.7% compared to 11.7 in the total U.S. population. However, the elderly in Hawaii have been increasing at more than double the national rate. There was a 21.6% increase in Hawaii from 1978 to 1982 compared to 10.3% for the United States in general (Nordyke & Lee, 1984). This dramatic aging of the population clearly suggests the importance of examining geriatric health care policy at the present time.

A second important and related reason for such an inquiry has been the upward spiraling in the cost of medical care (Meltzer, Farrow & Richman, 1981; Soldo, 1980). The United States is facing a crisis in the financing of health care. There are many reasons for the exorbitant costs of medical care such as overall inflation, excessively intensive care by physicians and hospitals, the high cost of health insurance and litigation for medical
malpractice, increased demand for treatment and diagnostic tests by consumers, increased use of diagnostic tests by physicians fearing litigation, and the expense of using new technology. Another major factor in the escalation of health costs is the growing number of elderly persons who characteristically have multiple chronic conditions which require continuous, long-term medical attention.

Public assistance policy for health care for older persons is complicated, cumbersome to administer and difficult for the frail and elderly to understand. Out-of-pocket expense for Medicare has increased in recent years because the 80% of allowable costs which are reimbursable is increasingly unacceptable to physicians. Medicare covers the cost of only a few home care services and no care in intermediate care facilities (Davidson, 1980).

Of all Medicaid expenditures, 40% goes to services for the elderly, much of it due to the high cost or frequency of institutionalization (Davidson, 1980; R.L. Kane & R.A. Kane, 1980). Learning more about the needs of the elderly and appropriate ways of serving people with chronic conditions is valuable from an economic as well as a humanitarian perspective.

A third reason for increased focus on elderly health policy is the apparent controversy over past efforts to assist the aging population. Public policy relating to long-term care (LTC) of the elderly has been described as
inconsistent, incoherent, fragmented, inequitable and based on unsound theory (Butler & Newacheck, 1981; Estes, 1979; Gurland et al., 1981). Administering and funding assistance programs through a variety of different bureaucratic organizations has led to a very serious lack of program coordination and no mutually derived, clearly stated objectives (Estes, 1979; Paglinawan, 1981).

The following quote refers to the lack of long-term care policy coordination:

The failure to articulate a policy goal related to a continuum of long-term care and to work gradually toward that goal has led to the overly expensive and institutionally oriented system which we now face. . . . change in long-term care should be guided by overall federal policy direction, within which states are able to formulate and administer programs which can be adapted to state needs. (Farrow, Joe, Meltzer and Richman, 1981, p.6)

Public policy makers stress the need for providing an appropriate variety of LTC services which meet the different requirements of the elderly and provide them with choices. The predicament of policy makers is trying to set practical and long-range policy when there is a serious lack of knowledge concerning the effectiveness of currently offered programs and factors affecting the LTC needs of the elderly (Dunlop, 1980; Farrow et al., 1981; Gurland et al., 1981; Hedrick & Inui, 1986).

Knowledge needed for appropriate policy formulation can be generated from research, demonstration projects, and
the evaluation of existing programs. Gurland believes that future research should increase information available "to consumers on what they can personally expect from specific alternatives, to providers on what they can do better for specific clients and to policy-makers on ways and costs of improving the system." (Gurland et al., 1981, p. 67)

When seriously disabled older persons are transferred from acute hospitals to nursing homes, there are probably few alternative choices. However, nearly 40% of admissions to nursing homes are made directly from the residences of elderly persons (R. L. Kane & R. A. Kane, 1980). Too often the aged and their families are faced with this decision to enter a long-term care (LTC) institution, lacking a basis for making informed, rational choices.

The consideration of a full range of need criteria and the matching of those needs to a continuum of alternative services often is not possible. A few reasons for this are: (a) the decision to institutionalize is almost always emotionally charged, even when not an emergency situation, (b) the limited variety (choice) of services in many geographic areas, (c) the limited knowledge of available services, (d) inadequate income to purchase expensive private services, (e) restrictive public policies which fund only certain services for people meeting complicated and inconsistent means tests, (f)
confusion regarding the appropriate range of alternative services, and, (g) professionals' lack of skills or apparent inability to assist families in their decision-making.

Problem Statement

The problem addressed by this dissertation is the need for fuller explanation of the determinants of LTC utilization. The provision of new findings highlighting the prospects for home care versus institutional care, would assist health professionals and public policy makers arrive at more rational, informed policy based on the needs of elderly persons. Data on the characteristics of persons utilizing different types of LTC would help planners and policy makers prepare for the increasing number of elderly persons in the population.

Status of the Problem

A review of previous research on the selection of long-term care services reveals major difficulties in comparing the studies cited. The studies were carried out in different countries, were mostly non-probability samples, comparisons varied by type of service or community setting, several of the studies were bivariate, and most were cross-sectional.
In 1982, Branch reviewed seven studies which investigated factors related to long-term care (LTC) institutionalization and concluded that: "none of the factors studied consistently differentiate institutionalized from non-institutionalized elders." (Branch & Jette, 1982, p. 1374). However, those studies and others suggest certain precursors to institutionalization.

The need for study in this area has been expressed by a number of researchers, policy-makers, gerontologists and sociologists (Branch & Jette, 1982; E.M. Brody, 1969; Estes, 1979; Gurland et al., 1981; Hedrick & Inui, 1986; Paglinawan, 1981). Brody stated that, "... the social and psychological implications of institutionalization make it necessary to identify the determinants of the decision to institutionalize or not to do so." (E.M. Brody, 1969, p. 187).

None of the reviewed studies investigated the availability of alternative services (Branch & Jette, 1981), consumers' knowledge of alternatives (Hausman, 1976) or the influence of public policy (government reimbursement) on the decision (Gurland et al., 1981; R. L. Kane & R. A. Kane, 1980). Only two studies addressed the question of who actually made or contributed to the decision (Hausman, 1976; Smallegan, 1981). Ethnic differences in this area have been almost completely
ignored, usually because of small numbers of ethnic minorities in the study samples (Estes & Freeman, 1976; Kalish, 1971; Kent, 1971; Palmore, 1976).

Gurland feels that the helping professions need to know more about client types and the outcomes of various services provided before they can successfully match clients to programs (Gurland et al., 1971). Kane and Kane (1980) state that there is a problem identifying appropriate populations at risk of institutionalization and developing strategies to improve their situations. They also stress the importance of measuring the health and social status of persons at risk (R. L. Kane & R. A. Kane, 1980). S.J. Brody, Poulshock and Maseiocchi (1978) pointed out that, when planning for the LTC needs of the elderly, a new formula must be devised which relates all aspects of system supports and in particular the anticipated living arrangement resource of the aged who are at risk because of impairment. More recently Branch and Jette, (1982) said, "Past investigations of risk factors for LTC institutionalization have failed to clarify why some elders apply to or enter LTC institutions while others do not do so." (Branch & Jette, 1982, p. 1373)

Lack of data regarding the nature, scope and seriousness of LTC problems in Hawaii has been described locally in the Report of the Long-term Care Planning Group
from the Hawaii State Department of Social Services (Paglinawan, 1981). Other findings of that study include the following: lack of explicit policies and goals to guide LTC programs; the complex service system is poorly understood; limited coordination among service providers; services are very expensive and a continuum of services is lacking; limited availability and accessibility; little coordination in setting standards for quality of service and, as stated above, a paucity of LTC data. Limited data makes accurate identification of LTC problems difficult.

A variety of persons and professionals may advise families and older people concerning the selection of LTC services ranging from friends and relatives to referral agencies, channeling programs, social workers, nurses, doctors, hospital discharge counselors and others. Caregivers need a clearer understanding of factors influencing the LTC decision as they work toward attainment of the following long-term care goals:

1. maximization of the degree of independence experienced by elderly persons; provide care in the least restrictive environment

2. prevention of unnecessary illness and disability among the elderly

3. attainment of greater satisfaction for elderly persons, families and professionals

4. provision of appropriate, accessible and humane care to all individuals who need it
Rationale for Approach to the Problem

The Systems Approach

In the conceptual framework of this study, elderly persons and their families were considered to be functioning as part of a total system. The system included all of the components of their physical and social environments with which they interacted or which affected them. Support for the suitability of a systems approach in studies of the adaptation of the elderly comes from a number of sources. Duncan has stated:

... Two very general conceptual schemes have evolved which provide a suitable framework for structuring our thoughts and studies on aging. One of these is developmental; the other is ecological. These two approaches are complementary. We must consider the effect of intrinsic and environmental factors on human development and aging. ... We will profit today if we take an extremely broad approach to the aging individual and all the environmental variables that impinge upon him. (Duncan, 1968, p. 80)

In a similar vein, Rapoport (1968, p. xxii) said:

... the systems approach to the study of man can be appreciated as an effort to restore meaning (in the terms of intuitively grasped understanding of wholes) while adhering to the principles of disciplined generalizations and rigorous deduction. It is, in short, an attempt to make the study of man both scientific and meaningful.

Lawton and Nahemow (1973) devised a descriptive model of adaptation using Wohlwill’s "optimization principle"
which describes adaptation using two parameters: individual competence and environmental press. Environmental press are defined as forces in the environment which evoke a response in an individual. Press are neutral, in that their positive or negative qualities are defined by the interacting individual. Wohlwill believed that, as individual competence decreases and as environmental press increase, the likelihood of maladaptive behavior increases. Vulnerability of older persons to their environments becomes greater with time. "As competence of the individual decreases, the proportion of behavior attributable to environmental, as contrasted to personal, characteristics increases." (Lawton & Nahemow, 1973, p. 658)

In describing health systems of the future, Lesse (1981) emphasizes the increasing importance of interrelationships and interdependencies of all human functions. He spoke of physiodynamics, psychodynamics and sociodynamics all interrelating and constantly seeking a state of equilibrium. He explained:

Human needs cannot be considered in splendid isolation, divorced from an understanding of social and technologic developments. . . Formulations stressing indivisible interrelationships and mutually influencing aspects of these various factors are an essential preamble to meaningful futurologic theorizing, methodologic development and worthwhile forecasting. In other words, one cannot study human needs, social development,
or significant supportive technologies unless they are considered as a single, interrelated, organismic whole. (Lesse, 1981, p. 72)

Moos supported a similar philosophy which he called "socio-ecological" perspectives on health (Moos, 1980).

This research was conceptualized using the systems approach illustrated by Figure 1. It provides a framework for the setting or context in which an individual's adaptation occurs. The intent was to illustrate the constant interaction among all characteristics of the individual and aspects of his physical and social environments which result in an adaptative state. Another important concept of adaptation illustrated in the paradigm is that the system is not static but is dynamic and all variables, as well as the process of adaptation, are constantly changing through time. It is impossible for any research to measure all the interacting variables of a situation, but, it is important to be aware of the individual's total environmental context in order to appreciate the complex interdependencies of the research topic and understand unavoidable limitations of the study.

Purpose of the Study

The purpose of this research was to add to the understanding of factors which predispose elderly persons to enter LTC facilities. This knowledge could be used by
Figure 1
Conceptual Framework: Continuous System of Adaptation
elderly persons, their families, and health professionals in making informed decisions regarding the selection of LTC services. Comprehensive data concerning persons utilizing different types of LTC would assist planners and policy makers in preparing for the increasing number of elderly persons in the population.

Overview of the Study Design

In this study, data on research participants utilizing three levels of long-term care were compared: (a) those in 24 hour intermediate care facilities (ICF), (b) those living in the community and receiving some type of home care (HC), and (c) those living in the community and not receiving home care (NHC). A detailed description of the research methodology is in Chapter III.

In concordance with the conceptual framework, a comprehensive, systems approach was utilized in this research in gathering information about the many factors which might influence the selection of long term care services. The researcher collected information from close family members of elderly persons in ICF facilities. The questions pertained to the elderly persons' situations at the time they entered the nursing home. Variables were classified into the following categories:

1. Demographic (includes Japanese and Caucasian ethnic groups, other ethnic groups were too few in number)
. 2. Social resources
. 3. Economic resources
. 4. Mental health
. 5. Physical health
. 6. Activities of daily living
. 7. Utilization of services
. 8. Participants in the decision to institutionalize

Criteria for selection of subjects were: age 65+, Japanese or Caucasian, male and female, ICF level care, in ICF five years or less, and had a community contact.

The ICF data were compared to data from a survey of community living (home-based) elderly persons conducted by the Executive Office on Aging using the same instrument (State of Hawaii, 1983). Over 200 common questions relating to the above categories of variables were asked of informants in the two surveys.

Research Questions

1. Are there differences in demographic, social, economic, mental and physical health, and ADL characteristics of elderly persons in ICFs, those living in the community and receiving home care, and those living in the community and not receiving home care?

2. Are there relationships between pairs of selected demographic factors, impairment indicators, social and economic resources and/or ADL competencies relating to persons using three levels of care?
A Are there significant (p =< .05) relationships between selected characteristics and ethnicity (Japanese and Caucasian) of research subjects?

B Which independent variables (measuring characteristics of elderly persons utilizing three levels of care) included in a discriminant model, most successfully classify individuals into the three levels of care (dependent variables)?

3. Is there a difference in severity of disability among persons in free-standing ICFs and hospital-based ICFs or in for-profit and not-for-profit ICFs?

The two questions in #3 are in addition to the primary research questions being explored. Long term care providers have speculated that persons in certain types of ICFs were more disabled than others. Because the ICF group in this study included three free-standing ICFs and three hospital-based ICFs and also three for-profit and three non-profit facilities, it was possible to address these questions. In a study by Mitchell (1978), results showed that persons in hospital-based nursing homes were more disabled than those in community-based nursing homes. Also in an unpublished study in Hawaii, Hayashida (1986) arrived at the same conclusion.

The above questions form the basis from which the null hypotheses to be tested were developed and they guide the manipulation of the data from the two research surveys.
Conceptual Definitions

The following definitions describe the context in which the terms are used in this study:

1. **Adaptation** is the process of an individual's physical, psychological and behavioral modifications in response to stimuli from the environment.

2. **Decision** was used in this study in reference to the ICF survey. ICF subjects were all in the facility at the time of the survey, so at some point within the preceding five years, some person or persons decided that the individuals would enter the nursing homes. Certain questions in the survey refer to that decision.

3. **Disability** is a deficit in functional ability (deviation from what is considered to be a normal ability) caused by a chronic disease or a physical or mental condition (impairment).

4. **Influence** is used in this study in the context of to influence the decision to enter an ICF. Persons who played a role (participated) in making the decision to enter a long-term care institution are said to have influenced the decision.

5. **Risk factors** of institutionalization are precursors or variables which appear to influence the decision toward institutionalization; characteristics of the person (mental or physical) or his physical or social environments which
predispose the selection of long-term care services to institutionalization.

Scope of the Study

ICF residents were selected for the study because they were probably more similar to persons in the community than SNF residents who require 24 hour nursing care. In that way predictions of institutionalization other than physical condition would be more apt to surface in the analysis.

Because this study was concerned with LTC decisions made by older persons and their families, only people in ICFs who were 65 years of age or older when the research began and had community contact persons identified by the service providers were selected for the study. If the ICF had a name of a person in the community whom they could call regarding the resident, s/he was considered a community contact. In this retrospective study, in order to lessen the problem of recalling facts and situations accurately, selection was limited to persons who entered the ICF within the previous five years. Because of small numbers of other ethnic groups, only Japanese and Caucasians were selected for inclusion in the study. Research subjects were chosen from facilities on Oahu with 30 or more ICF level beds. The comparison data were provided by the Governor's Executive Office on Aging (EOA) from a 1981
random population survey of community-living elderly persons. This is referred to henceforth as the EOA data.

It is impossible to systematically test the large number of variables which affect an important life decision such as institutionalization. Variables considered in this research were outlined previously and are discussed again in Chapter III. While a few other studies on this topic have considered the effects of attitudes of both the individuals and their families on the decision, this research did not. The psychological coping patterns of decision-making are also outside the scope of this study.

Summary

The background of the research, a summary problem statement, and a discussion of the status of prior research were described in this chapter. The rationale for a systems approach to the problem was explained, and a conceptual framework for the study was provided. The research questions were presented and the comparison study groups identified. Conceptual definitions were provided and the scope of the study was delineated. In the next chapter, the literature which forms the historical background of the research will be reviewed.
CHAPTER II
REVIEW OF THE LITERATURE

The literature which contributed to the conceptualization of the research and was the source of the background information on which this long-term care study was formulated is described in this chapter. Literature is also introduced which described and contrasted methods of assessing individuals for long-term care placement. Studies that explored factors which placed persons at risk for institutionalization are also reviewed.

Background Literature

Between 1969 and 1980 there was a 27.1 percent increase in the number of nursing homes in the United States, a 73 percent increase in the number of nursing home beds, and a 97.8 percent increase in the number of full-time employees working in nursing homes. By 1980, there had been a 75% increase since 1969 in the number of persons residing in nursing homes (J. Hendricks & C.D. Hendricks, 1986). Those facts have precipitated a growing interest in the effectiveness, appropriateness and costs of institutional care for the elderly in the United States. This issue is of great concern to policy makers because of the high cost of maintaining steadily increasing numbers of people in LTC
institutions (Palmore, 1976). Questions have also been raised regarding the most medically appropriate and personally satisfying types of care for the elderly.

The functions of different levels of nursing homes have been ambivalently placed somewhere between those of hospitals and those of social programs (or private homes). Intermediate Care Facilities (ICF) provide care which consists largely of social services such as housing, homemaking, personal care, and recreation. They are required to have registered nursing care available 8 hours during the day. Skilled Nursing Facilities (SNF) offer services more like acute care hospitals in that they must provide 24 hours of licensed nursing care every day. Medicaid is a means-tested medical welfare program which provides medical care for the indigent or those who become indigent when Medicare or private resources are exhausted. Because much of the cost of nursing home care is paid by Medicaid, gerontologists believe that in the case of ICFs, our system may be using a medical approach (and funds) to solve a social need (R. L. Kane & R. A. Kane, 1980).

The majority of nursing homes in the U.S. are operated for profit (75%) and 70% of all the beds are in proprietary organizations (U.S. Nat'l Center for Health Statistics [USNCHS], 1977). In Hawaii in 1985, there were 11 government run nursing homes, 11 non-government, not for-
profit nursing homes and 12 investor-owned for-profit nursing homes (State Health Planning and Development Agency [SHPDA], 1985). On Oahu there were 11 for-profit, 8 not-for-profit and 2 government run nursing homes (SHPDA, 1985).

There is a serious shortage of nursing home beds in many areas of the United States. In Hawaii, the number of patients in acute care hospital beds awaiting transfer to lower level care facilities is a major concern to health planners. A one-day, state-wide survey in 1980 showed that of the 593 Medicare patients in hospitals on that day, 60 or 10.1% were awaiting placement in other facilities. Among the 382 Medicaid patients, 51 or 13.4% were awaiting transfer to lower level facilities (Paglinawan, 1981).

According to standards set by the Nursing Home Institutional Services Technical Advisory Group (a collaborative effort by the Hospital Association of Hawaii and the State Health Planning and Development Agency), Hawaii should have 30 to 40 nursing home beds per 1000 population over 65 years of age, plus or minus 5 percent. When approved beds are in operation, the statewide number of beds per 1000 population over 65 will be 29.2. In the City and County of Honolulu there will be 27.3 beds /1000 (SHPDA, 1985).
In 1980, the national average was 57.5 beds available per 1000 population over 65 years of age, showing that Hawaii has about half as many nursing home beds per population unit as the nation as a whole. Because of the growth in the numbers of older persons, it is estimated that there will be a need for 877 additional nursing home beds in Hawaii by 1990 (SHPDA, 1985).

The discrepancy between the number of nursing home beds in the United States as a whole (57.5) and the projected need for Hawaii (30-40), was explained by these points: (a) Although the population in Hawaii is aging faster than any other state, it is at present younger than the nation as a whole (8.7% 65+ vs 11.7% 65+). (b) Several recent studies have suggested that persons in Hawaii may be "healthier" than the nation as a whole. There are also fewer acute care beds in Hawaii per population than the nation as a whole which tends to support the previous statement (SHPDA, 1985).

Even though Hawaii seems to need proportionally fewer nursing home beds than the United States as a whole, there appears to be a shortage here. Occupancy rates of nursing home beds in Honolulu averaged from 94.4% to 95.9% in 1981, 1982, and 1983, compared to the National rate of 91.0% in 1980 (SHPDA, 1985). New construction of nursing homes is sometimes discouraged by policy-makers because of the
increasing high costs to state and local governments of maintaining Medicaid patients in such establishments.

The five percent of the elderly U.S. population who are in nursing homes are not representative of the general population of people over 65 years of age. Residents in nursing homes are more likely to be women, over age 75, white, widowed or never married. According to national statistics, about 40% of patients enter nursing homes directly from their residences. Another 35% enter from acute care hospitals and the rest arrive from specialty hospitals (8%), other nursing homes (14%), or boarding homes (2%) (USNCHS, 1977).

Changing population demographics, apparent shortages in nursing home beds, the high cost of maintaining persons in nursing homes (and their greater satisfaction on being cared for at home), and the need to learn why certain individuals are admitted, are some of the reasons why research is necessary on factors leading to institutionalization. Two critical elements described in the current literature which are very pertinent to this study are assessment for admission to various levels of services and risk factors for institutionalization. Each is explored in turn.
Assessment for Long-Term Care Placement

Establishing criteria for placement of elderly persons into the different levels of long-term care is a formidable challenge. Not only is appropriate admission to institutions important for reasons of public and private cost and availability of space but placement has important implications for elderly persons and their families as well. Reimbursement policies differ by type of placement and duration of care. To further complicate the process, there are several different agencies involved in certifying the level of care of patients. Programs such as Medicare, Medicaid, Veterans Administration, the Long-term Care Channeling Project, and the Nursing Home Without Walls determine eligibility of their clients, payments for services rendered, and they monitor clients and services.

It is important from a public policy point of view, to minimize unnecessary institutionalization because of the higher cost of care and the shortage of beds in nursing homes. In addition, the "iatrogenic diseases of institutional life" such as dependency, depersonalization, low self-esteem, lack of identity, lack of freedom, etc, described by E.M. Brody in 1973, suggest an array of social and psychological factors of importance.
The Medical Model

Many of the assessment instruments used to determine an elderly person's need for nursing home services are limited in scope, primarily focusing on functional status (medical model) as opposed to a more comprehensive approach including social and economic resources, and both physical and mental health measures (Grauer & Birmbom, 1975, Mitchell, 1978). One example of the former is the Patient Appraisal, Care Planning and Evaluation Program (PACE) which was developed by a consortium of Universities. It placed heavy emphasis on the medical and nursing needs of the elderly (R. L. Kane & R. A. Kane, 1980).

In a study by Foley and Schneider (1980) comparing the placement outcomes from using six different assessment systems on one group of patients, the agreement of placement between pairs ranged from 38% to 91%. Among placements of skilled nursing facility (SNF) patients, the agreement dropped to 39%. The analysis was limited to systems with well developed guidelines (New York State Patient Assessment, N.Y. Department of Mental Hygiene, Colorado LTC Placement, Massachusetts LTC Planning, Illinois Evaluation of Need, and Sandoz Pharmaceuticals Assessment) yet agreement on level of placement was the exception rather than the rule. Level of placement was shown to vary greatly by state of residence and
consequently patient care costs also fluctuate by state. In areas with less stringent guidelines, placement would be even less consistent.

Harris, Orr and Allaway (1982) studied the LTC placement of elderly persons using the New York State Patient Assessment Form (PAF) compared with placement decisions of physician-nurse assessment teams. They concluded that the assessment instrument matched the best judgement of the professionals with 90% concurrence. This is perhaps not surprising when one realizes that the PAF reaches its final score using medical and functional criteria and therapy needs much as a physician or nurse would. However, the assessment instrument did not consistently agree with five other assessment instruments from other parts of the country (Foley & Schneider, 1980).

The inconsistency of the level of LTC placement using functional assessment data, points to the probability of other factors influencing the placement of older persons in LTC services. The six instruments discussed above do not include collection of data on informal resources available to the client outside the medical care system.

Clark (1982) points out that using a single numerical score in placement decisions is sometimes expedient under administrative and fiscal pressures but there is danger of excluding other important criteria when a broader
perspective is not considered. He feels such instruments are limited and ignore or incompletely measure important environmental factors (such as family supports) affecting elderly individuals and their selection of long-term care.

The Social Model

Numerous studies have shown that the willingness and capability of friends and relatives to care for patients at home may influence institutionalization. Also the economic situation and personal preferences of elderly persons and their families may be important in the decision (Barney, 1977; Blazer, 1978; S.J. Brody, 1978; Dunlop, 1980; Greenberg & Ginn, 1979; R.L. Kane & R.A. Kane, 1980; Shanas, 1979; Townsend, 1965).

The Older Americans Resource and Service Program (OARS) instrument is a multidimensional, social model, assessment tool and is much more broad in scope than medical model instruments such as PACE. It gathers data in the following five general areas: social resources, economic resources, mental health, physical health and activities of daily living (ADL) (Pfeiffer, 1975).

After reviewing the literature regarding assessment methods, the OARS questionnaire, modified for use by informants rather than the subjects themselves, was used in this dissertation research. The modified instrument is consistent with the conceptual framework which emphasizes
the importance of a total, contextual, systems approach to studying adaptation decisions of elderly individuals. The researcher added several questions of interest to this research. The instrument takes into consideration the medical (physical), social, psychological, and financial criteria which contribute to the selection of type of care. Use of the OARS instrument in three surveys in North Carolina is described in the following section.

Studies of Long-Term Care Institutionalization

Previous research of risk factors for LTC institutionalization examined a broad mixture of variables on different types of samples and using several different methods of analysis. The following is a description of selected research studies which have examined precursors (risk factors) to long-term care institutionalization.

In a longitudinal study of 100 subjects matched for age, sex and diagnosis, (50 experimental, 50 control), Nielsen et al. (1972) found that elderly people in Cleveland who received home health care and lived with another person in the same household were less likely than persons living alone to be institutionalized (Neilson, Blenkner, Bloom, Downs and Beggs, 1972).

In a twenty year longitudinal study in Durham, North Carolina, Palmore (1976) followed 207 elderly persons beginning in 1955 until their deaths. He found that living
alone, being unmarried, having no living children, and being female characterized the 57 persons who entered LTC institutions. Those living alone had a higher rate of institutionalization (33% compared to 24% for those not living alone). Also, persons at the lowest socio-economic level were much less likely to enter an institution.

Townsend contrasted demographic and social characteristics of 530 residents in 173 LTC institutions in England and Wales with non-institutionalized elders in the same regions. He found those in institutions were generally older, unmarried or widowed, married but without children, isolated, lacking social services or recently bereaved of a supporting relative (Townsend, 1965).

E.M. Brody (1969) compared the attitudes of 50 elderly applicants to a LTC institution with 48 elders who considered entering the institution but did not actually apply. In her study of attitudes, she found those who entered the institution had more favorable attitudes toward institutionalization and also had multiple health problems.

In a Canadian study which compared demographic, social and health characteristics of 193 applicants to LTC institutions and 141 older persons living independently in the community, applicants were more likely to be older, women, living with a spouse less often, in poorer health, less socially involved, receiving more help from relatives
and friends and reporting lower incomes (Kraus, Spasoff and Beattie, 1976).

In a 1978 Pennsylvania study, 46 community-living elders receiving home-care services were compared with 140 nursing home (SNF) residents. They found that the nursing home residents had previously lived alone, and had less family support than the ones receiving home care. Differing levels of ability to function did not predict institutionalization in that research (S.J. Brody et al., 1978).

In a multivariate study, Greenberg & Ginn (1979) also compared institutionalized older persons (n=139) with elders in the community receiving home care (n=127). Their data showed the former were more likely to have been women, widowed or unmarried and without children. They had a greater number of medical conditions and were more functionally disabled. They preferred an institutional setting, had no help from relatives, were unable to take medication, were less able to make decisions and were better off financially.

A statewide probability sample of 1625 elderly persons in Massachusetts was studied prospectively by Branch and Jette (1982). They used logistic multiple regression to research the value of 19 independent variables in predicting institutionalization. One hundred forty seven persons entered LTC institutions during the six years of
The variables were grouped into six categories: demographic characteristics, attitude, social context, long-term care needs, physical disability and mental/emotional disability. Five variables were significantly related to institutionalization: advancing age, using ambulatory aids, mental disorientation, living alone and using assistance to perform "instrumental" activities of daily living.

The risk factors in the Branch and Jette study provide support for four of eight parameters used by British practitioners to identify elders at risk of needing long-term care services. The British factors are: recent bereavement; living alone; defects of sight, mobility, or hearing; aged 70 years or more; mental disturbance; and not seeking medical attention for six months (Weiler, 1978).

Smallegan (1981) carried out a preliminary study in North Carolina in 1981 to determine who participated in the decision to enter a nursing home and to identify variables precipitating the decision. Based on interviews of 19 nursing home residents and persons from their support groups, her data indicate that elderly persons themselves are prominently involved in the decision and doctors and offspring often participate. She found difficulty with ambulation the most common factor precipitating institutionalization.
Two large LTC studies were conducted by Barney (1977) in Detroit. The first was the 1973 Nursing Home Patient Study of 765 nursing home residents. The second was the 1974 Well-Being Service for Aging which gathered and analyzed data on 617 subjects receiving supportive home services (Barney, 1977). These studies resulted in the following observations: (a) 40% of all nursing home residents were able to perform activities of daily living without assistance; (b) 48.2% of all residents entered the institution paying for their care through private means; and, (c) few married people ever enter nursing homes and those who do are clearly more functionally dependent.

The OARS multidimensional assessment tool was developed at Duke University by Pfeiffer (1978) and was used in the conduct of three surveys to obtain information on the functional status of the elderly population of Durham County, North Carolina. The surveys were: (a) a random sample of 10% of the community resident elderly (65+), N=972 (b) a stratified random sample of 20% of the elderly (65+) in institutions, N=102, and, (c) all consecutive new clients coming to the Older Americans Resources and Services (OARS) clinic within a twelve month period, N=98 (Blazer, 1978).

Blazer found that, of the three groups, the institutionalized persons were older, and were more likely
to be widowed or never married. On the whole institutionalized persons were more functionally impaired but not markedly more than the clinic population. This is not surprising as some of their clinic study group were living in institutions. There were individuals still residing in the community who were as impaired as most of the people residing in institutions. Impairment was measured in five areas: social, economic, physical, mental and ADL abilities.

Blazer's sample of community elders included 328 blacks out of a total of 972. The blacks were consistently more impaired than whites in each of the five areas, particularly economically. There appeared to be a gradient in impairment with community-living elders the least impaired and the institutional population the most impaired. There was significant overlap among clinic patients and institutionalized elderly which was interpreted to mean individuals referred to their clinic may be at risk for institutionalization (Blazer, 1978; Pfeiffer, 1978). Two problems with the study design were evident. In addition to including institutionalized persons who attended their clinics in the clinic study group, they combined different levels of nursing homes in their institutionalized group.
In Cleveland, a study to assess the well-being of older persons at one point in time and again one year later, also used the OARS questionnaire. The research was funded by the U.S. General Accounting Office (GAO) for the purpose of developing a systematic method for evaluating complex LTC programs or for evaluating the needs of a community sample of older persons. The results of consistent, meaningful evaluations would assist policymakers in arriving at informed policy decisions regarding appropriateness and effectiveness of services (Lauri, 1977). The Cleveland survey results have been compared with data of similar surveys conducted in Oregon, Kentucky and Hawaii using the OARS questionnaire (U.S. GAO, 1980).

The use of the same functional assessment instrument in research conducted in diverse parts of the country, makes possible interesting comparisons among different samples. However, there are questions concerning true comparability of the studies because of timing, sample variations, interviewer inconsistency, and population differences. These studies seem to illustrate that the situations for elderly persons vary from one geographic area to another and that national data may be misleading if applied to local regions.

There are major difficulties in comparing the results of the investigations cited in this chapter because they
were carried out in three different countries, were mostly based on non-probability samples, research varied by type of service or community setting, several of the studies were bivariate and most were cross-sectional and/or retrospective. None of the studies investigated the availability of alternative services or the influence of public policy (government reimbursement) on the decision to institutionalize (Gurland et al., 1981; Kane & Kane, 1980). Only two studies were found to address the question of who actually made or contributed to the institutionalization decision (Hausman, 1976; Smallegan, 1981). With the exception of Palmore (1976) and Blazer (1978), ethnic differences in these studies have been almost completely ignored, usually because of small numbers of ethnic minorities in the study samples (Estes & Freeman, 1976; Kalish, 1971; Kent, 1971; Palmore, 1976).

Hedrick and Inui (1986) conducted a detailed review of twelve studies measuring the effectiveness of home care programs. The authors first carefully investigated and rated the methodologic soundness of the studies and then selected the twelve which met their criteria for ability to produce meaningful data. Eight of the studies examined the effects of utilizing home care as a substitute for institutionalization. Four of the eight studies showed insignificant differences in institutionalizations among
persons using or not using home care. The other four showed inconsistent results. It has been hypothesized that utilizing home care services might prevent, delay or replace institutional care. They concluded that utilizing home care services has no effect on nursing home placements.

From their review of seven studies which investigated factors related to LTC institutionalization, Branch and Jette (1982) concluded that: "none of the factors studied consistently differentiate institutionalized from non-institutionalized elders." However, all of the studies provide strong clues which begin to suggest certain precursors to institutionalization. They emphasized the importance of following up on identified possible risk factors with further research along with additional variables not previously tested.

Summary

Chapter II has examined literature which described long-term care placement problems, looked at various assessment methods used to determine appropriate LTC placement for elderly persons, and reviewed research relating to factors which may predict the need for institutionalization. Exploring previous research leads to
these conclusions: the studies do not consistently identify precursors to institutionalization, some do not consider a wide range of variables, they are methodologically varied, most have not considered ethnic differences, and none were carried out in Hawaii. There is clearly a need for further research on the topic of institutionalization of the elderly.

Figure 2 illustrates the variables investigated by selected researchers which were thought to be possible predictors of institutionalization and the results of their research. The table was taken from the study by Branch and Jette (1982) and other authors and variables were added. There are blanks where it was not known if the variables were studied. The one consistent characteristic of institutionalized persons was "lacks support" but not all studies included that variable. Of the other variables, not even age consistently characterized institutionalized persons in the studies.
### Figure 2

**Summary of Factors Related to LTC Institutionalization in Ten Investigations**

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<td>+</td>
<td>0</td>
<td>-</td>
<td>+</td>
<td>+</td>
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<td>+</td>
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<tr>
<td>Widowed or single</td>
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<td>-</td>
<td>0</td>
<td>+</td>
<td>0</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>0</td>
<td>-</td>
<td>+</td>
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<td>0</td>
<td>+</td>
<td>0</td>
<td>+</td>
<td>0</td>
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<tr>
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<td>-</td>
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<td>0</td>
<td>0</td>
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<td>0</td>
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<td>+</td>
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<tr>
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<td>Recent loss</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Health</td>
<td>Poor health</td>
<td>0</td>
<td>-</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Poor eyesight</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Functional disability</td>
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<td>-</td>
<td>+</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Mult. problems</td>
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<td>+</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mult.medical cond</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
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<td>Unable take meds</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Uses ambulation aid</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Ass't with ADL</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Ext. util. hl'th serv.</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Incontinence</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>Cum. impairment score</td>
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<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Attitudinal</td>
<td>Perception of health</td>
<td>+</td>
<td>+</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Favors instit.</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Cannot make decision</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lonely</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mental orientation</td>
<td>+</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

*+ - Characterizes institutional elderly
* - Characterizes non-institutional elderly
- - Does not differentiate
0 - The variable was not included in the study

Adapted with permission of the authors, Branch, L. G., & Jette, A. M., A Prospective Study of Long-Term Care Institutionalization Among the Aged. *American Journal of Public Health*, 72 (12), 1982.
CHAPTER III
RESEARCH METHODOLOGY

The research methodology employed in the conduct of the study is described in this chapter. It includes a description of the hypotheses to be tested, the research design, the study groups and the populations from which the samples were drawn, operational definitions, independent and dependent variables, instrumentation with a discussion of reliability and validity, data gathering procedures, considerations of limitations of the research, and the analytic methods used.

Null Hypotheses

The following are the null hypotheses which were tested by this research:

1. There are no statistically significant differences (p =< .05) in demographic, social, economic, mental and physical health, and ADL variables among older persons who are utilizing three levels of long-term care: persons about to enter intermediate care facilities, persons using home care, or those not using home care.

2. There are no statistically significant associations (p =< .05) between pairs of selected demographic factors, impairment measures, social and economic resources, and/or
ADL abilities relating to persons using three levels of care.

Ancillary Questions:
A Are there statistically significant (p =< .05) correlations between selected characteristics and ethnicity (Japanese and Caucasian) of persons using three levels of care?
B Which independent variables (measuring characteristics of elderly persons utilizing three levels of care) included in a discriminant model, most successfully classify individuals into the three levels of care (dependent variable)?

3. There are no significant differences (P =< .05) in the degree of disability of older persons in free-standing ICFs and hospital-based ICFs or for-profit ICFs and not-for-profit ICFs.

Research Design
The primary purpose of this cross-sectional, quasi-experimental, retrospective research was to investigate possible determinants (precursors) of the decision to enter intermediate care facilities and to identify types of elderly persons who are at higher risk for institutionalization.
Comparisons of the results of the following two surveys form the basis of the research:

1. Family members of institutionalized intermediate care facility (ICF) residents were questioned about the elderly persons' situations at the time they entered the Oahu facilities (ICF survey). This survey was conducted from September 1984 to July 1985 by the researcher.

2. Elderly persons who were living in the community were surveyed and subjects were divided into two groups for this study: those receiving home care and those who were not (EOA survey). This survey was conducted from May to September 1981 by the State of Hawaii Executive Office on Aging.

This resulted in three comparison groups: (a) elderly persons at the time they entered ICFs (ICF), (b) community living elderly persons receiving home care (HC) and (c) community living elderly persons not receiving home care (NHC). Home care was defined as anyone receiving day care, home nursing, home therapy, homemaker services, meal preparation, mental health services, personal care, constant supervision, or checking services (one or more provided formally or informally).

The composition of the HC group was dependent on which home care services were arbitrarily included in
defining the group. By including checking services (someone checked on them every day), which many not very impaired persons have, it biased the group more toward the less impaired community group who were not using home care services. After this was observed, frequencies were run to determine how omitting persons who were only receiving checking services would affect the group size. There were 49 persons in that category so removing them from the HC group of 129 persons would have left only 80 in the comparison group. Because of the relatively small number, it was better to use all 129 subjects and have less discrimination between the HC and NHC groups.

Figures 3 and 4 illustrate pertinent information about the study design. The diagrams show that a majority of the ICF subjects entered the nursing homes in 1980, 1981 and 1982, close to the time of the EOA survey (1981). Because most of the participants of the study groups were contemporaries, it reduced the chance of historical error in internal validity. Also, 83.6% of the ICF subjects were in the nursing home three years or less when selected for the study. More recent institutionalization tended to increase the chance of accurate recall of circumstances leading to entering the nursing home.
Figure 3  
Sequence of Institutionalization and Surveys

Figure 4  
Research Study Groups
Population and Sample

Intermediate Care Facility Group (ICF)

The ICF survey was carried out by the researcher using survey questions pertaining to the elderly persons' situations at the time they went into the nursing homes. The time they had spent in the nursing homes was limited to not more than five years so they entered the facilities from 1979 to 1984. There were 91 subjects in the group.

The research was described to all administrators of long-term care facilities on the Island of Oahu which had at least thirty intermediate care level beds at that time. They were given copies of the research proposal and evidence that the study had been approved by the University of Hawaii Committee on Human Subjects and the Kuakini Health Systems Office of Research and Development.

Administrators were asked to participate in the study by providing the names and telephone numbers of the residents' community contact persons. They were provided the criteria for selection of participants and forms for the lists. Usually the administrators had to take the matter of participation to a board of directors or a research board for approval. This was a very long process because of their understandable consideration for confidentiality of patient information and anxiety over legal ramifications. This process took 15 months to
complete and resulted in seven of the ten administrators agreeing to participate. Ultimately, six provided lists of residents' community contact persons. With only one exception, the contact persons were close family members.

Criteria for selection of the study group were: sixty five years of age or older, both men and women, Japanese or Caucasian, had a community contact person, and had been in the ICF no more than five years. Other ethnic groups with fewer persons in the population were not included because of the large overall sample size which would have been required to obtain adequate cell sizes for appropriate analysis of ethnic differences. The five year limit on length of time in the ICF was arbitrarily set because of the difficulty in recalling events accurately over a longer period of time.

Originally the plan was to combine the lists of eligible participants provided by the ICF administrators and then randomly select the study sample from that population. The total number was less than expected, however, and not knowing what the response would be, it was decided to contact everyone on the lists to request participation. The result was that the entire eligible population was contacted. The response rate was 33.7 %.
Table 1
Characteristics of ICF Nursing Homes on Oahu With 30 or More Beds and the ICF Study Group

<table>
<thead>
<tr>
<th>ICF POPULATION DATA</th>
<th>ICF STUDY PARTICIPANTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PART MEET CRIT</td>
<td>AGREE JAPAN CAUC MALE</td>
</tr>
<tr>
<td>ICPs</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>82</td>
</tr>
<tr>
<td>2</td>
<td>44</td>
</tr>
<tr>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>4</td>
<td>48</td>
</tr>
<tr>
<td>5</td>
<td>38</td>
</tr>
<tr>
<td>6</td>
<td>28</td>
</tr>
<tr>
<td>TOTAL</td>
<td>270</td>
</tr>
<tr>
<td>%</td>
<td>72.6</td>
</tr>
</tbody>
</table>

NON PART ICPs

<table>
<thead>
<tr>
<th>7</th>
<th>25</th>
<th>22</th>
<th>3</th>
<th>6</th>
<th>19</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>12</td>
<td>5</td>
<td>7</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>9</td>
<td>33</td>
<td>12</td>
<td>21</td>
<td>7</td>
<td>26</td>
</tr>
<tr>
<td>10</td>
<td>68</td>
<td>47</td>
<td>21</td>
<td>14</td>
<td>54</td>
</tr>
<tr>
<td>TOTAL</td>
<td>138</td>
<td>86</td>
<td>52</td>
<td>32</td>
<td>106</td>
</tr>
<tr>
<td>%</td>
<td>62.3</td>
<td>37.7</td>
<td>23.2</td>
<td>76.8</td>
<td></td>
</tr>
</tbody>
</table>

ALL 10 ICPs

| TOTAL | 408| 282| 126| 116| 292| 84.1|
| %     | 69.1| 30.9| 28.4| 71.6|
Table 1 describes the resulting ICF study group by institution. Background data from non-participating nursing homes were obtained to define and describe the characteristics of the Oahu ICF population (those with 30+ ICF beds) and determine if the study participants were representative of the six participating ICFs and also of the ten Oahu ICFs meeting the study criteria.

The percent of males and females, and Japanese and Caucasians in the ICF study group were very similar to the percents in the total participating ICF populations. There were 3.4 percentage points difference in ethnic distribution and 2.1 percentage points difference in sex distribution. The mean age of the participating ICFs was 84.4 and that of the research group was 85.5. In comparing the study group and the total ICF population (participating and non-participating), the greatest difference was 6.9 percentage points in the ethnic distributions. The sex distributions were less than one percentage point different.

The mean age for all the ICFs was 83.6 compared to the study group which was 85.5. This information suggests that the study group is quite likely representative of the population in the larger ICFs (30+ beds) on Oahu at that time with a slight over-representation of Japanese persons.
A General Linear Model (ANOVA) procedure (GLM), appropriate for an unbalanced design was carried out to determine if the participating and non-participating ICFs were significantly different on three parameters: ethnicity, sex and age. The results were as follows:

<table>
<thead>
<tr>
<th></th>
<th>F - value</th>
<th>P &gt; F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>3.08</td>
<td>0.0801</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>4.20</td>
<td>0.0411</td>
</tr>
<tr>
<td>Age</td>
<td>0.89</td>
<td>0.3454</td>
</tr>
</tbody>
</table>

There were not significant differences between participating and non-participating ICFs regarding either sex or age distribution. There was barely a significant difference (p =< .05) between the groups regarding ethnicity with a p = 0.04. Because of this, generalizations of research results regarding ethnicity to the total ICF population (meeting the research criteria) should be carried out with appropriate caution. However, the data suggest that the study group is likely representative of the 10 ICFs in age and sex distribution.

Community Living Comparison Group (EOA)

The Executive Office on Aging (EOA) in Hawaii received funding under Title III of the Older American Act of 1965 which stipulated that funds be allocated to areas of greatest economic or social need. In order to comply, they conducted a statewide survey (EOA survey) in 1981 to assess
the perceived needs of individuals age 60 and over. The instrument they selected for the survey was the Older Americans Resources and Services (OARS) Multidimensional Functional Assessment Questionnaire.

The EOA sample was 100% of individuals identified as age 60 and over in the Hawaii Department of Health's Health Surveillance random population sample survey of 1980 and supplemented by the last quarter of 1979 (Hawaii Department of Health, Health Surveillance Program [HSP], 1979). The total number of individuals identified was 2,030. There were 1,108 interviews completed for a response rate of 55%. When persons age 65+ and Japanese and Caucasians were separated out for the present study, 505 subjects remained in the sample, 129 using home care and 376 who were not.

If only Oahu data were used for the home care (HC) and the no home care (NHC) groups for comparison with the Oahu ICF group, the n sizes would have been HC= 47 and NHC=152. Because an n of 47 was very small for the desired analyses, calculations were made to identify any differences between EOA Neighbor Island data and EOA Oahu data using forty three important variables. Several variables showed significant differences in the comparisons (.05), notably education and income (both were higher on Oahu than the Neighbor Islands).
Otherwise, most of the variables exhibited no significant differences. Because there were few differences, and because of the larger n size, it was decided to use EOA state data for the comparison HC and NHC groups. Special note was taken of the variables with significant differences to determine the direction of the bias and mention of how calculations were affected will be made when appropriate.

Table 2 shows how the EOA sample compared to the Health Surveillance data and the 1980 census data by ethnicity, sex and age. The close comparisons suggest that the sample was most likely representative of the Hawaii population.

Research Variables

Independent variables

In concordance with the conceptual framework of the research, a comprehensive, systems analytic approach was utilized in gathering information about the many factors which might influence the LTC decision. Data were collected in the following categories:
Table 2

The Executive Office on Aging Survey Sample Compared to the Health Surveillance Program Data and 1980 Census Data

<table>
<thead>
<tr>
<th>AGE</th>
<th>EOA %</th>
<th>HSP %</th>
<th>1980 CENSUS %</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 - 64</td>
<td>26.2</td>
<td>32.5</td>
<td>33.2</td>
</tr>
<tr>
<td>65 - 69</td>
<td>29.8</td>
<td>30.2</td>
<td>25.6</td>
</tr>
<tr>
<td>70 - 74</td>
<td>22.1</td>
<td>18.7</td>
<td>17.7</td>
</tr>
<tr>
<td>75 - 79</td>
<td>12.4</td>
<td>9.5</td>
<td>12.0</td>
</tr>
<tr>
<td>80+</td>
<td>9.5</td>
<td>9.1</td>
<td>11.5</td>
</tr>
</tbody>
</table>

N = 1,108  N = 2,030  N = 113,944

<table>
<thead>
<tr>
<th>ETHNICITY</th>
<th>EOA</th>
<th>HSP</th>
<th>1980 CENSUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japanese</td>
<td>40.4</td>
<td>36.7</td>
<td>37.0</td>
</tr>
<tr>
<td>Filipino</td>
<td>16.9</td>
<td>15.5</td>
<td>14.4</td>
</tr>
<tr>
<td>Chinese</td>
<td>5.0</td>
<td>6.7</td>
<td>8.6</td>
</tr>
<tr>
<td>Haw./Pt. Haw</td>
<td>9.1</td>
<td>11.0</td>
<td>7.1</td>
</tr>
<tr>
<td>Caucasian</td>
<td>23.4</td>
<td>25.3</td>
<td>28.6</td>
</tr>
<tr>
<td>Others</td>
<td>5.1</td>
<td>4.8</td>
<td>4.0</td>
</tr>
</tbody>
</table>

N = 1,108  N = 2,030  N = 113,944

<table>
<thead>
<tr>
<th>SEX</th>
<th>EOA %</th>
<th>HSP %</th>
<th>1980 CENSUS %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>54.5</td>
<td>53.7</td>
<td>50.2</td>
</tr>
<tr>
<td>Female</td>
<td>45.4</td>
<td>46.3</td>
<td>49.8</td>
</tr>
</tbody>
</table>

N = 1,107  N = 2,030  N = 113,944

Ethnicity: EOA and HSP are self reports. Census data are:
(a) For persons who could not provide a single response, race of mother was used. (b) If no single response was provided by mother, then first race reported by person was used.

Census Data: Data derived from PC80-1-B13 General Population Characteristics, Hawaii.

Others: include all other ethnic groups.
1. Demographic (includes identification of Japanese and Caucasian ethnic groups)
2. Social resources
3. Economic resources
4. Mental health
5. Physical health
6. Activities of daily living
7. Utilization of services
8. Participants of the decision to institutionalize

The OARS questionnaire, which was used by both the ICF and the EOA surveys, contained over 200 factors from the above categories which might impact on the LTC decision. Those variables were the independent variables of the study. The instrument used for the ICF survey is in the appendix.

Dependent Variable

The dependent variable of this research is the level of care being utilized by the participants. There are three possible outcomes: (a) those in 24 hour intermediate care facilities (ICF), (b) those living in the community and receiving home care (HC), and (c) those living in the community and not receiving home care services (NHC).

Operational Definitions

The categories of variables investigated in this research were listed above. The following descriptions clarify the meaning of those categories.
1. **Demographic** data describe vital and social characteristics of the research subjects such as age, sex, place of birth, place of residence, and education.

2. **Social resources** of the subjects were measured by five questions regarding marital status, with whom was the subject living, how long had the person been in the ICF (5 years or less), how often does the person socialize, and information about the availability and identity of a caregiver.

3. **Economic resources** were measured by fourteen questions on type of work (for most of life), spouse's work, income, ownership of home, home rental and health insurance.

4. **Mental health** scores were derived from four questions about the subjects' ability to show common sense, how well they handled problems, if they found enjoyment (satisfaction) in life, and the respondents' ratings of mental health of subjects.

5. **Physical Health** ratings were derived from ten questions, one of which had inquiries regarding 26 diseases or pathological conditions. Other questions pertained to seeing a doctor, hospitalizations, hearing, sight, fractures, drinking, and respondents' ratings. Another question had 12 parts and determined if subjects used an aid such as a cane or wheelchair.

6. **Activities of Daily Living** abilities (ADL) were determined by questions which were divided into two
categories, seven on instrumental ADL and ten on basic ADL. BADL have to do with ability to carry out very basic activities which are necessary for functioning such as eating, dressing, bathing and toileting. IADL are activities which are not as basic but desirable for minimum quality of life such as handling money, using the telephone, riding a bus or taxi, shopping, preparing meals or taking medicine.

7. **Utilization of a variety of home care services** by ICF residents at the time they entered the nursing home was measured by fifteen questions.

**Instrumentation**

In order to obtain the needed information in each category of variables described above, the Older American Resources and Services (OARS) Multidimensional Functional Assessment instrument was used. It was developed at the Center for the Study of Aging and Human Development at Duke University (Pfieffer, 1978). The questionnaire has been used in large research studies in several areas of the United States including Ohio, Oregon, Kentucky and Hawaii (United States General Accounting Office, [GAO], 1984). It was the Hawaii study data (EOA) on community-living elderly persons which comprised the comparison group for the Hawaii ICF data collected by the researcher. The OARS instrument
with certain additions was used to collect both sets of data.

The OARS instrument collects data on five dimensions of functioning: social resources, economic resources, mental health, physical health and activities of daily living (ADL). It also assesses the individuals' utilization and perceived need for a variety of services. For the ICF survey the instrument was modified by the researcher to include other items intended to answer additional research questions. The items added investigated who participated in the LTC decision, whether the elderly person was on a waiting list to enter the ICF, and whether there were services that would have helped the caregivers care for their older relative at home. The EOA questionnaire was modified only by the addition of several demographic questions such as: "where were you born" and "how long have you lived in Hawaii?"

To test the validity of the OARS instrument at Duke University, Fillenbaum (1978) compared the results of OARS assessments carried out in two settings: 1) regular clinic interviews and 2) those conducted by psychiatrists for the mental health dimension and by physicians' assistants for the physical health portion. They concluded from the validity tests that the instrument in fact measures level of functioning for social resources, economic resources, mental health, and physical health. They felt the ADL
measurements of the OARS instrument may underestimate true ADL difficulties (Fillenbaum, 1978).

It was also shown that the OARS questionnaire discriminated among groups known to differ, such as community residents, clinic clients, and institutionalized elderly persons. However, there was overlap among their groups as some clinic patients were from institutions and their institution study subjects were from all levels of institutions. Test-retest reliability, inter-rater reliability, and intra-rater agreement were reported to be satisfactory (Fillenbaum, 1978).

For the present research, a reliability analysis (Chronbach, 1951) was conducted on both data sets using scales made up of items from five categories of variables: social resources, economic resources, physical health, mental health and activities of daily living. The analysis shows the extent to which there is internal consistency in responses to test items. The results are shown on Table 3.

The instrument seems to have performed reliably for mental health, physical health and ADL scores in both surveys. The alpha values for social resources were low and almost identical for both the ICF and EOA surveys.
Table 3
Reliability Analyses

<table>
<thead>
<tr>
<th>Data Set</th>
<th>Items</th>
<th>Cases</th>
<th>Items</th>
<th>Cronbach's Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICF</td>
<td>Mental Health</td>
<td>91</td>
<td>4</td>
<td>.6145</td>
</tr>
<tr>
<td>EOA</td>
<td>Mental Health</td>
<td>505</td>
<td>21</td>
<td>.9567</td>
</tr>
<tr>
<td>ICF</td>
<td>Social Resources</td>
<td>91</td>
<td>11</td>
<td>.1946</td>
</tr>
<tr>
<td>EOA</td>
<td>Social Resources</td>
<td>505</td>
<td>17</td>
<td>.2104</td>
</tr>
<tr>
<td>ICF</td>
<td>Economic Score</td>
<td>91</td>
<td>17</td>
<td>.2506</td>
</tr>
<tr>
<td>EOA</td>
<td>Economic Score</td>
<td>505</td>
<td>13</td>
<td>.8915</td>
</tr>
<tr>
<td>ICF</td>
<td>Physical Health</td>
<td>91</td>
<td>42</td>
<td>.6231</td>
</tr>
<tr>
<td>EOA</td>
<td>Physical Health</td>
<td>505</td>
<td>48</td>
<td>.9832</td>
</tr>
<tr>
<td>ICF</td>
<td>ADL Score</td>
<td>91</td>
<td>17</td>
<td>.7822</td>
</tr>
<tr>
<td>EOA</td>
<td>ADL Score</td>
<td>505</td>
<td>18</td>
<td>.9532</td>
</tr>
</tbody>
</table>

It appears that the instrument was not an internally consistent measure of economic resources for the ICF residents. This is elaborated on in Chapter V under discussion. The instrument appears to measure social resources less reliably than the other variable categories in both surveys.

Data Gathering Procedures

To obtain the ICF group information, family contact persons were interviewed. The ICF respondents were asked questions relating to the situation of their elderly relatives at the time they entered the long term care institutions, not at the time of the interview. Because the study was retrospective and depended on the recall
ability of the respondents, there were important reasons for interviewing the community contacts rather than the elderly persons themselves. First, most of the family contacts were from a younger generation and were more likely to be fluent in English. Second, it was believed that many of the nursing home residents would be mentally unable to recall circumstances at the time the decision was made to enter the nursing home. That was later borne out by the data, when respondents reported that 71.4% of ICF residents were mentally impaired. Data regarding the community living elderly (EOA) were usually obtained from the subject but occasionally with an informant present.

Interviews of ICF respondents were conducted at convenient locations for them, usually in their homes or at the nursing homes when they were visiting, and occasionally at another meeting place. Japanese speaking interviewers were available but were actually needed only once or twice. The three interviewers who did the most interviews (other than the researcher) were two retired female social workers and one retired male counselor. Two were Japanese and one was Caucasian. Many respondents were themselves elderly and it was believed that they might be comfortable with older interviewers. Interviewers for both the EOA and ICF studies were trained by the same person which added to the consistency of interview methods in the two surveys.
The research was described to respondents and they were assured of confidentiality of the information. They all read and signed informed consent forms. The interviews averaged an hour in length but were invariably followed by conversations about caring for the elderly.

Limitations of the Research

An inherent weakness of retrospective research is the inability to control the independent variables because they have already occurred (Kerlinger, 1973). Also, in retrospective research, subjects cannot be assigned randomly to dependent variable groups. There are questions concerning the accuracy of recall and the willingness to answer truthfully in this type of research. To improve recall, subjects were only accepted if they had been in the ICF five years or less. Most subjects had been in the nursing home less than three years. Another limitation of this study is the risk of improperly interpreting results because it is impossible to consider every possible independent variable.

Research that takes measurements at one point in time (cross-sectional) confounds the effects of age and cohort factors which can be a threat to internal validity (Baltes & Nesselroade, 1979). Age and cohort differences in this
study were minimized because all subjects were age 65 or over so comparisons were not made over a wide age range.

Institutionalization of an elderly parent is an emotional and psychologically complex experience. It is possible that the intrusiveness of the interview topic may have affected the willingness of persons to participate in the study. However, respondents were told that all information was confidential and no names would ever be revealed. They were also advised that they could decline to answer any question if it made them uncomfortable, and they could terminate the interview at any time.

Because the EOA data are from a different sample taken at a different time by different interviewers, there are questions concerning the comparability of the two data sets. However, both surveys used the Older Americans Resources and Services (OARS) instrument and interviewers for the two surveys were trained by the same person. Both factors would tend to increase the comparability of the studies. The timing of the two surveys was discussed earlier in this chapter. It was explained that, because the ICF study was retrospective, factors examined by the two surveys took place at approximately the same time. The size of the ICF study group was necessarily limited by constraints of time, financial limitations and potential respondents' willingness to participate.
The origin of the two surveys could possibly affect the perceptions of potential participants and their willingness to take part in the studies. The Executive Office on Aging survey had the (at least tacit) approval of the Governor whereas the ICF study was conducted by a doctoral student with the approval of the University of Hawaii Office of Research Administration and Kuakini Medical Center's Research Committee. The effect of the different sponsorship of the two surveys on response rate of potential subjects, is unknown. However, either the intrusiveness of the topic or the origin of the surveys may have contributed to the lower overall response rate for the ICF survey (34% compared to 55%).

Statistical Analysis

In analyzing the data for this research, both the Statistical Package for the Social Sciences (SPSSx) (Nie, 1985) and the Statistical Analysis System (SAS) (1985) were used as appropriate for certain procedures. Data entry, verification and analyses were carried out on the University of Hawaii IBM 3081D computer system.

The following statistical methods were used in the data analysis:

1. Cronbach's Alpha coefficient was used to assess the internal consistency (reliability) of the two instruments (ICF and EOA) in measuring the same variables or
constructs. When applied to an instrument, it shows the extent to which the items in a test tend to measure the same thing.

2. *Univariate analyses* were first used to describe the variables and characteristics of the three study groups.

3. *Analysis of Variance (ANOVA) in the General Linear Model (GLM) Procedure* (SAS Statistical Package) was used to test for significant differences among persons using the three levels of care by selected variables. The GLM procedure uses the method of least squares to fit the general linear model and is appropriate for unbalanced designs. The procedure, using the Contrast Option, gives p values for three combinations of bivariate comparisons among the three levels of care.

4. *Pearson's correlations* were used to identify significant relationships between pairs of 44 selected independent variables in each study group. These data were used to examine patterns of bivariate association across the three groups and to select variables which might be subjected to further analysis.

5. *Analysis of variance (ANOVA)* was used to determine if there were significant statistical differences between two groups of uneven size. For example, it was used in the determination of differences in the level of disability
between hospital-based and free-standing ICFs or between for-profit and not for-profit ICFs.

6. **Discriminant Function Analysis** was conducted using a selected set of independent variables which measured characteristics on which the three study groups were expected to differ. The purpose was to statistically distinguish among the groups. The mathematical objective was to weight and combine the variables so that the groups were forced to be as distinct as possible. The test determines to what extent the selected variables place individuals into the respective groups more accurately than by chance (33.3%).

7. **Multiple regression** analysis was used to determine the extent to which each predictor variable contributed to the decision to place subjects in the three levels of care. The SAS procedure used was CATMOD which is a maximum likelihood regression analysis (SAS, 1985).

**Summary**

In this chapter a description of the methodology used in the conduct of this research was provided. Details of the design of the cross-sectional, retrospective study were explained. The research hypotheses were stated and the variables examined were described. Data gathering procedures of the two surveys which were the source of the research data were explained and the representativeness of
the study populations discussed. The three comparison groups were defined. The origins and history of use of the research instrument were delineated and tests of its reliability were discussed. Operational definitions of methodological terms used in the chapter were stated. Limitations of the research were recognized and steps to deal with them explained. Finally statistical analysis procedures used in the research were outlined. Research findings are detailed in Chapter IV.
CHAPTER IV
FINDINGS

As described in the previous chapter, the comparison groups examined in this study included only persons 65 years of age and over. Three categories of research subjects were compared: those living in the community and not receiving home care services (NHC); those living in the community and receiving home care services (HC); and persons at the time they entered intermediate care facilities (ICF). In this chapter, variables believed to be important classifiers of persons in the three levels of care were described and compared within and across groups. The research hypotheses provided the organizational framework for this chapter and the extent to which the hypotheses were supported by the data was reported.

Information provided in Chapter III on the research methodology, demonstrated that the ICF study group was a relatively accurate representation of the elderly in Oahu ICFs. To summarize those findings: 1) a substantial number of ICFs on Oahu with 30 or more beds were included in the study (6 out of 10); and, 2) when compared to population data of participating and non-participating ICFs, the ICF study group was found to be similar except for a slight over-representation of Japanese persons. Therefore, it was
felt that the ICF study data reflected the population of larger ICFs on Oahu. The EOA data were shown to compare closely with Health Surveillance Program data (which is considered to be an accurate base) in age, sex and ethnicity.

In total, over 200 common variables were investigated in the nursing home survey (conducted by the researcher) and the survey of elderly persons living in the community (conducted by the Executive Office on Aging). Variables were selected for the research analysis because of their potential for addressing the research questions and related hypotheses.

Findings for Hypothesis 1

The Null Hypothesis

There are no statistically significant differences (p =< .05) in demographic, social, economic, mental and physical health, and ADL variables among older persons who were utilizing three levels of long-term care: persons about to enter intermediate care facilities, persons using home care, or those not using home care.

For this hypothesis, one way analysis of variance (ANOVA) (SAS, 1985) was used to examine differences in selected variables across the three levels of care. The General Linear Model (GLM) procedure used to produce these results uses the least squares method to fit the general linear model and is appropriate for unbalanced designs. This procedure, using the Contrast option, gives p values
for the three combinations of bivariate comparisons among the three care levels. The following tests of significant differences among variables should be viewed with caution because, as will be shown later in this chapter, many of the variables were statistically associated. For that reason, bivariate analysis which does not control for the effects of other variables may be misleading.

Selected Demographic Variables

The results of General Linear Model (ANOVA) determinations are shown on Table 4. Compared to the two groups of community-living elderly, persons about to enter intermediate care facilities appear to have been older, women, Japanese and slightly less well educated. Older persons were more likely to be found in higher levels of care and there were significant age differences between each of the three group pairs (p <= .001). The proportion of females increased in a continuum from lower to higher levels of care. There was a higher percentage of Japanese than Caucasians at each level of care.

Social and Economic Resources

Persons about to enter a long-term care facility appear to have been unmarried, living with others, with fewer caregivers, and experiencing lower socio-economic
Table 4
Comparison of the Three Study Groups by Selected Demographic Variables

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>ICF</th>
<th>Home Care</th>
<th>No Home Care</th>
<th>P - value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>F 71.4%</td>
<td>F 59.7%</td>
<td>F 44.9%</td>
<td>ICF-BC = 21.36</td>
</tr>
<tr>
<td></td>
<td>M 28.6%</td>
<td>M 40.3%</td>
<td>M 55.1%</td>
<td>BC-NHC = 3.06</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NHC-ICF= 8.68**</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>J 75.9%</td>
<td>J 54.3%</td>
<td>J 66.8%</td>
<td>ICF-BC = 2.70</td>
</tr>
<tr>
<td></td>
<td>C 24.1%</td>
<td>C 45.7%</td>
<td>C 33.2%</td>
<td>BC-NHC = 11.13***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NHC-ICF= 6.73**</td>
</tr>
<tr>
<td>Mean age (in years)</td>
<td>85.5</td>
<td>75.6</td>
<td>71.2</td>
<td>ICF-BC = 360.23***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>BC-NHC = 127.08***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NHC-ICF= 43.64***</td>
</tr>
<tr>
<td>Educationa (category mean)</td>
<td>2.604</td>
<td>3.203</td>
<td>3.313</td>
<td>ICF-BC = 10.23***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>BC-NHC = 5.31*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NHC-ICF= 0.32</td>
</tr>
</tbody>
</table>

ICF = Intermediate Care Facility n=91
BC = Home Care n=128
NHC = No Home Care n=374

*aEducation (category mean) -
2.604 = 5-8 years
3.203 = 9-11 years
3.313 = 9-11 years

*p = < 0.05
**p = < 0.01
***p = < 0.001
status than the two community groups of elderly persons. The F values and probabilities are shown on Table 5.

The three financial status indicators demonstrate that older persons using higher levels of care have fewer financial resources. There were significant differences among the groups for the interviewer rated Economic Resources Score, income, and being on Medicaid. The differences followed the continuum of care where the most economically impaired were those about to go into intermediate care facilities.

Physical and Mental Health

Table 6 shows that, in general, persons about to enter an ICF appear to have been more impaired mentally and physically than community-living elderly persons. The elderly who were ICF qualified appeared to have poorer hearing and eyesight and both respondents and interviewers rated their health as significantly more disabled than the two community-living groups.

The presence of bone fractures among ICF group members (26.4%) was eight times higher than in the other groups (p < .001). Incontinence (69.2%) was four times more prevalent among the nursing home eligible persons (p < .001). The analysis also showed stroke to be significantly (p < .001) more common among persons in the ICF group (37.4%).
Table 5
Social and Economic Resources of Persons Using the Three Levels of Care

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>ICF</th>
<th>HC</th>
<th>NHC</th>
<th>F-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social Resources</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>16.5%</td>
<td>51.9%</td>
<td>78.7%</td>
<td>ICF-HC = 93.28***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>BC-NHC = 18.52***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NHC-ICF = 27.94***</td>
</tr>
<tr>
<td>Helper as long as Needed</td>
<td>55.7%</td>
<td>80.7%</td>
<td>83.4%</td>
<td>ICF-HC = 48.65***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>BC-NHC = 23.22***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NHC-ICF = 2.31</td>
</tr>
<tr>
<td>Lived Alone</td>
<td>7.7%</td>
<td>21.7%</td>
<td>9.9%</td>
<td>ICF-HC = 0.33</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>BC-NHC = 10.05**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NHC-ICF = 12.90***</td>
</tr>
<tr>
<td>Social Res. Score</td>
<td>76.9%</td>
<td>34.9%</td>
<td>20.1%</td>
<td>ICF-HC = 205.36***</td>
</tr>
<tr>
<td>(Percent impaired)</td>
<td></td>
<td></td>
<td></td>
<td>BC-NHC = 95.20***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NHC-ICF = 11.04***</td>
</tr>
<tr>
<td><strong>Economic Resources</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>On Medicaid</td>
<td>39.6%</td>
<td>8.5%</td>
<td>7.0%</td>
<td>ICF-HC = 82.12***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>BC-NHC = 54.22***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NHC-ICF = .25</td>
</tr>
<tr>
<td>Econ. Res. Score</td>
<td>86.8%</td>
<td>31.8%</td>
<td>20.3%</td>
<td>ICF-HC = 258.87***</td>
</tr>
<tr>
<td>(Percent impaired)</td>
<td></td>
<td></td>
<td></td>
<td>BC-NHC = 466.80***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NHC-ICF = 10.00**</td>
</tr>
<tr>
<td>Income^</td>
<td>5.4</td>
<td>7.6</td>
<td>8.7</td>
<td>ICF-HC = 137.81***</td>
</tr>
<tr>
<td>(category mean)</td>
<td></td>
<td></td>
<td></td>
<td>BC-NHC = 46.53***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NHC-ICF = 18.40***</td>
</tr>
</tbody>
</table>

ICF = Intermediate Care Facility n = 91
HC = Home Care n = 129
NHC = No Home Care n = 374

* p =< .05
** p =< .01
*** p =< .001

^Income (category Means)
ICF 5.385 = $3,000 - 3,999
HC 7.643 = $5,000 - 6,999
NHC 8.702 = $7,000 - 9,000
Table 6

Physical and Mental Health Indicators of the Study Populations in Percents

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>ICP %</th>
<th>HC %</th>
<th>NHC %</th>
<th>P - value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical Health</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sight (% impaired)</td>
<td>57.1</td>
<td>44.2</td>
<td>30.7</td>
<td>ICF-BC = 15.74***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>HC-NHC = 8.65**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NHC-ICP = 7.57**</td>
</tr>
<tr>
<td>Hearing (% impaired)</td>
<td>50.5</td>
<td>44.1</td>
<td>32.5</td>
<td>ICF-BC = 15.74***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>HC-NHC = 3.41</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NHC-ICP = 4.27*</td>
</tr>
<tr>
<td>Self rate health (% impaired)</td>
<td>87.9</td>
<td>41.2</td>
<td>24.1</td>
<td>ICF-BC = 180.04***</td>
</tr>
<tr>
<td>Bone fractures (% with)</td>
<td>26.4</td>
<td>3.1</td>
<td>0.0</td>
<td>ICF-BC = 520.37***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>HC-NHC = 260.41***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NHC-ICP = 20.06***</td>
</tr>
<tr>
<td>Stroke (% with)</td>
<td>37.4</td>
<td>14.0</td>
<td>1.9</td>
<td>ICF-BC = 149.92***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>HC-NHC = 53.29***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NHC-ICP = 17.89**</td>
</tr>
<tr>
<td>Incontinence (% with)</td>
<td>69.2</td>
<td>17.1</td>
<td>2.7</td>
<td>ICF-BC = 425.74***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>HC-NHC = 190.89***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NHC-ICP = 26.44***</td>
</tr>
<tr>
<td>Phys HLth Score (% impaired)</td>
<td>89.0</td>
<td>68.9</td>
<td>39.6</td>
<td>ICF-BC = 446.84***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>HC-NHC = 168.63***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NHC-ICP = 46.08***</td>
</tr>
<tr>
<td><strong>Mental health</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self rate MH (% impaired)</td>
<td>71.4</td>
<td>28.6</td>
<td>21.3</td>
<td>ICF-BC = 164.63***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>HC-NHC = 89.75***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NHC-ICP = 3.92*</td>
</tr>
<tr>
<td>MH score (% impaired)</td>
<td>89.0</td>
<td>34.1</td>
<td>9.7</td>
<td>ICF-BC = 509.84***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>HC-NHC = 214.33***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NHC-ICP = 38.69***</td>
</tr>
</tbody>
</table>

ICF = Intermediate Care Facility n = 90
HC = Home Care n = 129
NHC = No Home Care n = 373

* = p < .05
** = p < .01
*** = p < .001
Respondent rating of the mental health of the elderly research subjects showed a significant difference among the groups. Mental health impairment increased with age and level of service increases. The composite interviewer mental health score showed over three quarters of the ICF group had mental health problems compared to 34.1% of the Home Care group and 10% of the NHC group (p =< .001).

Functional Ability of Study Groups

Table 7 includes selected variables used to measure the functional ability of persons in the study groups. The table shows that persons about to enter ICFs were the most functionally disabled and those receiving home care were more disabled than those not receiving home care (p =< .001).

Over a third of the ICF group were unable to walk compared to 3.9% in the HC group and none in the NHC group (p =< .001). The interviewers’ ADL scorings were also significantly different for the groups and in the same direction with a similar probability level.

Use of mobility aids (cane, walker and wheelchair) followed the care continuum with more ICF eligible persons using the devices. The differences among the groups were statistically significant. In the ICF group, 26.4% used a cane, 35.2% used a walker and 44.0% used a wheelchair. In the HC group, the opposite trend was found.
Selected Medical Conditions of Persons in the Study Groups

The presence of selected medical conditions in the three study groups is displayed in Table 8. When variables showed differences in impairment among groups, usually the numbers of persons with the condition increased with higher levels of care. Arthritis and high blood pressure did not follow that pattern. Heart problems, circulatory problems and urinary tract problems all appeared to be more common among persons entering ICFs.

Utilization of Services: Persons Entering Intermediate Care Facilities and Persons Receiving Home Care

In table 9 persons entering ICFs are compared with those receiving Home Care in the community regarding the numbers of services they were using.

Three quarters of persons entering ICFs were receiving personal care services compared to 16% of the community-living elderly. The proportions of the ICF group receiving nursing care, constant supervision and meal preparation were more than double those of the Home Care Group. These data show that on Oahu, persons entering ICFs were using many more home care services at the time of admittance than persons in the community Home Care group.
Table 7

Selected Measures of Functional Ability

<table>
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<th>BC %</th>
<th>NBC %</th>
<th>F - value</th>
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ICF = Intermediate Care Facility  n = 91  
BC = Home Care  n = 129  
NBC = No Home Care  n = 374  

* p =< .05  
** p =< .01  
*** p =< .001
Table 8

Selected Medical Conditions; Percents With the Condition

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<td>High Blood Pressure</td>
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<td>Cancer</td>
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ICF = Intermediate Care Facility  n = 91
HC = Home Care  n = 129
NHC = No Home Care  n => 374
Table 9
Utilization of Services: Persons Entering Intermediate Care Facilities and Persons Receiving Home Care

<table>
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<th>Use of Services</th>
<th>Entering ICP %</th>
<th>Home Care %</th>
<th>No Home Care %</th>
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ICF = Intermediate Care Facility  n = 91
HC = Home Care  n = 129
NHC = No Home Care  n => 374

Cumulative Impairment Scores of Persons Using The Three Levels of Care

The following figure illustrates the Cumulative Impairment Scores (CIS) of the three groups. CIS scores were devised by the developers of the OARS instrument and are the combined interviewer ratings of social resources, economic resources, physical health, mental health, and activities of daily living (ADL) abilities of the subjects (Pfeiffer, 1975). The scores are plotted by percent of subjects in each group to have a certain score from 5 to 30, five being not impaired and 30 completely impaired.
CIS ratings differentiated among the three groups regarding degree of impairment. The group means of the Cumulative Impairment Scores were 10.7 for the No Home Care group, 13.1 for the Home Care group and 21.9 for the ICF group. GLM (ANOVA) comparisons of the three possible pairs of means showed statistically significant differences at the 0.0001 level between each pair combination. Each population has a distinct impairment distribution. None of the No Home Care group extends beyond the midpoint of 18 and only 8.8% of the ICF group falls below the midpoint. The Home Care group is situated between the other two.

There is extensive overlap between the two community groups and some, but much less overlap between the Home Care and the ICF groups. The overlap shaded with dots represents persons in the community who were as impaired as some of the ICF residents at the time they went to the nursing home but remained in the community and were receiving home care.

The overlap area with lines represents community living elderly who were as disabled as some of those in ICFs but were not receiving home care services. Or stated the other way, it represents the few persons at the time they entered the ICFs who were as well as some of those living in the community and not receiving home care.
CIS Scores
5 = not impaired
30 = Totally imp.

- - - - No Home Care
--- Home Care
--- ICFs

Means
21.9 = ICF
13.1 = HC
10.7 = NHC

Figure 5
Cumulative Impairment Scores of Persons Using Three Levels of Care:
Intermediate Care Facilities, Home Care, No Home Care

GLM (ANOVA)
F - value p
ICF - HC 1102.03 .0001
HC - NHC 466.60 .0001
NHC - ICF 81.75 .0001
Summary of Findings for Hypothesis 1

There are no statistically significant differences (p =< .05) in demographic, social, economic, mental and physical health, and ADL variables among older persons who were utilizing three levels of long-term care: persons about to enter intermediate care facilities, persons using home care or those not using home care.

Comparisons of persons using three levels of care across a variety of characteristics (variables) as outlined in Hypothesis 1, was cause to reject the null hypothesis that there were no significant differences among the groups. While not every comparison showed significant differences, many of them did in each category of variables examined: demographic, social, economic, mental and physical health, and functional ability.

Comparing the Cumulative Impairment Scores of persons in the three groups showed significant differences in levels of impairment (p =< .0001) in each of the three comparison combinations. The most impaired were the elderly persons about to enter an ICF and the least impaired were those living in the community and not receiving home care services.

Findings for Hypothesis 2

The Null Hypothesis

There are no statistically significant associations (p =< .05) between pairs of selected demographic factors, impairment measures, social and economic resources, and/or ADL abilities relating to persons using the three levels of care.
To identify bivariate associations between pairs of selected variables relating to persons in the three study groups, Pearson product-moment correlation coefficients (r) were calculated. The following tables show the correlation coefficients and the statistical significance (p level) of each pair of variables of interest. Correlations mentioned in the narrative are statistically significant either at the p <= .05 or p <= .01 levels as indicated on the tables.

Pearson Product-Moment Correlations: Selected Demographic Variables

Table 10 shows that, if subjects were female and in the ICF and HC groups, they were less likely to have a living spouse. In all groups, there was a modest negative correlation between age and marital status. The older persons were, the less likely they were to have a living spouse. Schooling was negatively correlated with reporting Japanese ethnicity in all three study groups. The more schooling the subjects had, the more likely they were to report Caucasian ethnicity.

In the HC group there was a positive relationship between ethnicity and marital status suggesting that, if identifying as Japanese, they were more likely to be married. This relationship was not shown in the other
groups. There was also a correlation between being married and having more education in the ICF group.

Pearson Product-Moment Correlations: Additional Selected Demographic Variables

Table 11 illustrates that, if subjects were Japanese and from the HC group, they were less likely to live alone. Caucasians were more apt to live alone. Having a care person for as long as needed was related to being Japanese in the HC group. In the ICF group only, a negative correlation between ethnicity and income was seen; the more income, the more likely a person was Caucasian.

The correlation matrix also shows a moderate to strong, positive correlation between education and income in all three study groups. The more education, the higher income a person had. Also, in the ICF group only, the more schooling a person had, the less likely they were to be on Medicaid.

There were moderate positive correlations in all groups between marital status and income. If married, they were more likely to have a higher income. If persons in the community groups were living alone, they were less likely to have care-givers for as long as needed. In the NHC group, there was a relationship between living alone and being on Medicaid. Also, in the NHC group, if subjects were on Medicaid, they were less likely to have a caregiver as
Table 10

Pearson Product-Moment Correlations: Selected Demographic Variables

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<th>Variable</th>
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Table 11
Pearson Product-Moment Correlations: Additional Selected Demographic Variables

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ICF = Intermediate Care Facility    n = 70    ** p < .01
HC = Home Care                    n = 113    * p < .05
NHC = No Home Care                 n = 347
long as needed. In concordance with official regulations, all groups showed a significant relationship between low income and being on Medicaid.

Pearson Product-Moment Correlations: Certain Health Indicators and Selected Other Variables

In Table 12, correlations between health factors and the variables age, sex, certain ADL abilities, and self rates of mental and physical health are illustrated. The correlation matrix shows that in the ICF study group, having a bone fracture correlated positively with sex. If female, subjects were more likely to have a fracture. There were no fractures in the NHC group.

Age was negatively correlated with sight and hearing acuity in the ICF and HC groups and with hearing in the NHC group. The older the subject was, the poorer the sight and hearing. Needing assistance in shopping, traveling beyond walking distance, preparing meals and walking were all positively correlated with having bone fractures in the HC group. If they had fractures, they were more likely to need assistance in those activities. All of the variables in Table 12 except hearing, were associated with needing assistance in walking for the HC group.

Incontinence did not appear to be correlated with either sex or age. Very few persons in the NHC group reported incontinence. It was correlated with needing assistance with traveling beyond walking distance,
shopping, and walking in both the ICF and HC study groups and with needing assistance in preparing meals in the HC group.

Better eyesight and hearing, were significantly correlated with a better self rating of physical and mental health (or respondent rating for ICF) for HC and NHC groups but only physical health and hearing were correlated in the ICF group. In the HC group only, there was a negative correlation between both physical and mental health self rating and having a bone fracture. If they had a fracture, both health measures were rated less well.

There were no statistically significant correlations between incontinence and self-rated physical health and only the HC group showed a relationship between incontinence and poorer self-rating of mental health.

Pearson Product-Moment Correlations: Use of Mobility Devices and Selected Other Variables

The correlation matrix shows that age was associated with the use of all three mobility aids in the HC and the NHC groups. This was not seen among those in the ICFs. The use of the three mobility aids, cane, walker or wheelchair correlated in the HC group with the abilities to travel beyond waking distance, shop and prepare meals. For the ICF group, using a wheelchair was correlated with traveling beyond walking distance. In the NHC group the
use of a cane was correlated with traveling and shopping. Only one person in the NH group used a wheelchair.

Using a cane and needing assistance in walking were correlated in the HC and the NH groups whereas using a walker and wheelchair were correlated with needing assistance in walking in the two more disabled ICF and HC groups. In the ICF group there were also correlations between being a woman and using a walker or wheelchair.

Pearson Product-Moment Correlations: Basic Activities of Daily Living Variables

Pearson correlations were used to identify statistically significant associations between pairs of basic activities of daily living (BADL) variables, shown in Table 14. Measures of ADL capabilities were used to determine ability to function and/or degree of independence of the elderly subjects. This study investigated ADL skills as possible predictors of institutionalization. The questions were asked in the following way: could the subject (bathe) 1) without help, 2) with some assistance, or 3) totally unable to (bathe)?

In every comparison in the table of the basic activities of daily living there were positive, significant correlations with one another in both the ICF and HC groups \( (p \leq .05) \). If persons needed assistance in one activity, they would likely need it in another. Or conversely, if persons could carry out one activity unassisted, it is
Table 12

Pearson Product-Moment Correlations: Certain Health Indicators and Selected Other Variables

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ICF = Intermediate Care Facility  n = 91
BC = Receiving Home Care  n = 129
NHC = Not Receiving Home Care  n = 374

* = p < .05  ** = p < .01
Table 13

Pearson Product-Moment Correlations: Use of Mobility Devices and Selected Other Variables

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| WALKER | ICF  r  | .313** | .118 | .202 | .103 | .040 | .269** | .066 | -.132 |
|        p  | .003 | .266 | .054 | .332 | .708 | .009 | .534 | .212 |
|        HC r  | .065 | .291** | .374** | .376** | .380** | .601** | -.210* | -.142 |
|        p  | .464 | .0008 | .0001 | .0001 | .0001 | .0001 | .022 | .119 |
|        NHC r | .081 | .166** | -.021 | .113* | -.007 | -.004 | -.110* | -.044 |
|        p  | .119 | .0001 | .682 | .028 | .898 | .942 | .035 | .397 |

| WHEELCHAIR | ICF  r  | .266* | -.141 | .260* | .146 | .089 | .362** | .124 | .040 |
|            p  | .011 | .182 | .013 | .167 | .399 | .0004 | .242 | .705 |
|            HC r  | .039 | .229** | .323** | .308** | .401** | .604** | -.111 | -.033 |
|            p  | .661 | .008 | .0002 | .0004 | .0001 | .0001 | .111 | .720 |
|            NHC r | .057 | .112* | -.015 | -.015 | -.005 | -.003 | -.077 | .010 |
|            p  | .271 | .029 | .772 | .768 | .928 | .958 | .137 | .848 |

ICF = Intermediate Care Facility  n = 91  * = p < .05
HC = Home Care  n = 129  ** = p < .01
NHC = No Home Care  n = > 374
likely they could also do the others. The r values were all stronger in the HC group than the ICF group. There were zero r values throughout these calculations for the NHC group and they were omitted from the table.

The following correlations are not displayed on a table but should be noted. In general, there was little association between sex and the ability to carry out basic or instrumental activities of daily living (ADL). However, in the HC group, if the subjects were female, they were more apt to need assistance in shopping and traveling.

Among the HC subjects, age was positively correlated with needing assistance in nearly all of the ADL skills. The ICF group showed correlations between age and needing assistance for dressing, caring for their appearance, and getting in and out of bed. Comparing ethnicity and amount of schooling with ADL abilities, revealed no correlations. Being married and about to go to a nursing home was strongly associated with needing assistance with eating.

The reliability determinations carried out on the combined ADL measurements for the two survey instruments resulted in Chronbach's Alpha scores of 0.7822 and 0.9532 which support the findings in this table that there was consistency in reporting items.
Table 14

Pearson Product-Moment Correlations: Basic Activities of Daily Living Variables

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</table>
| ICF = Intermediate Care Facility n = 91 * p <= .05
| BC = Home Care Services n = 129 ** p <= .01
| NBC = No Home Care Services n => 374

---
Pearson Product-Moment Correlations: Pairs of Instrumental Activities of Daily Living Variables

Table 15 shows that most of the instrumental ADL comparisons were statistically significant and positively correlated with one another in all three study groups (p =< .01). There were four exceptions to this in which there were no statistically significant relationships all in the NHC group. Three of those were between ability to take medicine independently and other variables. As was found with the BADL comparisons, IADL variables seem to be measuring similar capabilities.

Pearson Product-Moment Correlations: Five Interviewers' Impairment Ratings and Selected Other Variables

In Table 16, correlations are shown between the interviewer ratings of five impairment scores, social, economic, mental and physical health, and total ADL (BADL and IADL combined) and the variables sex, age, ethnicity, school, marital status, lived alone, and presence of a caregiver.

There were strong correlations between marital status and education with economic resources scores. If persons were married and had more education, they were more likely to have more economic resources. If elderly persons had a caregiver as long as needed, they were likely to have a better social resources score. This was shown in all study groups. In the HC and NHC groups, there were modest
### Table 15

Pearson Product-Moment Correlations: Instrumental Activities of Daily Living Variables and Selected Other Variables

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<th>BC r</th>
<th>NBC r</th>
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<th>HOUSEWORK</th>
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ICF = Intermediate Care Facility  n = >86  * = p < .05
BC = Home Care  n = 129  ** = p < .01
NBC = No Home Care  n = < 373
associations between age and economic resources. The older the person, the more likely they were to have fewer economic resources. In the ICF group, a lower economic resources score can be expected for persons who are Japanese.

In the HC and NHC groups, the older the subjects, the more likely they were to be impaired in ADL abilities. There was a slight correlation between schooling and ADL ability in all three groups. It was positive in the ICF group which, because of the coding, meant the more education, the less ADL ability. Both community groups were correlated the opposite way, meaning the more education the better the ADL abilities.

Pearson Product-Moment Correlations: Self-rated Mental and Physical Health and Five Interviewer Impairment Scorings

Tables 17 and 18 show relationships between self-rated physical and mental health (respondents' rates in ICF data) and the various interviewer rated scores for social resources, economic resources, mental health, physical health and ADL abilities. They also contain correlations between pairs of interviewers' impairment scores.

The research subjects' self-rate of physical health correlated significantly with the interviewers' scores of physical health (Figure 6) and ADL abilities at all levels of care. If subjects rated their own physical health as
Table 16
Pearson Product-Moment Correlations: Five Interviewers' Impairment Scores and Selected Variables

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<th>MARITAL STATUS</th>
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NBC = Not Receiving Home Care  n > 374
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*ICF = Intermediate Care Facility n = 91  ** p =< .05
*HC = Home Care n => 119  ** = p =< .01
*NBC = No Home Care n => 370
Table 18

Pearson Product-Moment Correlations: Additional Self-rated Mental and Physical Health Variables and Two Interviewers' Impairment Scorings

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**Note:**
- ICF = Intermediate Care Facility
- HC = Home Care
- NBC = No Home Care
- n = Number of subjects

ICF = Intermediate Care Facility n = 91  
HC = Home Care n = 119  
NBC = No Home Care n = 370
Figure 6
Research Subjects' Self-rate of Health
poor, the interviewers most likely did also. Self-ratings of physical health were associated with interviewers' mental health scores for the community groups but not for ICF residents. The self-ratings of mental health correlated with the interviewers' mental health scores in all groups but only in the community groups for economic, physical health and ADL scores. The positive association between self-rated mental health and economic, physical health, and ADL scores does not hold for ICF qualified persons. Social resource scores were associated with mental health scores in all three groups but only the two community groups with economic, physical health and ADL.

Economic resources scores were correlated with mental health scores in all three groups though negatively correlated for ICF eligible persons and positively correlated for the community groups. Economic resources scores were correlated with physical health and ADL scores in the NHC and HC groups but this was not true in the ICF group. Mental health scores and physical health scores were both significantly correlated with ADL scores in all groups.
Findings for Ancillary Question A

Ancillary Question A

Are there statistically significant (p =< .05) relationships between selected variables and ethnicity (Japanese and Caucasian) of the study subjects?

The analysis showed a statistically significant relationship between being married and ethnicity in the HC group. If in the HC group and married, a person was more likely to be Japanese. In all three study groups there were significant negative relationships between ethnicity and education, meaning that the more schooling a person had the more likely they were Caucasian. If subjects were in the HC group and Japanese, they were less likely to live alone. Caucasians were more apt to live alone. Having a caregiver as long as needed was related to being Japanese in the HC group. In the ICF group only, there was a negative relationship between ethnicity and income. The more income, the more likely the person was Caucasian.

Stating the ancillary question as a null hypothesis: there were no significant (p =< .05) relationships between selected variables and ethnicity, (Caucasian and Japanese), the null hypothesis was rejected. There were certain statistical relationships between variables and ethnicity such as income, availability of caregivers, marital status, living alone and education. However, only education showed a significant relationship in all three study groups.
As stated in Chapter III, ethnic variation should be viewed with caution because of the slight over-representation of Japanese in the study group. Also, bivariate analysis does not control for the effects of other variables which may be highly correlated with those being examined such as income and education, and also age and income.

Findings for Ancillary Question B

Ancillary Question B

Which variables (measuring characteristics of elderly persons who are utilizing three levels of care) included in a discriminant model, most successfully classify the research subjects into the three care levels?

As described in Chapter III, discriminant analysis was used to statistically distinguish among the three care levels. Initially 50 selected independent variables were used in the analysis. Variables which did not add to the predictive accuracy were then removed, leaving the most useful ones in the prediction model. The analysis was repeated with 19 variables. The results are shown on Table 19. The variables used in the second analysis were: sex, age, caregiver as long as needed, sight, fractures, self-rate health, cane, crutch, walker, backbrace, dialysis, incontinence, prepare meals, social resource score, economic resource score, mental health score, physical health score, ADL score and Cumulative Impairment Score.
Each research subject originally had a 33.3% probability by chance alone of being placed in one of the three groups. Of persons who were actually in the ICF group, the set of variables placed 93.33% in the ICF group for an improved prediction (or a proportionate reduction in error) of 93.33 - 33.3% = 60%.

Of those actually in the Home Care group, this procedure (using the selected variables) placed 39.53% in the Home Care group for an improved prediction of 39.53 - 33.3 = 6.2%.

In the same manner, of those who were actually in the No Home Care group, the discriminant analysis placed 95.42% in the No Home Care group. This was an improved prediction over chance of 95.42 - 33.3 = 62.12%.

The results show that persons in the ICF and NHC groups had very distinct characteristics and, 93-95% of the time they could be assigned accurately using the selected variables. Persons in the Home Care transition group, however, were less easily identified with certainty. Using these variables, they were classified into the HC group a little more than half the time. As has been seen in previous analyses, they were more like the NHC group than the ICF group, with almost 40% being placed in NHC using these variables as predictors.
Table 19

Discriminant Analysis: Number and Percents of Research Subjects Classified Into the Three Levels of Care

<table>
<thead>
<tr>
<th>Actual Groups</th>
<th>ICF</th>
<th>Classified Into:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>ICF</td>
</tr>
<tr>
<td>ICF</td>
<td>84</td>
<td>6</td>
</tr>
<tr>
<td>%</td>
<td>93.33</td>
<td>6.67</td>
</tr>
<tr>
<td>HC</td>
<td>14</td>
<td>51</td>
</tr>
<tr>
<td>%</td>
<td>10.85</td>
<td>39.53</td>
</tr>
<tr>
<td>NBC</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>%</td>
<td>0.00</td>
<td>4.58</td>
</tr>
<tr>
<td>Total</td>
<td>98</td>
<td>74</td>
</tr>
<tr>
<td>Percent</td>
<td>16.61</td>
<td>12.54</td>
</tr>
</tbody>
</table>

Prior Probability

<table>
<thead>
<tr>
<th>ICF</th>
<th>HC</th>
<th>NBC</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>33.3</td>
<td>33.3</td>
<td>33.3</td>
<td></td>
</tr>
</tbody>
</table>

Percent of "known" groups correctly classified: 82.88%

Preliminary results using a categorical modeling procedure called CATMOD, which is a maximum likelihood logistic regression from the SAS Advanced Statistical Series, 1985, indicated that the following seven variables were significant predictors of level of care: advanced age, lack of a caregiver as long as needed, poor eyesight, poor self-rating of health, incontinence, the interviewers' ADL Score, and the interviewers' Cumulative Impairment Score. Independent variables which did not add to the predictive model were deleted and other combinations tried in order to obtain the best possible prediction model.
Table 20

CATMOD Procedure, Analysis of Variance Table

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Chi-Square</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>2</td>
<td>21.89</td>
<td>0.0001*</td>
</tr>
<tr>
<td>Age</td>
<td>2</td>
<td>38.43</td>
<td>0.0001*</td>
</tr>
<tr>
<td>Caretime</td>
<td>2</td>
<td>17.55</td>
<td>0.0002*</td>
</tr>
<tr>
<td>Sight</td>
<td>2</td>
<td>8.69</td>
<td>0.0130*</td>
</tr>
<tr>
<td>Self Rate Health</td>
<td>2</td>
<td>9.52</td>
<td>0.0086*</td>
</tr>
<tr>
<td>Incontinence</td>
<td>2</td>
<td>7.68</td>
<td>0.0215*</td>
</tr>
<tr>
<td>ADL Score</td>
<td>2</td>
<td>38.09</td>
<td>0.0001*</td>
</tr>
<tr>
<td>CIS Score</td>
<td>2</td>
<td>17.80</td>
<td>0.0001*</td>
</tr>
<tr>
<td>Likelihood Ratio</td>
<td>390</td>
<td>233.06</td>
<td>1.0000</td>
</tr>
</tbody>
</table>

* p < .05

Summary of Findings for Hypothesis 2 and Ancillary Questions A and B

There are no statistically significant associations (p < .05) between pairs of selected demographic factors, impairment measures, social and economic resources, and/or ADL abilities relating to persons using the three levels of care.

The Pearson product-moment correlation determinations revealed numerous statistically significant relationships between pairs of variables which were illustrated in Tables 10 through 18. Therefore, the null hypothesis, which states there are no significant relationships, was rejected.

Analysis for Ancillary Question A showed statistically significant associations between variables and ethnicity in several pairings. However, these bivariate associations may be misleading. For example, correlations between being
Japanese and being more likely married, may be a function of the longer life expectancy of Japanese persons.

Analysis for Ancillary Question B produced a prediction model for placement into the three care levels which was accurate 82.88% of the time. Using the CATMOD procedure, seven variables were identified as statistically significant predictors of institutionalization. They were: advanced age, lack of a caregiver as long as needed, poor eyesight, poor self-rating of health, incontinence, the interviewers' rating of ADL abilities, and the interviewers' Cumulative Impairment Score.

Findings for Hypothesis 3

The Null Hypothesis

There are no statistically significant differences (p <= .05) in the degree of impairment of older persons in free-standing and hospital-based ICFs or for-profit and non-profit ICFs.

Using the Cumulative Impairment Scores which were part of the OARS methodology, the GLM (ANOVA) procedure described in Chapter III, was used to test for differences between the two pairs of ICF types. The results were as follows:

<table>
<thead>
<tr>
<th>F-values</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital-based vs Free-standing ICFs</td>
<td>0.45</td>
</tr>
<tr>
<td>For-Profit vs Non-Profit ICFs</td>
<td>4.61</td>
</tr>
</tbody>
</table>
For the ICFs in this study, there was not a significant difference in the level of impairment of residents between hospital-based and free-standing facilities. However, the residents in non-profit ICFs were significantly more impaired than those in the for-profit facilities ($p = 0.0344$). Therefore, the null hypothesis of no difference was not rejected for the hospital-based and free-standing ICFs but was rejected for non-profit and for-profit facilities because they were significantly different regarding degree of impairment of residents.

**Summary**

Chapter IV has described the findings of analytical tests conducted to compare elderly persons in three long-term care settings. The three groups exhibited many differences in several categories of variables including demographic, social, economic, physical and mental health, and ADL capabilities. Relationships among variables were described. Results of developing a predictive model for determining level of care for individuals with certain characteristics were reported and variables which were important in the prediction were identified. The outcomes of tests to compare the level of disability of residents of different types of ICFs were delineated.
Figure 7
Cumulative Impairment Scores of Research Subjects in Hospital-Based ICFs and Free-Standing ICFs.

GLM (ANOVA)
F-value = 0.45
Prob. = 0.5052
Figure 8
Cumulative Impairment Scores for Research Subjects in For Profit and Not For Profit ICFs.

GLM (ANOVA)
F - value = 0.61
Prob. = 0.0344
CHAPTER V
SUMMARY, DISCUSSION, CONCLUSIONS, RECOMMENDATIONS

Chapter V includes a summary of the first four chapters followed by a discussion of the findings, conclusions, and recommendations. The summary includes: (1) background of the problem, (2) literature review, (3) description of the methodology and (4) the findings. The discussion elaborates on the findings, the conclusions and recommendations are derived from the findings and their interpretations.

Summary
Background of the Problem

The context in which this research was conceptualized was characterized by four important phenomena. They were, the increasing proportion of elderly persons in the population of the United States and especially in Hawaii, the sharply rising costs of medical care and other programs serving the elderly, controversy over the effectiveness of past efforts to assist older persons, and lack of agreement concerning what needs to be done to improve their situation.
The articulation of an overall federal policy which will guide the development of a continuum of long-term care for elderly persons is desperately needed. Effective policy which truly serves the needs of elderly persons and their families has to be developed based on accurate knowledge of how they are faring in various regions of the United States. Collecting accurate, consistent and comparable data is complicated because many aging policies vary from state to state. Because of that, regional research is very important as a means of systematizing and integrating the collection and analysis of data on elderly persons.

The Conceptual Framework

The conceptual framework of this study was based on a comprehensive systems approach which depicted elderly persons as experiencing constant interaction with all aspects of their physical and social environments. The outcomes of those interactions were very individual because they were highly dependant on elderly persons' physical and mental capabilities and the influence of their life-long conditioning and genetic characteristics.

Purpose of the Research

The primary purpose of the research was to add to the understanding of factors which predispose elderly persons
to enter LTC facilities. The knowledge could be used by elderly persons, their families, and health professionals in making informed decisions regarding the selection of LTC services. Comprehensive data concerning persons utilizing different types of LTC would also assist planners and policy makers in preparing for the increasing number of elderly persons in the population.

In order to gain knowledge which might be useful in formulating policy regarding long-term care policies, the goal of this research was to develop a comprehensive picture of a large group of elderly individuals in Hawaii, some of whom were at risk of institutionalization. By studying many aspects of these persons' lives, economic, social, functional, physical, mental and demographic, it was hoped that differences could be identified which would lead to predictions of which families and older persons were at greater risk and what services might be most helpful to them.

The results of this Hawaii research could also be examined to determine if they corroborate or refute results of similar studies reported by other researchers. While direct comparisons between this study and other U.S. research are not possible, patterns are sometimes identified which can lead to the generation of new
hypotheses. Any new knowledge or insight may contribute to rational policy-making or stimulate further research.

Hypotheses

The null hypotheses assessed in this research were:

1.0 There are no statistically significant differences (p =< .05) in demographic, social, economic, mental and physical health, and ADL variables among older persons who are utilizing three levels of long-term care: persons about to enter intermediate care facilities, persons using home care, or those not using home care.

2.0 There are no statistically significant associations (p =< .05) between pairs of selected demographic factors, impairment measures, social and economic resources, and/or ADL abilities relating to persons using three levels of care.

Ancillary Questions for the second hypothesis were as follows:

A Are there statistically significant (p =< .05) correlations between selected characteristics and ethnicity (Japanese and Caucasian) of persons using three levels of care?

B Which independent variables (measuring characteristics of elderly persons utilizing three
levels of care) included in a discriminant model, most successfully classify individuals into the three levels of care (dependent variable)?

3.0 There are no significant differences at the .05 level in the degree of disability of older persons in free-standing ICFs and hospital-based ICFs or between for-profit and not-for-profit ICFs.

Review of the Literature

Literature in the following three general categories was reviewed in Chapter II: (1) general background information, (2) methods for evaluating the overall status of elderly persons, and (3) research which has explored precursors of institutionalization. The demographics of present and projected future elderly populations were discussed as well as the necessary increase in services and manpower needed to meet future demands for long-term care of the elderly. Other articles explored the appropriateness of services and the challenge of determining an optimum continuum of health and social programs to meet future needs of the growing numbers of elderly persons.

There have been several problems associated with obtaining useful and accurate assessments of elderly persons' suitability for various LTC services. One complicating factor is the number of different agencies
involved in certifying care level of patients which determines their eligibility for payment for services. For example, Medicare, Medicaid, Veterans Administration, Long-Term Care Channeling, and the Nursing Home without Walls each certify their clients. Coordination among projects and consistency of assessment are difficult. A problem in the assessment of clients in the past was the use of methods which primarily used medical and functional measures and largely ignored the social and environmental aspects of their lives. Assessment instruments following a social model have been used increasingly in recent years and were used in this study.

During the past 10 to 15 years, several researchers have carried out studies examining precursors to institutionalization of elderly persons. The various methodologies were examined in Chapter II and the results were compared. Studies were conducted in different countries and several parts of the United States. They studied elderly subjects in varying types of care and a variety of factors were examined using several research methodologies. The only variable which consistently appeared to characterize elderly persons in institutions was "lacks support" but not all of the studies measured that factor. Most of the researchers emphasized the
importance of additional research on the risk factors of institutionalization.

The Research Methodology

This research utilized the results of two surveys for its comparison data. One survey, conducted by the State of Hawaii Executive Office on Aging (EOA), collected data on community-living elderly, the other was conducted by the researcher, and collected data about elderly persons when they were about to enter an intermediate care facility (ICF) on Oahu. Close family members were interviewed and they retrospectively reported about their elderly relatives' situations at the time they entered the ICFs. Both surveys used the same basic instrument (OARS). The EOA data on community-living elderly persons were divided into two study groups, those using Home Care services and those who were not. This resulted in three comparison study groups as follows: (1) elderly persons about to enter an ICF, n = 91, (2) elderly persons using Home Care (HC), N = 129, and (3) elderly persons not using Home Care (NHC), n = 376.

The dependent variable was "level of care" with the three possible outcomes listed above. The independent variables were the more than 200 factors in the instrument about which data were collected and which contributed to the comprehensive assessment of the research subjects'
health and living situations. Comparability was enhanced by similar timing of events and the use of the same instrument. Also interviewers for both surveys were trained by the same person.

Analysis procedures included univariate analysis of variables to provide a general description of elderly persons in the three study groups, analysis of variance was used to test for significant differences among the groups by selected variables, and Pearson product-moment analysis identified relationships between pairs of selected variables in the three study groups. Discriminant analysis was conducted using a selected set of independent variables on which the three levels of care (dependent variable) were expected to differ. The purpose was to statistically distinguish among the groups. The test determines to what extent the selected variables place individuals into the respective groups more accurately than by chance (33%). When successful, it can then be used as a predictive model.

Findings for Hypothesis 1.0

Hypothesis 1.0

There are no statistically significant differences (p <= .05) in demographic, social, economic, mental and physical health, and ADL variables among older persons who are utilizing three levels of long-term care.

There were statistically significant differences among the three study groups by variables in each of the
categories leading to rejection of Hypothesis 1.0. This means that both substantively important and statistically significant differences exist across the three study groups.

There were pronounced age differences among the persons in the three study groups, the older ones were in the higher levels of care. Older persons in higher levels of care had less education. ICF residents were less often married, had fewer caregivers, were less likely to live alone and often had impaired social resources scores. Persons in ICFs were more apt to be on Medicaid, had fewer economic resources and lower incomes.

Intermediate care facility residents had more sight and hearing impairments, more bone fractures, suffered strokes and incontinence more frequently and respondents rated their physical and mental health as impaired more often. Persons in the higher levels of care were more likely to be unable to walk, they used canes, walkers and wheelchairs more frequently and they were much more likely to be impaired in ADL abilities.

At the time they entered an ICF, elderly persons were using many more Home Care services than those who remained in their homes. The distinct impairment profiles of persons in the three levels of care were illustrated by plotting the interviewers' Cumulative Impairment Scores
on a graph. The differences among the means of the CIS scores for each study group were statistically significant.

Findings for Hypothesis 2.0

**Hypothesis 2.0**

There are no statistically significant associations \( p \leq 0.05 \) between pairs of selected demographic factors, impairment measures, social and economic resources, and/or ADL abilities relating to persons using three levels of care.

Pearson product-moment correlations revealed numerous statistically significant relationships between pairs of variables relating to persons using the three levels of care. Therefore Hypothesis 2 was rejected meaning that such associations exist in these data.

Selected statistically significant relationships which were identified by the analysis follow. Older persons were less likely to be married, but if they were married, they were more apt to be Japanese. The more schooling they had, the more likely they were Caucasian. In the ICF group the more income, the more likely they were Caucasian. There was a moderate to strong correlation between education and income in all three groups.

Females in the ICF group were more likely to have fractures. The older subjects were more apt to have sight and hearing deficits. Incontinence was not correlated with sex or age but was with needing assistance in several
activities of daily living. In the ICF group there were
 correlations between being a woman and using a wheelchair.

All of the basic ADL skills were highly correlated
 with one another in the ICF and HC groups but not in the
 NHC group. The instrumental ADL skills were also highly
correlated with other IADL skills in all three groups with
only 4 exceptions in the NHC group. The self-rate of
physical health and mental health were highly correlated
with the interviewers' ratings of physical and mental
health of subjects.

Ancillary Question A

Are there statistically significant (p ≤ .05)
correlations between selected characteristics and ethnicity
of persons using three levels of care?

There were several statistically significant
relationships between ethnicity and other variables in
certain study groups. In the HC group persons who were
married were more likely to be Japanese. In all three
groups, persons with more education were more apt to be
Caucasian. Japanese subjects in the HC group were less
likely to live alone. Having a caregiver as long as needed
was related to being Japanese in the HC group. In the ICF
group only, the more income persons had, the more likely
they were Caucasian. Because of these significant
relationships, Ancillary Question A was answered positively
that there are ethnic differences in these data.
These comparisons should be viewed with caution, however, because of the slight over-representation of Japanese in the ICF study group. Also these bivariate comparisons which do not control for the effects of other variables may be misleading. For example, the finding that Japanese are more likely to be married and living with someone may be related to their longevity.

**Ancillary Question B**

Which independent variables (measuring characteristics of elderly persons utilizing three levels of care) included in a discriminant model most successfully classify individuals into the three levels of care (dependent variable)?

Using 19 selected variables in a discriminant model, the procedure placed 93.33% of the ICF persons correctly for an improved prediction of 60%. It was less effective in placing the transition Home Care group at 39%, 53% for an improved prediction of 6.2%. The model placed 95.42% of the No Home Care group correctly for a 62.12% improvement over chance. This proved to be a strong prediction model, accurately placing ICF and NHC persons 93 to 95% of the time.

Preliminary results using a categorical modeling procedure called CATMOD, which is a maximum likelihood logistic regression analysis (SAS, 1985), indicated that the following seven variables were significant predictors
of level of care: advanced age, lack of a caregiver as long as needed, poor eyesight, self-rating of health, incontinence, the interviewers' ADL Score, and the interviewers' Cumulative Impairment Scores. These preliminary results at least partially answer Ancillary Question B regarding important variables in predicting care level.

Findings for Hypothesis 3.0

**Hypothesis 3.0**

There are no significant differences at the .05 level in the degree of disability of older persons in free-standing ICFs and hospital-based ICFs or for-profit ICFs and not-for-profit ICFs.

Using the Cumulative Impairment Scores of subjects (combined interviewers' ratings of impairment in the five general categories of variables, social, economic, physical and mental health and ADL ability), analysis of variance was used to determine statistical differences between the two pairs of types of ICFs.

Comparing hospital-based and free-standing ICFs, the hypothesis was not rejected as there was no significant difference in impairment of subjects in the two types of facilities (p = 0.5052).

Comparing the impairment of subjects in for-profit and not-for-profit ICFs resulted in a significant difference with a probability of 0.0344. Persons in the not-for-
profit ICFs were more disabled. Therefore the hypothesis was rejected for this comparison meaning that persons in the not-for-profit intermediate care facilities were more disabled.

Discussion of the Findings

Hypothesis 1.0

The finding that as people age, they are more likely to need progressively higher levels of care is as would be expected. The higher proportion of Japanese to Caucasian in the ICFs (75.9% vs 24.1%) differs from the proportions in the State population (Japanese = 22.3%, Caucasians = 25.54% in 1982). However, the higher proportion of Japanese is not unexpected because of the longer life expectancy of Japanese Americans in Hawaii (Nordyke & Lee, 1981). Greater life expectancy also explains the higher percentage of females in higher levels of care.

Of the three groups, persons entering the ICFs were least likely to be married and fewer had caregivers as long as needed. Because they were older, their spouses (primary caregivers) were more likely to have died. Contrary to other research which reported living alone as a predictor of institutionalization (Branch, 1982; Brody, 1969; Kraus, 1976; Neilson, 1972; Palmore, 1976), fewer persons about to enter a nursing home lived alone in this study. It appears
(from other findings in this study) that many elderly persons on Oahu were so disabled at the time they entered a nursing home, it would have been impossible to live alone.

The observation that elderly persons in ICFs are less likely than community-living elders to have a caregiver as long as needed substantiates results from other research (E. Brody, 1969; Greenberg, 1979; Townsend, 1965). This may be explained by death of the spouse, no children, children moved away, death of friends as they get older, or especially in Hawaii, the children all work, or illness of children who are also elderly.

This study does not explain the complicated factors surrounding the economic resources of these elderly persons but it raises some important questions. Of subjects in this study, persons about to enter ICFs (compared to the HC and NHC groups) had the lowest incomes, they were four times more likely to be on Medicaid and one fifth as many owned their homes. Two previous studies (Greenberg, 1979; Palmore, 1976) found high income associated with institutionalization, however Kraus (1976) found low income predicts institutionalization. Who gets into nursing homes appears to vary by geographic location in the United States, depends on State criteria for eligibility for reimbursement for services, and is affected also by the criteria used for admission by individual nursing homes.
In Chapter III it was shown that, for the ICF group only, the OARS instrument was not an internally consistent measure of economic resources for those individuals. One possible explanation for that may be the transfer of assets to family or friends (pauperization) practiced by some elderly persons before entering a LTC facility (Frankfather, 1981; Smeeding, 1986). For example, 75.7% of the No Home Care group owned their homes, 67.4% of the Home Care group were owners but by the time the ICF subjects were ready to enter institutions, only 12.1% owned their homes. There are State regulations designed to control pauperization by setting time limits for giving away assets such as two years prior to applying for Medicaid.

There is also a federally regulated procedure whereby persons, not automatically qualified for Medicaid because of their income level, can "spend down" for medical insurance, co-payments, and services. When their income has been reduced to the medically needy protected income (MNPI) level, they are entitled to state plan benefits (Davidson, 1980). It has to be recomputed each year and is a complex and cumbersome system which is very confusing for elderly persons. It also varies from state to state. Because of its complexity, there are probably many eligible persons who are unable to take advantage of it. The use of "spend down" could alter a person's economic resource
status or the reporting of it. Those two important practices may, at least partially, explain why the reliability of the economic resource measure did not reflect the true level of economic resources the ICF residents had available (Frankfather, 1981; Smeeding, 1986).

Findings in this study that respondents for ICF subjects rate their health as considerably more impaired than the self-ratings of community-living elderly, corroborates recent research of self-appraisal of health in predicting nursing home placement (Weinberger, Darnell, Tierney, 1986). They found two times the institutional admission rate among persons who rated their own health as poor compared to persons who rated their health more favorably.

In this study there was little difference between ICF and HC groups in the numbers with arthritis, high blood pressure and diabetes but there were more in the ICF group with heart problems, urinary tract problems and cancer. There were also more ICF subjects who had sight and hearing deficits, bone fractures, stroke and incontinence. Also, three fourths of the ICF subjects were mentally impaired.

Greenberg and Ginn (1979) examined multiple medical problems of elderly persons as a predictor of institutionalization. They found that individuals in the
nursing home sample had more medical problems than those at home. It appears that perhaps the number of diagnosed conditions may not be as important to measure as those conditions which adversely affect normal functioning.

In this research it was demonstrated that persons about to enter a LTC facility, were using many more home care services than those remaining in the community. This suggests that while such services may delay institutionalization, for the most part they do not prevent it over time. It appears that the research subjects either became too disabled to be cared for at home or the caregivers had reached the limit of their resources both physical and mental. Hedrick and Inue (1986) concluded from their review of 12 studies on home care, that it cannot be assumed that home care reduces utilization of nursing homes or the cost of care. Other research was also inconclusive regarding whether or not the use of home care services prevents or delays institutionalization (Branch, 1982; Dunlop, 1980; Gurland, 1981).

Hypothesis 2.0

Many of the correlations found in Chapter IV are easily explained by logic, past experience or common sense. For example, in all three groups there was a strong, negative relationship between age and marital status. The
older persons were, the less likely they were to be have a living spouse.

Other correlations were less easily explained. There was a moderate to strong positive correlation between education and income which would be expected, but reporting Japanese ethnicity was strongly correlated with both low income (ICF group only) and less education (all three groups). A possible explanation might be that the elderly Japanese in ICFs had little opportunity for school when they arrived in Hawaii to work on the plantations. Less schooling would tend to decrease their lifetime earning power and lead to lower incomes.

Having a caregiver as long as needed was related to reporting Japanese ethnicity in both the ICF and HC groups and, in the HC group, Japanese were less likely to live alone. This is most likely related to the increased longevity of Japanese persons as their spouses tend to live longer. It is also possible that Japanese elderly have more family members living here in Hawaii who can be caregivers. It could also relate to a different "care-giving" ethic in the two groups.

Being married and in the ICF group was strongly correlated to needing assistance in eating. This supports research by Barney (1977) who found only very disabled married persons go to nursing homes. Of all the disabled
people in the ICFs, only a very few were unable to feed themselves. It appears that feeding oneself may be one of the last ADL skills a person loses.

Certain correlations are obvious and are also of interest because they validate the research procedures. For example, Medicaid has a means tested eligibility criterion of income below a certain amount. The strong correlation between low income and being on Medicaid tends to generate confidence in the instrument. In a similar way there were strong correlations between self-rated physical health and the interviewers' ratings of physical health for the subjects. The same was true of mental health. This tends to show agreement in perception between the subjects and interviewers and increases confidence in the interviewers' skills and the Cumulative Impairment Scores they reported.

An unexpected outcome of the correlation procedure was that there was no correlation between incontinence and either age or sex. It was correlated with needing assistance in several IADL functions and, in the HC group, if they reported incontinence they reported worse mental health. Incontinence was shown to be a very important variable in this study. More than three times as many persons in the ICFs (69%) were incontinent compared to those receiving Home Care (17%). Also more than three
times as many reported "urinary tract problems". As is stated elsewhere in this chapter, the type of diagnosis or number of conditions are not as important as how they affect persons' abilities to function. Incontinence seriously limits function, is embarrassing, and is difficult for family care-givers to manage. It was also found to be a strong predictor of institutionalization in this study.

Over one fourth of the persons entering the ICFs had fractures, most of them of the hip. That was eight times the number in the HC group. Bone fractures were correlated with sex (female) and advanced age. The finding of no significant correlation between fractures and ethnicity suggests the possibility that both Caucasians and Japanese women are equally at risk.

Ancillary Question A

Ethnic differences found in the research were discussed in the previous section with other correlations.

Ancillary Question B

The discriminant analysis showed that, using selected important variables, the model performed well in predicting placement. The model properly classified 93.33% of persons in ICFs. For the HC group, it correctly placed 37.53% and for the NHC group, 95.42%, illustrating that the procedure
effectively discriminated among the groups. Further analysis using a maximum likelihood logistic regression procedure (CATMOD) produced preliminary results indicating that the following seven variables were significant predictors of level of care, advanced age, lack of a caregiver as long as needed, poor eyesight, self-rating of health, incontinence, interviewers' ADL Scores, and the interviewers' Cumulative Impairment Scores.

Conclusions

1. The use of the OARS instrument in this research was appropriate as it functioned well in providing a comprehensive profile of the elderly research subjects' life situations. Because several "known" phenomena were measured and it functioned predictably, confidence in its capability was enhanced (Kerlinger, 1973).

2. The finding that the OARS instrument did not measure economic resources reliably in the ICF group but did in the EOA groups, may in itself be an important observation which needs exploration.

3. Using bivariate analysis, it was found that persons about to enter ICFs were significantly different than community-living elderly. They were predominantly older, female, Japanese, without a living spouse, with low income, not living alone at the time, and using many more
home care services. They had fewer caregivers as long as needed, experienced poorer physical and mental health, suffered from incontinence more often, had more fractured bones, were more functionally impaired, and more of them used ambulation aids. These are important observations which should be considered in research of elderly persons or in conducting assessments to be used in LTC placements.

4. Important predictors of long-term care level identified by maximum likelihood logistic regression are: advanced age, lack of a caregiver as long as needed, poor eyesight, self-rating of health, incontinence, the interviewers' ADL Scores, and the interviewers' Cumulative Impairment Scores. The final item is an index including social, economic, mental and physical health, and ADL abilities measures.

5. Much more goes into the LTC decision of/for elderly persons than their medical condition. While that is important, whether or not someone can care for them, how they perceive their own condition, their living situation, mental health and a combination of functional abilities also play major roles.
Recommendations

Public Health Practice

1. The use of the OARS instrument is highly recommended in obtaining a comprehensive assessment of a client's life situation for diagnostic purposes to aid in identifying appropriate long-term care services.

Health services research

2. Recommendation 1 can be expanded to apply to longitudinal health services research. As clients are followed over time using a comprehensive instrument, trends in their physical and mental health and living situation can be monitored, keeping in mind factors predictive for institutionalization. With regular assessments, intervention with appropriate services might be more timely and possibly prevent or delay institutionalization.

Basic Research

3. In-depth research on the problem of incontinence among the elderly is strongly recommended. Because of the magnitude of the problem in the population, the major adverse effects for elderly persons themselves and their families, the economic consequences, and the risk for institutionalization it apparently causes, incontinence
should have a high priority for increased attention by researchers, practitioners and policy-makers.

4. Research on falls (and fractures) among the elderly is also recommended. The numbers of fractures were substantial. Twenty five percent of persons entering ICFs had experienced fractures which is eight times the number in the two community-living study groups. The outcomes are devastating for older persons in terms of loss of mobility and independence, isolation, fear of falling again, slow recovery or failure to recover. The prevalence of falls and/or fractures in Hawaii are not known.

Health Policy Research

5. In addition to researching characteristics of elderly persons, there are many questions unanswered concerning health system variables. We need to know how federal, state and local policies affect the elderly. There are questions about availability of services, supply of nursing home beds, long-term care health insurance, minimum income for elderly persons, and eligibility criteria for means tested programs. It is important to know what elderly people with certain characteristics do, and we also need to know why.

6. The whole situation surrounding the economic resources of elderly persons is a fertile area for health
policy research. There are many questions which need answers in order to develop policy to provide fair, equitable, and appropriate services for elderly persons. For example three research questions might be:

(a) When and how does "pauperization" occur and how does it affect elderly persons? Are there abuses?

(b) Of eligible persons, how many successfully work through the system and benefit from "spend down"?

(c) How many elderly spouses live in poverty in the community after a lifetime of saving because they spent all their resources for their partners' nursing home costs until they qualified for Medicaid?
APPENDIX A

LETTERS OF APPROVAL, CONSENT FORMS
Ms. Joyce Varney  
1645 Quincy Place  
Honolulu, HI 96816

Dear Ms. Varney:

Re: Letter Dated October 23, 1983 Requesting Access to Needs Assessment Data

The Executive Office on Aging welcomes the opportunity to make available its needs assessment data sets for your use. This office advocates for research in the field of aging and will support such research request as long as the obtained data will be accessible by agencies and individuals of the elderly network. Our understanding is that this is so.

The other arrangements outlined in your letter are agreeable. We suggest that your specific data request incorporate enough flexibility to allow staff to integrate this request into their work schedule.

Please contact Mr. Carswell Ross for your data needs.

Sincerely,

[Signature]

Renji Goto, Director  
Executive Office on Aging

AN EQUAL OPPORTUNITY EMPLOYER
1. TITLE OF APPLICATION OR ACTIVITY

"ALTERNATIVE MODES OF LONG-TERM CARE: AN ANALYSIS OF FACTORS INFLUENCING SELECTION BY ELDERLY PERSONS AND THEIR FAMILIES"

2. PRINCIPAL INVESTIGATOR, PROGRAM DIRECTOR, OR FELLOW

Cyril Roseman, Ph.D.

3. FOOD AND DRUG ADMINISTRATION REQUIRED INFORMATION (see reverse side)

4. HHS ASSURANCE STATUS

☐ This institution has an approved assurance of compliance on file with HHS which covers this activity.

G0104

Assurance identification number

☐ No assurance of compliance which applies to this activity has been established with HHS but the applicant institution will provide written assurance of compliance and certification of IRB review and approval in accordance with 45 CFR 46 upon request.

5. CERTIFICATION OF IRB REVIEW OR DECLARATION OF EXEMPTION

☐ This activity has been reviewed and approved by an IRB in accordance with the requirements of 45 CFR 46, including its relevant Subparts. This certification fulfills, when applicable, requirements for certifying FDA status for each investigational new drug or device (see reverse side of this form).

9/23/83

Date of IRB review and approval. (If approval is pending, write "pending". Followup certification is required.)

☐ Full Board Review

☐ Expedited Review

☐ This activity contains multiple projects, some of which have not been reviewed. The IRB has granted approval on condition that all projects covered by 45 CFR 46 will be reviewed and approved before they are initiated and that appropriate further certification (form HHS 536) will be submitted.

☐ Human subjects are involved but this activity qualifies for exemption under 46.101(b) in accordance with paragraph ______ (insert paragraph number of exemption in 46.101(b)), 1 through 8, but the institution did not designate that exemption on the application.

6. Each official signing below certifies that the information provided on this form is correct and that each institution assumes responsibility for assuring required future reviews, approvals, and submissions of certification.

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<thead>
<tr>
<th>APPLICANT INSTITUTION</th>
<th>COOPERATING INSTITUTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Hawaii</td>
<td>Name, Address, and Telephone No.</td>
</tr>
<tr>
<td>2540 Maili Way</td>
<td>CHS 4046</td>
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<tr>
<td>Honolulu, HI 96822</td>
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<th>NAME AND TITLE OF OFFICIAL (print or type)</th>
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<tbody>
<tr>
<td>Joseb Ghali, Ph.D. Associate Dean, Research</td>
<td>signature of official listed above (and date)</td>
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<tr>
<td></td>
<td>10/14/83</td>
</tr>
</tbody>
</table>

HHS 595 (Rev. 1/82)

(If additional space is needed, please use reverse side under "Notes.")
1 INFORMED CONSENT FOR RESEARCH

2 Study Title: LONG-TERM CARE INSTITUTIONALIZATION: AN ANALYSIS
3 OF FACTORS INFLUENCING SELECTION BY ELDERLY
4 PERSONS AND THEIR FAMILIES
5 Principal Investigator: Joyce M. Varney
6 Address: 1645 Quincy Place, Honolulu, Hi.
7 Phone Number: 732-3846

8 Subject's/Patient's Name: ________________________________
9 Community Contact's/Informant's Name: __________________

10 I certify that I have been informed of the nature, purpose and
11 possible risks involved in participating in this study and
12 that I have been given satisfactory answers to all my in-
13 quiries concerning the project. The information provided
14 below has been explained to me by the principal investigator
15 or by his/her designee.

16 Purpose of Research: To gain information about factors in-
17 fluencing the decision to enter a long-term care institution.

18 Research Procedure: An interview of approximately one hour
19 with the family contact of a person in a nursing home.

20 Risks/Benefits: No risks to the interviewee except perhaps
21 sadness at recalling relocating a loved one. The benefits
22 will be a better understanding by others faced with this
23 same decision.

24 Other follow-ups: None

25 I have been advised that participation is voluntary and that
26 I am free to withdraw my consent and to discontinue partici-
27 pation in the project or activity at any time without pre-
28 judice. I also understand that all information provided by
29 myself will be kept in strict confidence. I am willing to
30 release the information for this study and permit the results
31 to be published for the benefit of other interested parties
32 if I am not personally identified.

33 I hereby give my consent to participate with the understanding
34 that such consent does not waive any of my legal rights nor
35 does it release the principal investigator or any employee or
36 agent of participating institutions from liability for
37 negligence or for any wrongful act of conduct.

38 Community contact/ 39 Principal Investigator
40 Informant or Designee
41 (Family member or 42 Witness
43 friend being
44 interviewed) 45
46

Date

Witness
LONG-TERM CARE RESEARCH STUDY

To Potential Research Participants:

This research is being conducted out of concern for elderly people who need some type of long-term care for illness or disability. It is suspected that the decision of whether to go to a nursing home or day care center or receive home care is a difficult one. It is hoped that this research will discover many things about what influences the decision and, in that way, learn how to make it easier in the future to select the best possible long-term care solutions for elderly persons.

It would be most helpful to us, if you would agree to take part in the study. It would mean we would ask you quite a few questions about your _________ and also his/her family situation at the time he/she began long-term care services. Anonymity for all of you will be guaranteed. Your identity will only be known to the researcher and possibly an interviewer.

The interview will take about one hour to complete so we will schedule it at a time and place which would be most convenient for you.

Your participation in this is strictly voluntary. If you agree to help in this research, and find you are reluctant to answer any question during the interview, you may just say so and the interviewer will go on to the next question.

We feel this is important research and we hope you will willing to be a part of it.
June 12, 1984

Dear Family Member:

A Long-Term Care Research Study is presently being conducted in various Skilled Nursing and Intermediate Care Facilities on Oahu by Ms. Joyce Varney, a candidate for a doctoral degree in Public Health from the University of Hawaii. Ms. Varney is conducting this research to learn what factors have influenced family members and caregivers to decide on whether to choose a nursing home or day care center or receive home care for their elderly family member. This research study has been approved by Kuakini Medical Center's Research Committee and we would like to encourage your participation to assist us in understanding the problems that families are faced with.

If you agree to participate, it would mean that you would be asked a few questions about your parent or elderly family member and his/her family situation at the time he/she began long-term care services.

Ms. Varney will be personally contacting you in order to ask for your participation and if possible to schedule an appointment for a one-hour interview at your convenience. You may either wish to participate yourself or help identify someone else in your family who might be more appropriate.

Again, we encourage your participation. Thank you very much.

Sincerely,

Janice Takeuchi, MSW
Medical Social Worker

Fe Vidal, MSW
Medical Social Worker
APPENDIX B

THE OARS QUESTIONNAIRE
MULTIDIMENSIONAL FUNCTIONAL ASSESSMENT QUESTIONNAIRE

Subject's Name________________________ ID No.__________(4 digits)

ICF Nursing Home_____________________

Informant's Name_____________________

Address_____________________________________________________________________

Telephone Number(s)_________________________________________________________

Relationship of Informant to Subject_________(2 digits)

Language Used to Administer Questionnaire__________(1 digit)

Interviewer's Name_____________________

Place of Interview____________Date__________(6 digits)

<table>
<thead>
<tr>
<th>Language</th>
<th>Relationship</th>
</tr>
</thead>
<tbody>
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<td>1 English</td>
<td>01 Spouse</td>
</tr>
<tr>
<td>2 Japanese</td>
<td>02 Brother</td>
</tr>
<tr>
<td></td>
<td>03 Sister</td>
</tr>
<tr>
<td></td>
<td>04 Son</td>
</tr>
<tr>
<td></td>
<td>05 Daughter</td>
</tr>
<tr>
<td></td>
<td>06 Grandchild</td>
</tr>
<tr>
<td></td>
<td>07 Nephew/Niece</td>
</tr>
<tr>
<td></td>
<td>08 Cousin</td>
</tr>
<tr>
<td></td>
<td>09 Friend</td>
</tr>
<tr>
<td></td>
<td>10 Other</td>
</tr>
</tbody>
</table>
(INTRODUCE YOURSELF TO INFORMANT) I will be asking you some questions today about (subject). The questions will be about family situation, his/her economic condition and his/her health, not at the present time, but back at the time he/she entered the nursing home.

1. ID No. _________________________________________________ (4 digits)
2. Sex of Subject
   1 Male
   2 Female
3. Race of Subject
   01 Caucasian
   02 Japanese
   03 Hawaiian
   04 Part-Hawaiian
   05 Filipino
   06 Chinese
   07 Korean
   08 Samoan
   09 Black
   10 Puerto Rican
   11 Other
   (2 digits)
4. When was he/she born? ____________________________ (6 digits)
   month    day    year
4A. Where was he/she born?
   1 Hawaii    2 Mainland    3 Other
4B. How long has he/she lived in Hawaii? ___ ___ (2 digits)
5. How old is he/she? ____________________________
   (CODE 09 FOR NO ANSWER, 99 FOR AGE 99 AND OVER)
6. How far did he/she go in school?
   1 0-4 years
   2 5-8 years
   3 High school incomplete
   4 High school completed
   5 Post high school, business or trade school
   6 1-3 years college
   7 4 years college completed
   8 Post graduate college
   9 No answer
6. How far did he/she go in school?
7. How long has he/she been in ____________________________ ?
   1 Less than a year
   2 One year
   3 2 years
   4 3 years
   5 4 years
   6 5 years or more
   7 No answer
   (nursing home)
SOCIAL RESOURCES

(Answer all questions as of the time subject entered the nursing home)

9. When _________ (subject) went to the nursing home was he/she married, widowed, divorced, separated or never married?
   1 Single (never married)
   2 Married
   3 Widowed
   4 Divorced
   5 Separated
   6 No answer

(IF NO LONGER MARRIED, ASK 8A)

8.A How long had he/she been widowed (divorced, separated)?
   ___ ___ years (Code less than 1 year as 1) (2 digits)

9. Where was _________ (subject) just before he/she went to the nursing home?
   1 Home
   2 Acute care hospital
   3 Another nursing home
   4 Other (Specify) ______________________________________
   5 No answer

(IF 2, ASK 9A)

9.A How long was _________ (subject) in the acute care hospital?
   ___ ___ weeks (2 digits)

(IF 3, ASK 9B)

9.B How long was _________ (subject) in the previous nursing home?
   ___ ___ years (Code less than 1 year as 1)

10. Who was he/she living with just before going to the nursing home?
    1 No one
    2 Husband or wife
    3 Children
    4 Brother or sister (include in-laws)
    5 Other relatives (not in-laws)
    6 Friend(s)
    7 Non-related paid helper
    8 Other (Specify) ______________________________________
    9 No Answer
10. A About how many times a week did _________ talk to someone, friends, relatives, or others either on the phone or by visiting in person? (At the time he/she entered the nursing home)
   3 Once a day or more
   2 2-6 times a week
   1 Once a week
   0 Not at all
   9 No answer

11. How well did _________ (Subject) get along with his/her family and friends: very well, fairly well, or poorly (has considerable trouble or conflict with them)?
   3 Very well
   2 Fairly well (has some conflict with them)
   1 Poorly (has considerable trouble or conflict with them)
   9 No answer

12. Was there someone who would have helped _________ (subject) at all if he/she were sick or disabled, for example, his/her husband or wife, a member of the family or a friend?
   1 Yes
   0 No
   9 No answer


12.A Was there someone who would have taken care of him/her as long as needed, or only for a short time, or only someone who would help now and then (for example, taking him/her to the doctor, fixing lunch, etc.)?
   1 Someone who would have taken care of Subject indefinitely (as long as needed)
   2 Someone who would have taken care of Subject a short time (a few weeks to six months)?
   3 Someone who would have helped him now and then (taking him to the doctor or fixing lunch, etc.)
   9 No answer

12.B Who was this person?
   Relationship ___ ___

Code: 01 Spouse; 02 Sibling; 03 Child; 04 Grandchild; 05 Nephew/Niece; 06 Cousin; 07 Friend; 08 Other;
09 No one; 10 Other family; 99 No answer
ECONOMIC RESOURCES

Now I'd like to ask you about ________ (Subject's) work situation.

13. What kind of work did ________ (Subject) do most of his/her life?
   1 White collar (professional, technical managers, sales workers, clerical and kindred workers)
   2 Blue collar (crafts workers, supervisors and kindred operatives, including transport, laborers, except farm)
   3 Farm occupations (farm workers)
   4 Service occupations (service workers, private household workers)
   5 Housewife
   6 Never employed
   9 No answer Specify __________________________

14. Did his/her husband/wife ever work? (QUESTION APPLIES ONLY TO SPOUSE TO WHOM MARRIED THE LONGEST)
   1 Yes
   2 No
   3 Never married
   9 No answer
   (IF YES, ASK 14A)

14A. What kind of work did he/she do?
   1 White collar (professional, technical managers, sales workers, clerical and kindred workers)
   2 Blue collar (craft workers, supervisors and kindred operatives, including transport, laborers, except farm)
   3 Farm occupations (farm workers)
   4 Service occupations (service workers, private household workers)
   5 Housewife
   6 Never employed
   9 No answer
15. Approximately how much income did he/she (and his/her husband/wife) have a year at the time he/she went to the nursing home?

(SHOW ANNUAL INCOME LADDER AND CIRCLE THE LETTER WHICH IDENTIFIES EITHER YEARLY OR MONTHLY INCOME CATEGORY)

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<td>$30,000 - $33,999</td>
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<td>$40,000 or More</td>
<td>($3,334 or More)</td>
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16. How many people altogether lived on that income?

(2 digits)

17. At the time he/she entered the nursing home, did he/she own his/her own home?

1 Yes
9 No

(If no, ask 20 and 21)

(IF YES ASK 18 AND 19)

18. How much was it worth?

1 Up to $25,000
2 $25,000 - $50,000
3 $50,000 - $100,000
4 More than $100,000
9 No answer

19. Did he/she own it outright or was he/she still paying a mortgage?

1 Own outright
2 Still paying
9 No answer

(IF YES ASK 21)

20. How much rent did he/she pay?

1 $0 - $59 per month
2 $60 - $99 per month
3 $100 - $149
4 $150 - $199
5 $200 - $249
6 $250 - $299
7 $300 and up
9 No answer

21. Did he/she live in public housing or receive a rent subsidy?

1 No, neither
2 Yes, live in public housing
3 Yes, receives a rent subsidy
9 No answer
22. Was he/she covered by Medicaid? (WHEN ENTERED NH)
   1 Yes
   0 No
   9 No answer

23. Was he/she covered by Medicare? (WHEN ENTERED NH)
   1 Yes
   0 No
   9 No answer

24. Was he/she covered by medical insurance, such as HMSA, Aetna, Travelers, etc.? (WHEN ENTERED NH)
   1 Yes
   0 No
   Specify__________________________
   9 No answer

25. He/she is now covered by: (AT THE TIME OF INTERVIEW)
   1 Medicaid
   2 Medicare
   3 Other insurance
   9 No answer

26. Economic resources: In your opinion were __________’s (Subject/s) needs for the following basic necessities being well met, barely met, or were they not being met?
   (CHECK THE APPROPRIATE BOX FOR EACH NEED)

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<td>SMALL LUXURIES</td>
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MENTAL HEALTH

(Questions all refer to time subject entered NH)

27. At the time ________ (Subject) went to the nursing home, did he/she show good, common sense in making judgements and decisions?
   1 Yes
   9 No answer

28. Was ________ (Subject) able to handle (cope with) major problems which occurred in his/her life?
   1 Yes
   9 No answer

29. Do you feel that ________ (Subject) found life exciting and enjoyable?
   1 Yes
   9 No answer

30. How would you rate ________’s (Subject’s) mental or emotional health or ability to think at the time he/she went to the nursing home? Compared to the average person living independently, was the ability excellent, good, fair, or poor?
   1 Poor
   2 Fair
   3 Good
   4 Excellent
   9 No answer
PHYSICAL HEALTH

Let's talk about _______’s (Subject’s) physical health at the time he/she went to the nursing home.

31. At that time, was he/she seeing a doctor regularly?
   1 Yes
   2 No
   9 No answer

32. Had he/she spent time in the hospital the year before going to__________ (nursing home)?
   ___ ___ (times that year) (2 digits)

33. Did _______ (Subject) have any of the following illnesses when he/she went to the Nursing home?

   (CHECK YES OR NO FOR EACH OF THE FOLLOWING. IF YES, ASK “How much did it interfere with his/her activities, not at all, a little (some), or a great deal?” AND CHECK APPROPRIATE BOX)

   (IF YES, HOW MUCH DID IT INTERFERE WITH HIS/HER ACTIVITIES?)

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<th>(2)</th>
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<tbody>
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</tr>
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Other urinary tract disorder (including prostate)
Cancer or leukemia
Anemia
Effects of stroke
Parkinson's Disease
Epilepsy
Cerebral Palsy
Multiple Sclerosis
Muscular Dystrophy
Effects of Polio
Thyroid or other glandular disorders
Skin disorders such as pressure sores, ulcers
Speech impediment or impairment
FUNCTIONAL DISABILITY
(QUESTIONS REFER TO TIME ENTERED NURSING HOME)

34. Did ________ (Subject) have a problem with his/her health because of drinking or did his/her physician advise him/her to cut down on drinking?
   1 Yes
   0 No
   9 No answer

35. How was ________ (Subject's) hearing, excellent, good, fair, poor or totally deaf?
   1 Excellent
   2 Good
   3 Fair
   4 Poor
   5 Totally deaf
   9 No answer

36. How was ________'s (Subject's) eyesight (with glasses or contacts), excellent, good, fair, poor, or totally blind?
   1 Excellent
   2 Good
   3 Fair
   4 Poor
   5 Totally blind
   9 No answer

37. Did ________ (Subject) have any other physical problems or illnesses at that time that seriously affected his/her health?
   1 Yes
   0 No
   9 No answer

(IF YES, SPECIFY) __________________________________________________________
________________________________________________________________________

38. How would you rate ________'s (Subject's) health at the time he/she entered the nursing home? Excellent, good, fair, or poor?
   1 Excellent
   2 Good
   3 Fair
   4 Poor
   9 No answer

39. How much did ________'s (Subject's) health troubles stand in the way of his/her doing the things he/she wanted to — not at all, a little (some), or a great deal?
   1 Not at all
   2 A little
   3 A great deal
   9 No answer
40. When _______ (Subject) went to the nursing home, did he/she use any of the following aids all or most of the time?

(CIRCLE YES OR NO FOR EACH AID)

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Cane (including tripod-tip canes)
Crutches
Walker
Wheelchair
Leg brace
Back brace
Artificial limb
Hearing aid
Colostomy equipment
Catheter
Kidney dialysis machine
Other (specify) ____________________
ACTIVITIES OF DAILY LIVING

Now I'd like to ask you about some of the activities of daily living, things that we all need to do as part of our daily lives. I would like to know if ________ (Subject) could do these activities without any help at all, or if he/she needed some help to do them, or if he/she couldn't do them at all. (At the time he/she entered the nursing home) (BE SURE TO READ ALL ANSWER CHOICES, IF APPLICABLE IN QUESTIONS)

Instrumental ADL

41. Could he/she use the telephone . . .
   2 without help, including finding numbers and dialing
      1 with some help (can answer phone or dial operator
         in an emergency but needs a special phone or help in
         finding number or dialing
      0 completely unable to use phone
      9 No answer

42. Could he/she get to places out of walking distance . . .
   2 without help (can travel on buses, taxis, or drive)
   1 with some help (need someone to help or go with him)
      0 unable to travel unless emergency arrangements are
         made for a specialized vehicle (i.e. ambulance)
      9 No answer

43. Could he/she go shopping for groceries or clothes? (ASSUMING
    PERSON HAS TRANSPORTATION)
   2 without help (taking care of all shopping needs himself)
   1 with some help (needed someone to go with him/her on all
      shopping trips
      0 completely unable to shop
      9 No answer

44. Could he/she prepare his/her own meals?
   2 without help (plan and cook full meals himself)
   1 with some help (can prepare some things but unable to
      cook full meals himself)
      0 completely unable to prepare meals

45. Could he/she do housework?
   2 without help (can scrub floors etc.)
   1 with some help (can do light housework but needed help
      with heavy work)
      0 completely unable to do any housework
      9 No answer

46. Could he/she take his/her own medicine?
   2 without help (in the right doses and at the right time)
   1 with some help (able to take medicine if someone pre-
      pares it for him)
      0 completely unable to take own medicine
      9 No answer
<table>
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<td>47. Could he/she handle his/her own money?</td>
<td>2 without help (write checks, pay bills, etc.)&lt;br&gt;1 with some help (manage day-to-day buying but needed help with checkbook and paying bills)&lt;br&gt;0 completely unable to handle money&lt;br&gt;9 No answer</td>
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<td>48. Could he/she eat . . .</td>
<td>2 without help (able to feed self completely)&lt;br&gt;1 with some help (needed help with cutting, etc.)&lt;br&gt;0 completely unable to feed him/herself&lt;br&gt;9 No answer</td>
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<td>49. Could he/she dress and undress . .</td>
<td>2 without help (able to pick out clothes, dress self)&lt;br&gt;1 with some help&lt;br&gt;0 completely unable to dress and undress self&lt;br&gt;9 No answer</td>
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<td>50. Could he/she take care of his/her appearance, for example combing hair and (for men) shaving?</td>
<td>2 without help&lt;br&gt;1 with some help&lt;br&gt;0 completely unable to maintain appearance&lt;br&gt;9 No answer</td>
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<td>51. Could he/she walk . .</td>
<td>2 without help&lt;br&gt;1 with some help&lt;br&gt;0 completely unable to walk&lt;br&gt;9 No answer</td>
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<td>52. Could he/she get in and out of bed . .</td>
<td>2 without help&lt;br&gt;1 with some help (either from a person or using a device)&lt;br&gt;0 totally dependent on someone to lift him/her&lt;br&gt;9 No answer</td>
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<td>53. Could he/she take a bath or shower . .</td>
<td>2 without help&lt;br&gt;1 with some help (getting in or out of tub, or special attachments on the tub)&lt;br&gt;0 completely unable to bathe him/herself&lt;br&gt;9 No answer</td>
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<td>54. Did he/she ever have trouble getting to the bathroom on time?</td>
<td>2 No&lt;br&gt;0 Yes&lt;br&gt;1 Had a catheter or colostomy&lt;br&gt;9 No answer</td>
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55. How often did he/she wet or soil him/herself (either day or night)?
   1 Once or twice a week
   2 Three times a week or more
   9 No answer

56. Was there someone who helped him/her with such things as
    shopping, housework, bathing, dressing, and getting around?
   1 Yes
   0 No
   9 No answer
   (IF YES, ASK 57)

57. Who was his/her major helper?
   Relationship

UTILIZATION OF SERVICES

Now I want to ask you some questions about the kinds of help
(Subject) was receiving or needed at the time he/she
entered the nursing home. We will ask about help from agencies
or organizations and help received at home from family and
friends.

TRANSPORTATION

58. Who provided him/her with transportation for shopping,
    visiting friends, going to the doctor, etc.?
    (CIRCLE "YES" OR "NO" FOR EACH.)

   YES NO
   Y N (A) Himself/Herself
   Y N (B) His/Her family or friends
   Y N (C) Used public transportation
            (bus, taxi, subway, etc.)
   Y N (D) Public agency (specify) __________
   Y N (E) Other (specify) __________

59. On the average how many round trips did he/she make a week?
   0 None
   1 Less than one a week
   2 One to three a week
   3 4 or more
   9 No answer
SOCIAL/RECREATIONAL SERVICES

60. In the six months prior to entering the nursing home, did he/she participate in any planned and organized social or recreational programs or in any group activities or classes such as arts and crafts classes?
   1 Yes
   0 No
   9 No answer
   (IF "NO" SKIP TO 60(C); IF "YES" ASK 60(A), 60(B) & 60(C)).

60(A) About how many times a week did he/she participate in these activities?
   1 Once a week or less
   2 2-3 times a week
   3 4 times a week or more
   9 No answer

60(B) Does he/she still participate in such activities or groups in the nursing home?
   1 Yes
   0 No
   9 No answer

60(C) Do you feel he/she could have benefited by participation in any planned and organized social or recreational programs or in group activities or classes?
   1 Yes
   0 No
   9 No answer

REMEDIAL TRAINING

61. In the six months prior to entering the nursing home, did he/she have any remedial training or instruction in learning basic personal skills, for example, speech therapy, reality orientation, or training for the blind or physically or mentally handicapped? (EXCLUDE PHYSICAL THERAPY)
   1 Yes
   0 No
   9 No answer
   (IF "NO" SKIP TO 61(C); IF "YES" ASK 61(A), 61(B), & 61(C)).

61(A) On the average about how many training sessions a week did he/she have over those six months?
   1 Less than one a week
   2 One a week
   3 Two or more a week
   9 No answer

61(B) Is he/she currently receiving this type of training or instruction in the nursing home?
   1 Yes
   0 No
   9 No answer
61(C) Do you think he/she could have benefited by remedial training or instruction in basic personal skills?
   1 Yes
   0 No
   9 No answer

MENTAL HEALTH SERVICES

62. Did he/she have any treatment or counseling for personal or family problems or for nervous or emotional problems in the six months prior to entering the nursing home?
   1 Yes
   0 No
   9 No answer

(IF "NO" SKIP TO 62(D); IF "YES" ASK 62(A), 62(B), 62(C), & 62(D).)

62(A) Was he/she hospitalized for nervous, or emotional problems at any time during that period?
   1 Yes
   0 No
   9 No answer

62(B) During those six months how many sessions had he/she had with a doctor, psychiatrist or counselor for those problems (other than those when he/she was an inpatient in the hospital)?
   0 None, treatment only as an inpatient
   1 Less than 4 sessions (only occasionally or for evaluation)
   2 4-12 sessions
   3 13 or more sessions
   9 No answer

62(C) Is he/she still receiving this type of help in the nursing home?
   1 Yes
   0 No
   9 No answer

62(D) Do you feel that he/she could have benefited by treatment or counseling for personal or emotional problems?
   1 Yes
   0 No
   9 No answer
PERSONAL CARE SERVICES

53. In the six months prior to entering the nursing home did someone help him/her with personal care, for example, helping with bathing, dressing, feeding or helping with toilet care?
   1 Yes
   0 No
   9 No answer

(If "NO" skip to 63(D); If "YES" ask 63(A), 63(B), 63(C) and 63(D).)

63(A) Who helped in that way?
   1 Unpaid family members or friends
   2 Someone hired to help or someone from an agency
   3 Both
   9 No answer

63(B) On the average, how much time per day did this person help with bathing, dressing, eating, going to the toilet, etc.?
   1 Less than one-half hour per day
   2 One-half to one and one-half hours per day
   3 More than one and one-half hours per day
   9 No answer

63(C) Is he/she still being helped in this way in the nursing home?
   1 Yes
   0 No
   9 No answer

63(D) Do you feel he/she could have benefited by help with bathing, dressing, eating, or going to the toilet?
   1 Yes
   0 No
   9 No answer

NURSING CARE

64. During the six months prior to entering the nursing home did he/she have any nursing care, in other words, did a nurse or someone else provide treatment or medications prescribed by a doctor? (Exclude nursing care while in a hospital)
   1 Yes
   0 No
   9 No answer

(If "NO" skip to 64(D); If "YES" ask 64(A), 64(B), 64(C), and 64(D).)
64(A) Who helped him/her in that way?
1 Unpaid family member or friends
2 Someone hired to help in that way or someone from an agency
3 Both
9 No answer

64(B) On the average, how many hours a day did he/she receive this help?
1 Only occasionally, not every day
2 Gave oral medicine only
3 Less than one-half hour per day
4 One-half to one hour per day
5 More than one hour per day
9 No answer

64(C) How long did he/she have that help during those six months?
1 Less than one month
2 1-3 months
3 More than 3 months
9 No answer

64(D) Do you feel he/she could have benefited by nursing care?
1 Yes
0 No
9 No answer

PHYSICAL THERAPY
65. During the six months prior to entering the nursing home did he/she receive physical therapy?
1 Yes
0 No
9 No answer

(IF "NO" SKIP TO 65(D); IF "YES" ASK 65(A), 65(B), 65(C), AND 65(D).)

65(A) Who gave physical therapy or helped with it?
1 Unpaid family members or friends
2 Someone hired to provide this or someone from an agency
3 Both
9 No answer

65(B) On the average how many times a week did someone help with physical therapy activities?
1 Less than once a week
2 Once a week
3 2 or more times a week
9 No answer
67. During the six months prior to entering the nursing home, did he/she have someone regularly (at least five times a week) check on him/her by phone or in person to make sure he/she was all right? (If "YES" ASK 67(A).) 

66(C) (IF "NO" ASK 67(A).) 

66(D) (IF "YES" ASK 66(A), 66(B), & 66(D).) 

66(A) Who looked after him/her? 
1 Unpaid family members or friends 
2 Someone hired to look after him/her or someone from a boarding agency 
3 Both agency (IF "NO" SKIP TO 66(D).) 

66(B) Do you feel he/she needed to have someone with him/her all the time? (If "YES" ASK 66(A), 66(B), & 66(D).) 

66(C) Do you think he/she would have benefited by physical therapy in the nursing home? (IF "NO" SKIP TO 66(D).)
67(A) Who checked on him/her?
1 Unpaid family members or friends
2 Someone from an agency, a volunteer, or someone hired to help him/her
3 Both
9 No answer

RELOCATION AND PLACEMENT SERVICES
68. In the six months prior to entering the nursing home, did he/she have any help in finding a new place to live, or in making arrangements to move in? (INCLUDING PLACEMENT IN THE INSTITUTION)
1 Yes
0 No
9 No answer
(IF "NO" SKIP TO 68(B); IF "YES" ASK 68(A) AND 68(B).)

68(A) Who helped him/her with this?
1 Unpaid family members or friends
2 Other, such as someone from an agency
3 Both
9 No answer

68(B) Do you feel he/she could have used help in finding another place to live?
1 Yes
0 No
9 No answer

HOMEMAKER - HOUSEHOLD SERVICES
69. During the six months prior to entering the nursing home, did someone have to help him/her regularly with routine household chores such as cleaning, washing clothes, etc.? That is, did his/her husband/wife or someone else have to do them because he/she was unable to?
1 Yes
0 No
9 No answer
(IF "YES" ASK 69(A) AND 69(B).)

69(A) Who helped with household chores?
1 Unpaid family members or friends
2 Other, such as a paid helper or agency person
3 Both
9 No answer

69(B) For about how many hours a week did he/she have to have help with household chores?
1 Less than 4 hour a week
2 4-8 hours a week (a half-day to a day)
3 9 or more hours a week (more than 1 day a week)
9 No answer
MEAL PREPARATION
70. During the six months prior to entering the nursing home, did someone regularly have to prepare meals for him/her? That is, did his/her wife/husband or someone else regularly cook because he/she was unable to, or did he/she have to go out for meals?
   1 Yes
   2 No
   9 No answer

(IF "YES ASK 70(A)."

70(A) Who prepared meals for him/her?
   1 Unpaid family members or friends
   2 Other, such as a paid helper or agency person
   3 Both
   9 No answer

ADMINISTRATIVE, LEGAL, AND PROTECTIVE SERVICES
71. During the six months prior to entering the nursing home did anyone help him/her with any legal matters or with managing personal business affairs or handling money, for example, paying bills for him/her?
   1 Yes
   2 No
   9 No answer

(IF "NO" SKIP TO 71(C); IF "YES" ASK 71(A), 71(B), & 71(C).)

71(A) Who helped him/her?
   1 Family members or friends
   2 A lawyer, the Legal Aid Society, other agency personnel, or someone hired to help him/her?
   3 Both
   9 No answer

71(B) Is he/she still getting help with legal matters or with managing personal business affairs?
   1 Yes
   2 No
   9 No answer

71(C) Do you think he/she needed help with these matters?
   1 Yes
   2 No
   9 No answer

SYSTEMATIC MULTIDIMENSIONAL EVALUATION
72. In the six months prior to entering the nursing home did anyone like a doctor or social worker thoroughly review and evaluate his/her overall condition including his/her health, mental health, and social and financial situation?
   1 Yes
   2 No
   9 No answer
72(A) Do you think he/she needed to have someone review and evaluate his/her overall condition in this way?  (EVEN NOW WHILE IN A NURSING HOME)

   1 Yes
   0 No
   9 No answer

COORDINATION, INFORMATION AND REFERRAL SERVICES

73. During the six months prior to entering a nursing home did someone see to it that he/she got the kinds of help he/she needed?  In other words did someone give him/her information about the kinds of help that were available or put him/her in touch with those who could help?

   1 Yes
   0 No
   9 No answer

(IF "NO" SKIP TO 73(C); IF "YES" ASK 73(A), 73(B), & 73(C).)

73(A) Who was this person(s)?

   1 A family member or a friend
   2 Someone from an agency
   3 Both
   9 No answer

73(B) Is there still someone who sees to it that he/she gets the kinds of help he/she needs?  In other words, is there someone who gives him/her information about the kind of help that is available or puts him/her in touch with those who can help?

   1 Yes
   0 No
   9 No answer

73(C) Do you feel he/she needed to have someone organize or coordinate the kinds of help he/she needs and makes arrangements for him/her to get them?

   1 Yes
   0 No
   9 No answer
FAMILY

74. Do you feel family members (home-care givers) would have benefited by special services for them, such as:

1 Instruction on home-care techniques
2 Counseling on coping with the care of frail and disabled elderly persons
3 Printed information with illustrations on home-care
4 Counseling on the special problems of three generation families
5 Respite services which would allow "get away" time for care-givers
6 Group meetings with other families caring for elderly persons
7 Other __________________________
8 None of the above
9 No answer

ENTERING THE NURSING HOME

75. When it was decided that _________ (Subject) would enter a nursing home, who participated in the decision?

(CIRCLE ALL APPLICABLE)

1 Self
2 Spouse
3 Sibling(s)
4 Daughter
5 Son
6 Doctor
7 Other health worker (R.N., M.S.W., etc.)
8 Other (Specify__________)
9 No answer

76. Who influenced the decision the most (to enter a nursing home)?

(CIRCLE ONE)

1 Self
2 Spouse
3 Sibling(s)
4 Daughter
5 Son
6 Doctor
7 Other health worker (R.N., M.S.W., etc.)
8 Other (Specify__________)
9 No answer

77. Who was the second most influential person in the decision to enter a nursing home?

1 Self
2 Spouse
3 Sibling(s)
4 Daughter
5 Son
6 Doctor
7 Other health worker (R.N., M.S.W., etc.)
8 Other (Specify__________)
9 No answer
78. Who was the third most influential person in the decision to enter a nursing home?
   1 Self
   2 Spouse
   3 Sibling(s)
   4 Daughter
   5 Son
   6 Doctor
   7 Other health worker (R.N., M.S.W., etc.)
   8 Other (Specify__________)
   9 No answer

79. When __________ (Subject) entered the nursing home, did the decision-makers know about other services, for example, day-care or care given in the home such as nursing care, physical therapy, supervision, meals, medications, personal care or chore services?

1 Yes
0 No
9 No answer

(IF YES, ASK 79(A).)

79(A) Were those other services tried?
1 Yes
0 No
9 No answer

(IF YES, ASK WHICH ONES, QUESTION 79(B))

79(B) Which services were tried?

(CIRCLE ALL APPLICABLE) (2 digits)

01 Day care
02 Home nursing
03 Home therapy
04 Homemaker services
05 Meal preparation
06 Transportation
07 Mental Health services
08 Medications
09 Personal care
10 Constant supervision
11 Checking
12 Other (Specify__________)
13 No Answer

80. At the time __________ (Subject) entered the nursing home, which services was he/she using? (2 digits)

01 Day care
02 Home nursing
03 Home therapy
04 Homemaker services
05 Meal preparation
06 Transportation
07 Mental health services
08 Medications
09 Personal care
10 Constant supervision
11 Checking
12 Other (Specify__________)
13 No services
14 No answer
81. Was __________ (Subject) on a waiting list to get into a nursing home?

- 1 Yes
- 0 No
- 9 No answer

(IF YES, ASK HOW LONG, 81(B).)

81(B) How long was __________ (Subject) on a waiting list before getting into the nursing home?

_____ ____ months (code 2 digits)
(The remaining questions are to be answered by the interviewer immediately after completing the interview.)

Length of interview ________________ Minutes

82. Information obtained from:
   1. Subject
   2. Relative
   3. Other [SPECIFY.]

83. Information from informant was:
   1. Completely reliable
   2. Reliable on most items
   3. Reliable on only a few items
   4. Completely unreliable

84. Information from informant indicated that the patient's behavior was:

   YES no  Mentally alert and stimulating
   YES no  Pleasant and cooperative
   YES no  Depressed and/or tearful
   YES no  Withdrawn or lethargic
   YES no  Fearful, anxious or extremely tense
   YES no  Full of unrealistic physical complaints
   YES no  Suspicious (more than reasonable)
   YES no  Bizarre or inappropriate in thought or action
   YES no  Excessively talkative or overly jovial or elated
SOCIAL RESOURCES RATING SCALE


1. Excellent social resources.
   Social relationships are very satisfying and extensive; at least one person would take care of him/her indefinitely.

2. Good social resources.
   Social relationships are fairly satisfying and adequate and at least one person would take care of him/her indefinitely; OR
   Social relationships are very satisfying and extensive; and only short term help is available.

3. Mildly socially impaired.
   Social relationships are unsatisfactory, of poor quality, few; but at least one person would take care of him/her indefinitely; OR
   Social relationships are fairly satisfactory, adequate; and only short term help is available.

4. Moderately socially impaired.
   Social relationships are unsatisfactory, of poor quality; few; and only short term care is available. OR
   Social relationships are at least adequate or satisfactory; but help would only be available now and then.

5. Severely socially impaired.
   Social relationships are unsatisfactory, of poor quality, few; and help would only be available now and then. OR
   Social relationships are at least satisfactory or adequate; but help is not even available now and then.

6. Totally socially impaired.
   Social relationships are unsatisfactory, of poor quality, few; and help is not even available now and then.
ECONOMIC RESOURCES RATING SCALE


1. Economic resources are excellent. Income is ample; Subject has reserves.
2. Economic resources are satisfactory. Income is ample; Subject has no reserves or Income is adequate; Subject has reserves.
3. Economic resources are mildly impaired. Income is adequate; Subject has no reserves or Income is somewhat inadequate; Subject has reserves.
4. Economic resources are moderately impaired. Income is somewhat inadequate; Subject has no reserves.
5. Economic resources are severely impaired. Income is totally inadequate; Subject may or may not have reserves.
6. Economic resources are completely impaired. Subject is destitute, completely without income or reserves.
MENTAL HEALTH RATING SCALE


1. **Outstanding mental health.**
   Intellectually alert and clearly enjoying life. Manages routine and major problems in his life with ease and is free from any psychiatric symptoms.

2. **Good mental health.**
   Handles both routine and major problems in his life satisfactorily and is intellectually intact and free of psychiatric symptoms.

3. **Mildly mentally impaired.**
   Has mild psychiatric symptoms and/or mild intellectual impairment. Continues to handle routine, though not major, problems in his life satisfactorily.

4. **Moderately mentally impaired.**
   Has definite psychiatric symptoms, and/or moderate intellectual impairment. Able to make routine common-sense decisions, but unable to handle major problems in his life.

5. **Severely mentally impaired.**
   Has severe psychiatric symptoms and/or severe intellectual impairment, which interferes with routine judgments and decision making in every day life.

6. **Completely mentally impaired.**
   Grossly psychotic or completely impaired intellectually.
   Requires either intermittent or constant supervision because of clearly abnormal or potentially harmful behavior.
PHYSICAL HEALTH RATING SCALE

88. RATE THE CURRENT PHYSICAL FUNCTIONING OF THE PERSON BEING EVALUATED
ALONG THE SIX-POINT SCALE PRESENTED BELOW. CIRCLE THE ONE NUMBER
WHICH BEST DESCRIBES THE PERSON'S PRESENT FUNCTIONING. PHYSICAL
HEALTH QUESTIONS ARE NUMBERS 31 - 40.

1. In excellent physical health.
   Engages in vigorous physical activity, either regularly or at
   least from time to time.

2. In good physical health.
   No significant illnesses or disabilities. Only routine medical
   care such as annual check-ups required.

3. Mildly physically impaired.
   Has only minor illnesses and/or disabilities which might
   benefit from medical treatment or corrective measures.

4. Moderately physically impaired.
   Has one or more diseases or disabilities which are either
   painful or which require substantial medical treatment.

5. Severely physically impaired.
   Has one or more illnesses or disabilities which are either
   severely painful or life threatening, or which require extensive
   medical treatment.

6. Totally physically impaired.
   Confined to bed and requiring full time medical assistance or
   nursing care to maintain vital bodily functions.
PERFORMANCE RATING SCALE FOR
ACTIVITIES OF DAILY LIVING

(RATE THE CURRENT PERFORMANCE OF THE PERSON BEING EVALUATED ON THE
SIX-POINT SCALE PRESENTED BELOW. CIRCLE THE ONE NUMBER WHICH BEST
DESCRIBES THE PERSON'S PRESENT PERFORMANCE. ACTIVITIES OF DAILY
LIVING QUESTIONS ARE NUMBERS 41-57.)

1. Excellent ADL capacity.
   Can perform all of the Activities of Daily Living without
   assistance and with ease.

2. Good ADL capacity.
   Can perform all of the Activities of Daily Living without
   assistance.

3. Mildly impaired ADL capacity.
   Can perform all but one to three of the Activities of Daily
   Living. Some help is required with one to three, but not
   necessarily every day. Can get through any single day without
   help. Is able to prepare his own meals.

4. Moderately impaired ADL capacity.
   Regularly requires assistance with at least four Activities of
   Daily Living but is able to get through any single day without
   help. Or regularly requires help with meal preparation.

5. Severely impaired ADL capacity.
   Needs help each day but not necessarily throughout the day or
   night with many of the activities of Daily Living.

6. Completely impaired ADL capacity.
   Needs help throughout the day and/or night to carry out the
   Activities of Daily Living.


| Social Resources |   |
| Economic Resources |   |
| Mental Health |   |
| Physical Health |   |
| Activities of Daily Living |   |

Summary of Ratings

Cumulative Impairment Score
(Sum of the five ratings)


