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[TIRR - New Options] Annex Research [1975-1976] [1]

Stack:

Row:

Section:

Shelf:

Position:

RECORD OF CONTACTS **With Staff in Other Departments Regarding Patient Care**

Date: _____

Position: _____

Face to Face Contacts

	PERSON AND TITLE	TIME (Min.)	SATISFACTION	SUCCESSFULNESS
1			+ ----- -	+ ----- -
2			+ ----- -	+ ----- -
3			+ ----- -	+ ----- -
4			+ ----- -	+ ----- -
5			+ ----- -	+ ----- -
6			+ ----- -	+ ----- -
7			+ ----- -	+ ----- -
8			+ ----- -	+ ----- -
9			+ ----- -	+ ----- -
10			+ ----- -	+ ----- -
11			+ ----- -	+ ----- -
12			+ ----- -	+ ----- -
13			+ ----- -	+ ----- -
14			+ ----- -	+ ----- -
15			+ ----- -	+ ----- -
16			+ ----- -	+ ----- -
17			+ ----- -	+ ----- -
18			+ ----- -	+ ----- -

Telephone Contacts

1			+ ----- -	+ ----- -
2			+ ----- -	+ ----- -
3			+ ----- -	+ ----- -
4			+ ----- -	+ ----- -
5			+ ----- -	+ ----- -
6			+ ----- -	+ ----- -
7			+ ----- -	+ ----- -
8			+ ----- -	+ ----- -
9			+ ----- -	+ ----- -
10			+ ----- -	+ ----- -
11			+ ----- -	+ ----- -
12			+ ----- -	+ ----- -

FORM C-1

Prob 2
P-M D
(4)

Please rate the amount of contact you have with each of the following groups.

	Not Much	Some	Very Much
Volunteers	✓ 0	0	0
Transporters	✓ 0	0	0
Social Workers	0	0	✓ 0
RNs	0	0	✓ 0
Respiratory Therapists	0	✓ 0	0
Researchers	✓ 0	0	0
Physicians	0	0	0
PTs	0	✓ 0	0
Patients	0	0	✓ 0
OTs	0	✓ 0	0
Nurse Clinicians and Specialists	0	0	✓ 0
LVNs	0	✓ 0	0
Aides	0	✓ 0	0
Administrators	✓ 0	0	0

p- sw
(3)

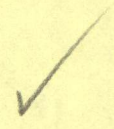
FORM B

How cooperative or helpful have each of the following groups been to you?

	<u>Not Much</u>	<u>Some</u>	<u>Very Much</u>
Administrators	0	0	0
Aides	0	0	0
LVNs	0	0	0
Nurse Clinicians and Specialists	0	0	0
OTs	0	0	0
Patients	0	0	0
PTs	0	0	0
Physicians	0	0	0
Researchers	0	0	0
Respiratory Therapists	0	0	0
RNs	0	0	0
Social Workers	0	0	0
Transporters.....	0	0	0
Volunteers	0	0	0

Who has helped you the most? Clinic aide
My work contacts are in the out patient
department only

4-P-RN (5)



FORM C

Give your impression of the amount of strain, tension, or misunderstanding that exists between you and each of the following groups—include your own group.

	<u>None</u>	<u>A Little</u>	<u>A Lot</u>
Volunteers	(0)	0	0
Transporters	0	(0)	0
Social Workers	0	(0)	0
RNs	0	(0)	0
Respiratory Therapists	0	0	(0)
Researchers	(0)	0	0
Physicians	0	(0)	0
PTs	(0)	0	0
Patients	0	(0)	0
OTs	0	(0)	0
Nurse Clinicians and Specialists	0	(0)	0
LVNs	0	(0)	0
Aides	0	(0)	0
Administrators	0	0	(0)

INTERDEPARTMENTAL DIALOGUES: EVALUATION

GROUP

I

YOUR TITLE: (RN, PT, NA, etc.)

Transportation

I. Circle the response which best shows how you feel about each of the following:

- | | | | |
|--------------------------------------|------------------|--------------------|------------------|
| 1. The number of meetings | too many | <u>about right</u> | too few |
| 2. The length of staff presentations | too long | <u>about right</u> | too short |
| 3. The length of small groups | too long | about right | <u>too short</u> |
| 4. The size of small groups | <u>too small</u> | about right | too big |
| 5. Your small group leader | too active | <u>about right</u> | too quiet |

II. Circle the number which best shows how helpful each of the following was to you.
("1" means "very helpful"; "7" means "not helpful" at all, "4" means "uncertain" and so on.)

- | | Very
Helpful | | | Not
Sure | | | Not
Helpful |
|--|-----------------|----------|---|-------------|---|---|----------------|
| 1. The staff presentations | <u>1</u> | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. Telling other staff your point of view | 1 | <u>2</u> | 3 | 4 | 5 | 6 | 7 |
| 3. Hearing about the problems of other staff | <u>1</u> | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. Meeting other staff members | 1 | 2 | 3 | 4 | 5 | 6 | <u>7</u> |
| 5. Hearing solutions to problems | <u>1</u> | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. Talking about problems that come up in the hospital | <u>1</u> | 2 | 3 | 4 | 5 | 6 | 7 |

III. Circle the answer which best summarizes your attitudes toward the following:

- | | | | |
|---|------------|-----------|-----------|
| 1. Did the observers bother you? | yes | <u>no</u> | uncertain |
| 2. Would you come to a similar inservice? | <u>yes</u> | no | uncertain |
| 3. Would you recommend the inservice to other hospital personnel? | <u>yes</u> | no | uncertain |

IV. Any other comments, suggestions, or reactions?

6 July 1976

Mr. Gordon Damery
Regional Director
Massachusetts Rehabilitation Commission
75 Grove Street
Worcester, Massachusetts 01605

Dear Mr. Damery:

In keeping with our discussion last week, we have prepared the enclosed proposal outlining the initial phase of the project concerning WATH program evaluation and development.

As we noted, results from this study will have broad applicability for rehabilitation programming. Further, the study will define the relationship of individuals with their environments and therefore have direct relevance to the development of the vocational potential of physically disabled individuals.

The immediate initiation of this beginning phase is extremely important in order to take advantage of the unique opportunity presented by the beginning of the WATH program, to provide early feedback to the program, and to compile basic early stage data which will facilitate continuing implementation with Federal support.

We are available to discuss this proposal at your earliest convenience.

Thank you very much for your support and consideration.

Sincerely yours,

Robert A. Clotstone
Assistant Professor (Affiliate)

Seymour Wapner
G. Stanley Hall Professor, and,
Chairman

SW/cj
Enclosure

cc: Mr. Donald Riel ✓
Mrs. Roberta Works

RESEARCH PROPOSAL

Submitted to: Massachusetts Rehabilitation Commission
Worcester Regional Office
Worcester, Massachusetts 01610

Submitted by: Clark University
Worcester, Massachusetts 01610

Principal Investigator: Robert Ciottone, Assistant Professor (Affiliate)
Co-principal Investigator: Seymour Wapner, G. Stanley Hall Professor and
Chairman, Psychology Department
Clark University

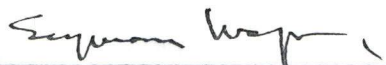
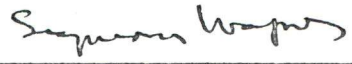
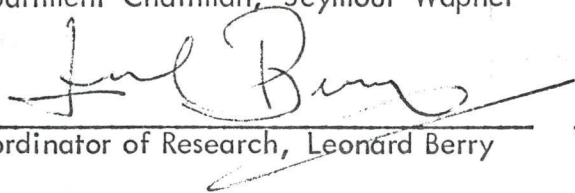
Proposed starting date: 1 July 1976

Proposed duration: 12 months

Title: Person-in-environment transactions and environmental transition among
individuals with physical disabilities

Amount requested: \$39,765

Fiscal Officer: Lawrence L. Landry
Vice President for Business Affairs
Clark University
Worcester, Massachusetts 01610

 Principal Investigator, Robert A. Ciottone	(617) 756-4825 Telephone number	7. VII. 76 Date
 Co-principal Investigator, Seymour Wapner	(617) 793-7278 Telephone number	7. VII. 76 Date
 Department Chairman, Seymour Wapner	(617) 793-7273 Telephone number	7. VII. 76 Date
 Coordinator of Research, Leonard Berry	(617) 793-7334 Telephone number	7. VII. 76 Date

Research Proposal: Person-in-environment transactions and environmental
transition among individuals with physical disabilities

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I. Introduction

Transactions with the environment and transition across environmental contexts are processes basic to adjustment to the community. Effective independent and interdependent functioning, social/interpersonal relationships, educational/vocational achievement and all other aspects of psycho-social adjustment of individuals therefore hinge upon those processes. Physical disability adds complexity to person-in-environment transactions that require specialized approaches to human services programming and their study and evaluation. The organismic-developmental approach, upon which this proposal is based, assumes an individual to be purposeful in organizing, structuring and acting within his/her environmental context. This approach therefore provides a unique theoretical and methodological vantage point for the study of the experience of individuals with severe physical disabilities who are attempting to function in surroundings that are physically, interpersonally and socio-culturally organized according to the capabilities of those without physical limitations. The understanding achieved from the proposed study and the proposals for action derived from that understanding will therefore have direct relevance to personal, contextual, governmental and societal programming for community transition among individuals with severe physical disabilities.

While there are far-reaching implications of the study, in immediate terms, the proposal focuses upon the Worcester Area Transitional Housing Program (WATH) which seeks to facilitate community re-entry and development of independent living skills for adults suffering quadraplegic or paraplegic dysfunction which has severely limited their options in the past. Participants in the WATH program are being provided with physical space adapted to their needs in an urban apartment building that also provides housing available to the general public. A small staff is in residence but functions more as teachers than service providers. Personal care attendants will be retained by residents with funds provided to them for such expenses. Training experiences will also be made available to program participants in order to assist them in developing skills necessary for effective community living. Individuals participating in WATH will be active in or seeking educational/vocational involvement. Their period of residence in WATH will range from three through eighteen months with an expected average of six to eight months. From the WATH setting, participants will be moving to independent community living.

Most of the applicants to the WATH program have lived in institutional settings or in highly protected and limiting family circumstances. For all program participants, the proposed change in their relationships with their environments therefore requires a series of transitions and the learning of new modes of transacting with more broadly defined environmental contexts than those to which they have accommodated earlier.

The study proposed herein will proceed in two phases. The first will constitute a preliminary phase in which the experience of several WATH program participants will be studied extensively. A focus will be maintained also upon the experience of others who impact upon the program from different vantage points (e.g., program director, nurse, business manager, personal care attendants, etc.). For the second phase, federal support will be sought for broader implementation of the study with extensive monitoring of the experience of all WATH program participants and staff as well as community members--individuals as well as governmental and societal agencies--who relate directly to the program and to program participants.

In both preliminary and full implementation phases, the proposed study will provide continuing feedback to the WATH program. Program evaluation will not, therefore, be conceptualized as an assessment of the effectiveness of a static and unchanging entity. Instead, the proposed study will, through on-going program evaluation, make possible continuing program development.

Further, the proposed study will generate data from which inferences can be drawn having relevance to general rehabilitative programming for those who suffer disabilities. Through emphasis upon the perspective and the experience of the individual client, the staff, as well as upon that of community representatives and agencies, the study will provide a unique data base for planning at the governmental level. Resources might be expended in directions that maximize cost/benefit ratios and minimize the incidence of expensive services that, despite face validity, have little effective impact upon the educational/vocational rehabilitation of individuals who suffer disabilities.

II. General Goals

The general goals of the proposed study are:

1. To involve the individual client in the process of program evaluation and development through emphasis upon his or her experience and perspective, and to thereby provide added benefit to the client.
2. To provide ongoing program evaluation and to facilitate continuing program development of the Worcester Area Transitional Housing project.
3. To develop a model for broad application in program evaluation and program development with regard to rehabilitation services for individuals who suffer disabilities.

4. To provide a data base for use in planning at community and governmental levels with reference to the rehabilitative process and community re-entry.

5. To develop, through an initial preliminary phase, the basis for broad implementation of the proposed study and, thereby, the full achievement of specified goals.

III. Specific Objectives

In order to pursue these goals, the following specific objectives will be met.

1. Develop an adaptation of the methodology designed by Wapner, et al., (1973; 1976) for the study of environmental transactions and transition.

2. Assess, in the preliminary phase, the experience of WATH program participants at repeated points in the program ranging from "pre-departure" through residence in WATH and follow-up in community.

3. Assess, in the preliminary phase, the experience of WATH program staff at regular intervals during program implementation.

4. Assess, in the preliminary phase, the experience of WATH participants in the community subsequent to their residence in WATH.

5. Provide ongoing feedback to the WATH program regarding directions for program modification and development based on analysis of data gathered in assessment procedures.

6. Compile, in the preliminary phase, data relevant to rehabilitative programming at the agency, community and governmental levels.

7. Establish and define relationships among data collected having relevance to the effect of program impact upon the employability and employment of program participants.

8. Compile preliminary data and prepare a proposal for federal support for full implementation of the study.

IV. Method

1. Subjects:

Those involved in the study will be applicants to and participants in the WATH program which provides a transitional learning experience toward the goal of community independence for adults with severe physical disabilities. All participants suffer quadraplegic or paraplegic dysfunction with varying concomitants, etiologies and prognoses. Most have lived in institutional settings such as hospitals or nursing homes most of the time since the onset of physical disability; many have spent their entire lives in such environments. Others have lived with their families, typically in a very dependent relationship, but virtually all have been required to spend extensive periods of time in institutional confines.

During the preliminary phase of the study proposed herein, the experience of five program participants will be thoroughly monitored. The experience of from five to ten additional WATH program participants will also be monitored through modified assessment procedures. In addition, continuing assessments will be made of the experience of WATH program staff including the program director, staff nurse, business manager, night attendant and two to five personal care attendants.

Involvement of WATH program participants in the study will be completely voluntary and neither that involvement nor the data compiled will in any way affect the individual's WATH program eligibility. Further, participants in the study will be assured that they can discontinue their involvement any time they choose to do so.

2. Assessment:

Assessment procedures will include adaptation of a variety of approaches developed by Dr. Seymour Wapner and his collaborators for the study of environmental transactions and transition. Based on an organismic-developmental perspective, these methods assume an individual to be purposeful in organizing his or her experience and in relating within the environment as he or she has structured it. Procedures include:

a. Environmental sketch maps--through which an individual graphically represents his or her surroundings and responds to an inquiry based on that representation.

b. Psychological distance maps--through which the individual

represents himself or herself in relationship first to social/interpersonal surroundings and then in relation to the socio-cultural environment of "rules and regulations." The individual then responds to an extensive inquiry based on these "maps."

c. Measures of discordance between expectation and actuality--through which an individual generates from his or her experience two examples of discrepancy between expectancy and actual experience with regard to each of the physical, social-interpersonal and socio-cultural environments. An extensive inquiry follows each response.

d. Structured interviews--through which an individual responds to questions concerning the experience of the present, recall of the past and expectancy of the future. Emphasis is placed upon the individual's experience of the physical, social/interpersonal and socio-cultural environments. Individuals are then asked to respond in terms of their knowledge of surroundings, their emotional response to experiences and events and the ways in which they value or assign importance to each of these experiences or events.

e. Body and self scales (adapted from Secord and Jourard, 1953)--through which individuals register degrees of positive/negative reaction to their own body and behavioral characteristics.

f. Personal logs--through which participants and staff in the study will record cognitive, valuative and affective (emotional) reactions to program events and experiences relating to the physical, social and cultural environments.

g. Survey on recommendations for change--through which WATH program participants, staff and community representatives will offer suggestions for change from their individual perspectives.

As noted earlier, assessment will be ongoing. Repeated measures will occur at the times of "pre-departure" to WATH, initial transition, program involvement, transition to the community and follow-up in the community. Data will be compiled according to the categories that emerge in the responses of those participating in the study. Applicability of those categories of response will be assessed through their consideration by at least two independent judges who will study the primary data in terms of the emergent categories. Results will be considered both quantitatively and qualitatively from a longitudinal point of view across the entire process of transition and cross-sectionally in terms of group and individual experience of specific steps in the process.

V. Significance

Both the preliminary phase of the study and the subsequent phase of full implementation have broad ranging significance. The perspective of those involved will, for example, have central emphasis in program evaluation and development. The proposed study provides continuing feedback to the WATH program. Cost effectiveness, both specifically with regard to WATH and more broadly, will therefore be maximized in a way that is not possible with evaluative efforts conceptualized as discrete (e.g., pre- and post-) measurements of a static and unchanging program. As a corollary benefit of the proposed study, clients will become active "partners" in the evaluation, planning and modification of programs intended to be of benefit to them. In a similar way, individuals serviced through rehabilitative systems and those who staff rehabilitative programs will gain a means by which their previously neglected experience of events might be transformed from that of diffuse and of personal reactions into systematic statements which might be conveyed to program planners.

The particular significance of the preliminary phase rests upon its intended achievement of the objectives specified and, thereby, the approximations of the stated goals. The preliminary phase, moreover, will permit preparation of a proposal for Federal support for the full implementation phase which will allow full achievement of those goals.

A number of Federal funding agencies have expressed strong interest in and encouragement for the study. Most notably, the Office of Long Term Care of the National Institute of Mental Health, Department of Health, Education and Welfare has offered to assist in preparation of a proposal according to guidelines that will maximize the probability of subsequent funding. The funding cycle, however, will preclude support prior to July 1, 1977. Representatives of that office have therefore urged that a request be made through local authorities for support of a preliminary phase. Funding of a preliminary effort will permit construction of a data base that further enhances the probability of Federal funding for full implementation and will prevent the loss of very valuable data having to do with the start-up phase of the WATH program.

Support for the full implementation phase is therefore one objective of the preliminary phase. Whether or not that specific objective is realized, however, data emerging from the preliminary phase will in themselves have far-reaching significance for program planning, evaluation and development.

VI. References

- Kaplan, B., Wapner, S., & Cohen, S.B. Exploratory applications of the organismic-developmental approach to man-in-environment transactions. In, Wapner, S., Cohen, S.B., & Kaplan, B. (Eds.) Experiencing the environment. New York: Plenum Press, 1976.
- Secord, P. & Jourard, S. The appraisal of body-cathexis: Body-cathexis and the self. Journal of Consulting Psychology, 1953, 17, 343-347.
- Wapner, S., Kaplan, B., & Cohen, S.B. An organismic-developmental perspective for understanding transactions of men in environments. Environment and Behavior, 1973, 5, 255-289.
- Wapner, S., Cohen, S.B., & Kaplan, B. (Eds.) Experiencing the environment. New York: Plenum Press, 1976.

VII. Budget

Salaries, wages, benefits

R. Ciottone -- 1/5	\$5400
S. Wapner -- 1/9	3722
Res. Asst. (Grad) I (20 hrs/week)	4420
Res. Asst. (Grad) II (20 hrs/week)	4420
Res. Asst. (Jr.) III (35 hrs/week)	5460
Secretary/Technician -- 1/2 time	<u>3750</u>

Total salaries and wages	27,172
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Staff benefits (16.26% S&W)	<u>4,418</u>
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S&W plus Staff benefits	31,590
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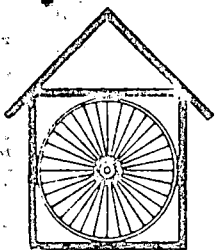
Other Direct Costs

Supplies (tapes; office)	1500
Travel-local (13¢/mile; parking, etc.)	1500
Travel-Conferences	1200
Computer, card punching, etc.	<u>500</u>

Total other direct costs	4,700
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Indirect Costs (11.0% S&W)	<u>3,475</u>
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TOTAL	\$39,765
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WORCESTER AREA TRANSITIONAL HOUSING Inc.

DIRECTOR
DONALD R. RIEL
507-J Main Street
Worcester, Mass.
01608

July 6, 1976

Robert A. Ciottone, Ph.D
Seymour Wapner, Ph.D
Department of Psychology
Clark University
Worcester, Massachusetts

Dear Drs. Ciottone and Wapner:

This is to indicate my strong support and endorsement for your proposed preliminary study concerning WATH program evaluation and development. As Executive Director of WATH, I am eager to see the implementation of the thorough and systematic effort you have proposed. Without the preliminary study you have proposed, evaluation and feedback necessary for program development will be lacking or, at best, haphazard.

Sincerely,

Donald R. Riel, Executive Director
Worcester Area Transitional Housing, Inc.

DRR/cmr



CENTRAL MASSACHUSETTS REHABILITATION CENTER

299 LINCOLN STREET WORCESTER, MASSACHUSETTS 01605 TELEPHONE 617-852-0450

July 12, 1976

Seymour Wabner
Chairman, Department of Psychology
Clark University
950 Main Street
Worcester, MA 01610

Dear Dr. Wabner,

I have reviewed the research proposal prepared by Dr. Ciottone, and yourself, and I am anxious to express my wholehearted support for your project. As described, it will be highly beneficial to the W.A.T.H. program in both short and long terms. While ongoing it will supply valuable feedback to the program as to how well it is achieving its own goal of readying the participants for independence, and thus will greatly improve the quality of services provided by W.A.T.H. The research results will help the W.A.T.H. program, and similar facilities nationwide, provide more effective programs in the future.

I am very pleased that you have chosen the W.A.T.H. program as a setting for studying the transition process, and look forward to working with you.

Sincerely,

Roberta F. Works
President, W.A.T.H., Inc.

cc: Gordon Damery
Donald Riel

RFW/ljm

"FUNCTIONAL GOAL SHEET"

Participant: _____
Date of Adm: _____
Buddy : _____

Please indicate what you would like, if anything, to work on in the following areas:

- () Moving around better in wheelchair
- () Getting into and out of a car
- () Driving a Car
- () Loading and Unloading wheelchair in car
- () Getting in and out of bed
- () Changing Position in Bed
- () Getting into and out of tub or shower
- () Washing self at sink and/or bath
- () Getting into or out of chair
- () Getting up and down from floor
- () Getting through doors

- () Managing uneven/rough terrain
- () Managing stairs
- () Opening doors
- () Turning corners
- () Dressing and/or undressing
- () Brushing teeth
- () Shaving
- () Feeding self
- () Combing, brushing or washing hair
- () Grooming - make up, fingernail, toenail care, etc.
- () Typing or writing
- () Light switches
- () Water faucets

- () Cooking more easily
- () Cleaning more easily
- () Shopping at the store
- () Using the telephone
- () Riding a cab or bus
- () Using an elevator
- () Practice living alone or with roommate
- () Learning to follow special diet
- () Learning to follow medicate plan
- () Learning skin inspection and care
- () Bowel and bladder care
- () Strengthening legs
- () Strengthening arms
- () Exercises to keep arms or legs loose

- () Sexual Functioning
- () Purchase of equipment
- () New living plan after discharge
- () Vocational/educational planning

Therapeutic Goal Setting, Becker,
Arch. Phip. Med./Rehab.
Vol. 55, Feb. 1974

COMMUNITY BASED MAINTENANCE CARE

FOR

THE LONG-TERM PATIENT

A Study to Explore the Insurance Basis for a
Community/Home Care Model
in Massachusetts

by

Gerald M. Eggert, Ph.D.
New England Gerontology Center
New England Center for Continuing Education
Durham, New Hampshire
Project Director

Carl V. Granger, M.D.
Tufts-New England Medical Center
Rehabilitation Institute
Boston, Massachusetts
Principal Investigator

Robert Morris, D.S.W.
Florence Heller School for Advanced Studies in Social Welfare
Brandeis University
Waltham, Massachusetts
Principal Investigator

Sylvia F. Pendleton, B.S.
Brandeis University
Waltham, Massachusetts
Research Assistant

Conducted with the Assistance of a Grant from
The Tri-State Regional Medical Program
and
An Andrus Foundation Research Grant from
The National Retired Teachers Association/
American Association of Retired Persons

January 1975

ACKNOWLEDGMENTS

The authors are very grateful for the gracious cooperation of the four participating institutions, particularly to the staff members who devoted enormous amounts of time, skill, patience, and tact in the collection and recording of patient data.

We especially want to acknowledge the contributions of the following people:

Earle E. Hussey Hospital

David S. Greer, M.D. - Medical Director
David Botelho, A.C.S.W. - Director of Social Service
Joan Coulombe, R. N.

Jewish Memorial Hospital

James F. Cummins, M.D. - Chief of Medicine	
Rosalie Berry, R.N.	Marilyn Auerbach, S.W.
Judith Bunting, R.N.	Linda Gershman, S.W.
Karen Neff, R.N.	Barbara Winne, S.W.

Lenox Hill Nursing and Rehabilitative Care Facility

Mr. Daniel Donovan	Mr. Jeremiah Donovan
Barbara Davis - Director of Professional Service	Jacqueline Wilson - Director of Social Service
Ann Sapio, R.N., V.N.A.	Ellen Merriam, S.W.
Cecile Berube, P.T.	Joanne Warner, O.T.

Tufts-New England Medical Center Rehabilitation Institute

Carl V. Granger, M.D. - Psychiatrist-in-Chief
Ann Clune, S.W.
Ann Pallotta

We extend our special thanks to Carol Smith, whose expert guidance and supervision were indispensable throughout all phases of the data processing, from the design of the program to the negotiation of the computer runs through the Harvard-M.I.T. Computer System. We are also grateful to Dr. Elliott Sclar and Mary Hyde for their valuable advice and assistance with the data processing.

And finally, we want to express our appreciation to Barbara Isaacson, Verna Berry, Kathy Brown, and Geraldine Lampros for their accurate and proficient help in typing and editing the drafts and the final report of the study.

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INTRODUCTION

STUDY AIMS AND METHODOLOGY

Alternatives to institutionalization for the elderly and disabled have been a topic of both interest and concern ever since studies began to reveal that long-term care institutions had a considerable number of patients who might have been maintained in a non-institutional setting with the provision of home care services. The role and responsibilities of medical institutions in the provision of non-institutional health and related rehabilitative/personal care for discharged elderly and/or permanently disabled patients has never been clearly defined; rather hospitals have had the tendency to leave community based care entirely to the discretion and resources of community based health related agencies, such as VNA's and home health care/homemaker agencies.

Hospitals and other medical facilities have pioneered in the provision of "day care" for the elderly and/or disabled patients. Day care centers, however, have primarily existed upon federal or private seed money and programs have been drastically reduced when the initial seed money was expended. There is no stable source of federal funds to support extensive hospital based day care programs, or for that matter, extensive community based after care home health/homemaker programs.

Medical institutions, however, do recognize their responsibilities toward discharged elderly/disabled patients whose disability is permanent in nature. To some extent, hospitals already have programs in operation that assist patients approaching discharge in funding housing, health services, and homemaker/personal care services. In order to maximize available medical facility resources, assuming adequate federal funding for day care/home care services, methodology

and/or models must be developed that permit early identification of those patients who will be discharged back to the community (with or without support services) or discharged to other long-term care institutions. Once the process is described and analyzed, alternative approaches for medical institutions can be formulated.

With a grant from the Tri-State RMP, a study was jointly instituted by Brandeis University and Tufts University Medical School to describe both the process and population that moved through four different medical-rehabilitative facilities in the Boston area. The four institutions were selected because (1) they treated an elderly/disabled population, (2) they all attempted to rehabilitate or restore the patient to optimal functions given his/her impairments, (3) they all had an active discharge planning/placement program for patients whose condition had improved, and (4) they were willing to expend some of their own resources for data collection. These four medical institutions were not selected because they were homogeneous or heterogeneous along any dimension except those outlined above. They were not randomly selected; rather the study group identified known rehabilitation centers and initiated discussions until commitments were obtained from four institutions. Budgetary problems limited the study to the patients of these four institutions. The institutions were Jewish Memorial Hospital, Tufts Rehabilitation Institute, Hussey Memorial Hospital, and Lenox Hill Nursing and Rehabilitative Facility.

The goals of the research study were diverse, but all centered upon the process by which long-term disabled populations moved through the rehabilitation unit.

The goals were:

1. To describe those patients that were admitted to the unit, received

rehabilitation therapy/medical care, and were discharged from the facility. Patients who died during initial hospitalization were dropped from the study group. Patients who were admitted for a brief "evaluation" were also dropped.

2. To identify at the earliest dates those patients who would likely be discharged back to the community. The corollary is to identify those patients who must inevitably be discharged/transferred directly from the rehabilitation unit to a long-term care facility, such as a nursing care home or chronic disease hospital.

3. To analyze the group of patients who do not clearly fit into the above two groups in terms of demographic and functional characteristics to determine whether the disposition of any of these could be reasonably altered.

4. To identify and describe the hospital personnel resources that were committed to the discharge planning process.

5. To follow those patients who were discharged to some form of care at home in the community to determine personal care service levels over a 6-month post-discharge period. Based on discharge data, an attempt would be made to identify those measures that best predict service levels required.

6. To examine that group of patients that failed to remain at home following hospital discharge, i.e., were readmitted to a long-term care/rehabilitative care facility.

7. To postulate reorganizational/service delivery posture that rehabilitative units might adopt to maximize their resources in planning and working with those patients with the greatest chance of returning to a non-institutional setting.

Each of the four cooperating medical/rehabilitative institutions was asked to take 60 consecutive admissions to their facility with the objective of following 25 patients discharged to their own home for a six month period. The 25 discharged patients, followed up every two weeks, were those who were to receive maintenance care services. The cost, duration, and type of service provided are correlated with medical, social, and economic variables in an attempt to predict the long-term personal care needs of a patient upon discharge to his own home. This information is vital to the effective planning and financing of a personal care organization or personal care services.

TABLE I

Distribution of Original Serial Admission Study Group

<u>Hospital</u>	<u>Serial Admission Count</u>	<u>Died</u>	<u>Evaluation Only</u>	<u>Final Study Group</u>
Jewish Memorial	94	54	0	40
Lenox Hill	84	27	0	57
Tufts	61	1	9	51
Hussey	59	6	0	53
Total	298	88	9	201

Although the inpatient deaths among the serial admissions primarily occurred in only two of the institutions, this was not interpreted to definitively mean that the populations in the final study group were skewed or heterogeneous.

Data Collection

Contracts were made with each of the four cooperating institutions to collect a variety of demographic, functional, and post-discharge data on a series of consecutive admissions to their rehabilitative facility. The main points of data collection were (1) at admission; (2) at discharge; and (3) for 12 consecutive two week intervals for those patients discharged to community settings. Patients discharged/transferred to other institutional settings were not followed further. Within each of the four cooperating institutions a team of nurses-social workers-admitting clerks collected and recorded the data on preprinted instruments developed by the study group. As Table I indicates, nearly 300 patients were initially in the study group, but 88 deaths and 9 short-term evaluations reduced the sample to 201.

CHAPTER I

GENERAL CHARACTERISTICS OF STUDY POPULATION

The initial objective of this study was to describe selected aspects of the population that moved through the four medical institutions in order to place this group in perspective vis-a-vis other populations reported in the literature. Findings may be generalized and compared with a better knowledge of the differing population parameters.

Age

The mean age at admission for the entire group (N=173) of patients who were discharged to community or institutional settings was 70 years. The mean ages of the populations in the hospitals were 71, 59, 72, and 77 years, respectively, for Hussey, Tufts, JMH, and Lenox Hill. As Table 1-1 demonstrates, Tufts served a relatively younger population while Lenox Hill served the oldest population.

TABLE 1-1

Age Distribution of Study Population								
<u>Hospital</u>	<u>0-25</u>	<u>26-50</u>	<u>51-60</u>	<u>61-70</u>	<u>71-80</u>	<u>81-90</u>	<u>91-95</u>	<u>Total</u>
Hussey		5.7% 3	15.1% 8	18.9% 10	41.5% 22	17.0% 9	1.9% 1	100% 53
Tufts	2.0% 1	22.4% 11	24.5% 12	28.6% 14	20.4% 10	2.0% 1		100% 49
JMH		4.2% 1	12.5% 3	12.5% 3	50.0% 12	16.7% 4	4.2% 1	100% 24
Lenox Hill		2.1% 1		12.8% 6	46.8% 22	38.3% 18		100% 47
Totals	0.6% 1	9.2% 16	13.3% 23	19.1% 33	38.2% 66	18.5% 32	1.2% 2	100% 173

Nearly 25% of the Tufts population was under 50 years of age, a figure four times higher than any other hospital's population in this age group. While 38% of the entire group is between 71-80, 50% and 47% of JMH's and Lenox Hill's population has attained this age. Correspondingly, while only 2% of the Tufts population is over 80 years old, 38% of the Lenox Hill group, 21% of the JMH group, and 19% of the Hussey group had attained this age. The age distribution of the population between institutions is not homogeneous.

Sex

Thirty-six percent of the population was male. This distribution was fairly consistent with the exception of Tufts, where there were equal numbers of males and females. Lenox Hill had a slightly higher female ratio (74.5%) than did either JMH (62.5%) or Hussey (66.0%).

Marital Status

Of the total population, 61.5% was single, widowed, or divorced, while the remaining 38.5% was currently married at admission to the hospital. As Table 1-2 indicates, Tufts, with a younger, evenly distributed male-female ratio, had a population with 58% married, compared to 36% at Hussey, 33% at JMH, and only 23% at Lenox Hill.

Table 1-2

Marital Status of Study Population			
<u>Hospital</u>	<u>Single, Widowed, or Separated</u>	<u>Married</u>	<u>Totals</u>
Hussey	64.2% 34	35.8% 19	100% 53
Tufts	42.0% 21	58.0% 29	100% 50
JMH	66.7% 16	33.3% 8	100% 24
Lenox Hill	76.6% 36	23.4% 11	100% 47
Total	61.5% 107	38.5% 67	100% 174

Lenox Hill, with the older, more predominantly female population, has a disproportionately low percentage of currently married patients.

Diagnostic Group on Admission

Upon admission each patient was diagnosed by a physician into standard medical diagnostic classifications. The individual diagnostic classifications were then combined into five mutually exclusive categories: neurological; musculo-skeletal; musculo-skeletal lower limb; amputation; and general metabolic and miscellaneous. While 48% of the population had a neurological diagnosis, 68% of the Tufts group carried this diagnosis; only 30% of the Lenox Hill group was so diagnosed (See Table 1-3). While 15.0% of the population had a musculo-skeletal lower limb diagnosis, 30% of the Lenox Hill and 0% of the Tufts group were so diagnosed.

TABLE 1-3

Major Diagnosis of Study Population						
<u>Hospital</u>	<u>Neurological</u>	<u>Musc-Skel</u>	<u>Musc-Skel Lower Limb</u>	<u>Amp</u>	<u>Gen-Meta Misc</u>	<u>Total</u>
Hussey	43.4% 23	15.1% 8	17.0% 9	18.9% 10	5.7% 3	100% 53
Tufts	68.0% 34	4.0% 2		22.0% 11	6.0% 3	100% 50
JMH	50.0% 12		16.7% 4		33.3% 8	100% 24
Lenox Hill	29.8% 14	12.8% 6	29.8% 14	6.4% 3	21.3% 10	100% 47
Total	47.7% 83	9.2% 16	15.5% 27	13.8% 24	13.8% 24	100% 174

Amputations, 14% of the population, accounted for 22 and 19 percents, respectively, of the Tufts and Hussey groups, while none in the JMH group carried this diagnosis. As in previous discussion, the Tufts group reflects somewhat differing characteristics from the other hospital groups. The Tufts patients are primarily neurological or have had amputations. The Lenox Hill group, by contrast, has an equal number of neurologic, musculo-skeletal lower limb patients, musculo-skeletal and general metabolic/miscellaneous diagnoses.

Other General Medical/Hospital Characteristics

Data were gathered on the length of time that had elapsed between the onset of the illness and admission to the participating hospital. Of the population, 73% were admitted within 6 months of the onset of their illness, with 46% of the Tufts group and 96% of the Lenox Hill group being admitted within 6 months of the onset of the disability.

This admission was the first to a rehabilitation type medical facility for 88% of the population, and the figures varied little between the institutions. Of the rehabilitation institute populations, 94%, 74%, 95%, and 92%, respectively, of the Hussey, Tufts, JMH, and Lenox Hill populations were in their first admissions to a rehabilitation hospital.

Education

In terms of educational achievement, the total population does not seem to differ from other aged groups. Forty-five percent attended only elementary school and another 14 percent attended the first three years of high school (see Table 1-4).

TABLE 1-4

Education of Study Group							
Hospital	0-8	9-11	H.S. ¹² Grad.	13-15	Coll. ¹⁶ Grad.	17+	Total
Hussey	60.4% 32	20.8% 11	13.2% 7	3.8% 2	1.9% 1		100% 53
Tufts	28.0% 14	6.0% 3	46.0% 23	10.0% 5	4.0% 2	6.0% 3	100% 50
JMH	28.6% 6	23.8% 5	9.5% 2	23.8% 5	9.5% 2	4.8% 1	100% 21
Lenox Hill	54.5% 24	9.1% 4	25.0% 11	11.4% 5			100% 44
Total	45.2% 76	13.7% 23	25.6% 43	10.1% 17	3.0% 5	2.4% 4	100% 168

There was some variation between the medical facilities. Both Hussey and Lenox Hill had more than half of the population attending only elementary school (60.4% and 54.5% respectively), while Tufts and JMH had a little over one quarter attending only elementary school (28% and 28.6% respectively). College was attended by only 6% of the Hussey group, 11.4% of the Lenox Hill group, and fully 20% and 38% of the Tufts and JMH groups. Educational attainment between hospital groups varies greatly, with the Tufts and JMH populations having attained considerably more education than the other two groups.

Summary of Population Characteristics

There does seem to be some heterogeneity between the population groups in the study. The Tufts sample is younger, has an even sex ratio, has achieved more education, and is primarily neurological. The other three institutions have populations somewhat more similar - they are older, females outnumber males 2 to 1, they have not achieved educationally (with the exception of JMH) and they seem more evenly spread over the five diagnostic classifications. Nearly the entire population is experiencing its first admission to a rehabilitative setting and most were admitted within 6 months of the onset of their disability.

CHAPTER II

IN-HOSPITAL PREPARATION FOR DISCHARGE

For a medical institution to appropriately plan for a patient discharge, early identification of potential outcome is vital. For the purposes of this study, there were only two possible planned outcomes - either the patient was discharged to a long-term care (LTC) facility, such as a nursing home, or the patient was discharged to a non-institutional community setting such as his home or residence. Deaths and transfers to acute medical facilities were not the subject of the study and, furthermore, are not discharges that call for the type of planning that was the subject of this study.

Patients discharged to the community usually had some provision made for supportive personal care or home health services. The range of services and correlates of service level will be described in the next chapter. This chapter will examine the patients' hospital stay measured at two distinct points in time - at admission and just prior to discharge - to determine which variables best relate to the two planned outcomes: discharge to a long-term care facility or discharge back to a non-institutional community setting.

Two-thirds of the patients in the study group were discharged to community settings while the remaining third were discharged to long-term care facilities. As Table II-1 indicates, discharge placement was not significantly related to membership in any of the four hospitals that participated in the study. Tufts discharged 78 percent of their patients to a community setting while Jewish Memorial and Lenox Hill, with 58 percent and 60 percent respectively, had fewer patients returned to their homes. While there may have been some differences in demographic characteristics between the four hospital groups,

there is no relationship between hospital group and patient outcome in this study.

TABLE 11-1

Disposition of Study Population					
	Hussey	Tufts	JMH	Lenox Hill	Total
Discharged to community	66.0% 35	78.4% 40	58.3% 14	59.6% 28	66.9% 117
Discharged to long-term care facility	34.0% 18	21.6% 11	41.7% 10	40.4% 19	33.1% 58
Total	53	51	24	47	100% 175

$$\chi^2 = 5.011 \quad P = .171(\text{N.S.}) \quad DF = 3$$

Factors Related to Discharge Outcome Upon Admission

Early identification of outcomes is important if a medical facility is to maximize its scarce resources in planning for patient dispositions and post-hospital treatments. In addition to the demographic variables described in the first chapter, several other measures were obtained within the initial two weeks of the admission. Three physical/functional measures will be considered here - active motion of limbs score, communication score, and Barthel Scale score. Each will be described as the analysis is explained.

A stepwise multiple regression model¹ was used to identify those

¹A stepwise multiple regression routine selects the independent variable that has the highest correlation with the dependent variable and enters this measure into the regression equation. Next, partial correlations are computed between each of the remaining independent variables and the dependent variable, holding constant the independent variable already selected. The computer program (Data-Text) then selects as the second measure the independent variable that has the highest partial correlation with the dependent variable. The procedure is repeated until the next independent variable to be selected adds less than 0.01 to the square of the multiple correlation. Multiple regression analysis also produces a measure, the multiple correlation coefficient, that assesses the goodness-of-fit to the linear model. The square of the multiple correlation coefficient (R^2) is the amount of variance in the dependent variable explained by the independent variables.

independent measures most highly related to the dependent measure - whether the patient had returned to the community or had been admitted to a long-term care facility. In addition, standardized regression coefficients (beta weights) are also calculated. Beta weights will be used in this analysis to assess the relative strength of the various independent measures in the regression equation. The unique variance attributed to an independent variable is identical to the increase in R^2 due to a variable if it had been entered into the equation as the last variable after all independent variables had been entered.

Regression Analysis

Five independent variables, measured upon admission, were able to explain 20.8 percent of the variance in patient discharge disposition. The variables selected for the analysis upon admission were not able to account for very much of the variance in the dependent variable. Recognition of the poor fit of the linear model to these measures was important. The strongest predictors of patient disposition upon admission are (1) admission Barthel Scale Score; (2) previous chronic hospitalizations before this admission; (3) admission communication scale score; (4) length of time from onset of disability to this admission; and (5) admission active motion of limbs scale score (see Table 11-2).

The following section of this chapter will contain an assessment of the importance of each admission variable as a predictor of patient disposition.

TABLE 11-2

Final Step of Multiple Regression on Patient Disposition Upon Admission

<u>Independent Variable</u>	<u>Regression Coefficient</u>	<u>Standard Error of Coefficient</u>	<u>Standardized Coeff. (Beta Wgt.)</u>	<u>t-test</u>	<u>df</u>	<u>Significance</u>	<u>Unique Variance</u>
Admission Barthel Scale Score (0-100)	-0.0045	0.002	-0.252	-2.78	169	.007	.036
Previous Chronic Hospitalization Before This Admission (never/within 6 mos./more than 6 mos. ago)	0.1035	0.032	0.233	3.25	169	.002	.049
Admission Communication Scale Score	-0.0400	0.019	-0.168	-2.10	169	.038	.021
Length of Time From Onset of Disability To This Admission	-0.0020	0.001	-0.121	-1.68	169	.096	.013
Admission Active Motion of Limbs Scale Score	0.0072	0.015	0.042	0.50	169	over .500	.001

Multiple Correlation Square (R^2) = 0.208
 Multiple Correlation = 0.456
 Standard Deviation of Residuals = 0.426
 Regression Constant = 1.81

F = 8.86

df = 5 and 169

p < .001

Admission Barthel Scale Score

The Barthel Scale is a combination of a series of self-care and mobility measures (see Appendix) and ranges from 0 to 100. Higher scores mean more independent physical functioning. The test is administered upon admission by a qualified physical therapist or nurse.

In a two-way analysis of the Admission Barthel Scale by patient disposition, those who were eventually discharged to the community scored significantly higher at admission than those who eventually were discharged to a long-term care facility (see Table 11-3).

TABLE 11-3

Admission Barthel Scale by Patient Disposition

	<u>Mean Score</u>	<u>SD</u>	<u>N</u>	<u>Variance</u>
Admission Barthel Scale	55.57	25.8	174	554.
Patients Discharged to Community	61.89	24.7	116	610
Patients Discharged to LTC	42.95	23.0	58	532
Difference (Group 1 vs. 2)	18.94			
t-test = 4.846	df = 172	p = < .001		

The multiple regression analysis also identifies Admission Barthel Scale Score as a significant independent predictor of outcome. Those patients who function better upon admission have the best chance of being discharged to their homes or community. Note, however, that this relationship, while statistically significant, seems to be very weak since it accounts for less than 4 percent of the unique variance.

Previous Chronic Hospitalizations Before This Admission

Both the multiple regression and the two-way analysis identify this measure as a predictor, at admission of patient disposition. Those patients who had experienced a previous chronic hospitalization were more likely to be discharged to long-term care settings. While the relationship is statistically significant in the multiple regression analysis, it only accounts for 5 percent of the unique variance.

Admission Communication Scale Score

This was a four point scale measuring the patient's ability to communicate (hearing, vision, verbal) with the hospital staff. Those who were discharged home were also those who were able to better communicate upon admission. Again, although this relationship is significant statistically, the strength of this variable as a predictor of outcome is not great. The beta weight ($-.168$) is small and the unique variance is only 2 percent. It is important, however, to realize the importance of communication in the rehabilitation of this patient population.

Length of Time from Onset of Disability to This Admission

This variable was not a significant predictor of outcome in either the two-way analysis or the multiple regression analysis. It was selected into the regression equation because it did increase the size of the multiple correlation though the t-test was not significant.

Admission Active Motion of Limbs Scale Score

Although this measure was selected into the multiple regression equation the t-test was not statistically significant. In the two-way analysis, however,

those who were discharged to the community did score higher than those who were discharged to long-term care facilities ($t=2.4$; $p=.017$). It appears that this aspect of physical functioning is related to discharge outcome - those that are better able to use their arms and legs more often are discharged to independent living situations.

Other Measures at Admission

Sex. There was no relationship between patient's sex and discharge outcome. Sixty-nine percent of the males and sixty-six percent of the females were discharged to a community setting.

Marital Status. There was no relationship between marital status and outcome. Sixty-four percent of those who were single (never married, divorced, separated, or widowed) and seventy-three percent of those currently married were discharged to the community. Although a greater percentage of those currently married were discharged home, the chi-square statistic had a probability level of only .193.

Major Handicapping Condition. There was a significant relationship between major handicapping condition at admission and patient disposition. As Table 11-4 indicates, there was a strong tendency for those patients with musculoskeletal lower limb problems to return home (85 percent) with similar higher percentages returning home from the amputee group (79 percent). The corollary was in the general metabolic and miscellaneous group where 58 percent were discharged to LTC settings. Only 36 percent of the neurological patients were discharged to long-term care settings. The small sample size ($N=175$) precludes a series of within group analyses (i.e., within all amputees, for example).

TABLE 11-4

Major Handicapping Condition at Admission by Patient Disposition

	<u>Neuro- logical</u>	<u>Musc- Skel.</u>	<u>Musc-Skel, lower limb</u>	<u>Amp.</u>	<u>Gen.</u>	<u>Total</u>
Community Setting	63.9% 53	75.0% 12	85.2% 23	79.2% 19	41.7% 10	67.2% 117
LTC Setting	36.1% 30	25.0% 4	14.8% 4	20.8% 5	58.3% 14	32.8% 57
Total	83	16	27	24	24	100% 174

$$\chi^2 = 13.492; \quad p = .010; \quad df = 4$$

Education. Level of education was not related to patient outcome in either the multiple or two-way analysis. Those who were discharged home had completed 9.7 years, those who were discharged to LTC settings had completed 9.6 years, while the group mean was 9.65 years.

Age. Age was not related to outcome in either the two-way or multiple analysis. Those who were discharged home were, however, slightly younger (68.5 years) than those who were discharged to long-term care settings (71.4 years).

Summary of Admission Period Measures

This study was unable to identify measures upon admission, with the exception of the Barthel Scale and a history of previous chronic hospitalizations, that would enable a medical facility to predict which patients could be discharged to community settings. Patients who scored well on the Barthel Index of physical functioning tended to be discharged home as was the case with patients

who had no history of previous chronic hospitalizations. Both measures, however, were relatively weak predictors when examined in the context of the multiple regression analysis. Age, sex, marital status, education, communication, active motion of the limbs, and time from onset of disability to this admission were weak measures when examined in the context of the dependent variable. Major handicapping condition was related to outcome, but small sample size precludes a more sophisticated analysis. With a squared multiple correlation coefficient of .208, the regression equation was unable to account for a reasonable degree of variance in the dependent variable. At admission, this study was unable to reasonably predict patient outcome.

Patient Disposition Upon Discharge

As the patient advances in his rehabilitation program, the staff seeks to narrow the options for discharge to either return to a community setting, usually with some provision for supportive services, or transfer to a long-term care facility. Social workers and other medical care professionals work with the patient and his family to determine the most appropriate setting. The analysis at this juncture sought to identify those demographic and pre-discharge measures associated with the same outcome measure - patient disposition. Several new measures were obtained - specifically, a number addressing the role, strength, and potential for care provided by the patient's family in addition to assessments of the patient's financial condition and updated assessments of his physical functioning.

Regression Analysis Using Pre-Discharge Measures

Four independent variables, measured shortly before discharge, were able to explain 65.2 percent of the variance in the outcome measure - whether the patient was discharged into a community setting or was transferred to a LTC facility. The strongest independent predictors of patient outcome pre-discharge were: (1) support from family; (2) ability in home; (3) financial ability; and (4) length of time in the hospital (Table 11-5).

The final section of this chapter will contain an assessment of the importance of the pre-discharge measures as predictors of patient outcome.

Support from Family

A measure devised by Tufts was the strongest independent predictor of patient disposition - support from family. This measure capsulizes the ability of the family to provide adequate support for the patient upon return home. The variable is worded as follows:

Support from Family Unit

- (4) Intact The family unit consists of at least one member beside the patient related by marriage, kinship or else a close personal companion; as a unit the family is sufficiently competent physically and mentally to provide adequate support to the patient at home at this time under foreseeable circumstances.
- (3) Limited The family unit is as above but under particular conditions of stress may not be able to support the patient either physically or mentally or else particular circumstances such as a job require a crucial family member to be away from the home part of the day.
- (2) Helper Another person other than a regular family member is needed to provide some service to the patient or family.
- (1) Null The family is unable to cope with the patient or else the patient lives(d) alone.

Table 11-5

FINAL STEP OF MULTIPLE REGRESSION ANALYSIS OF PATIENT DISPOSITION
USING PRE-DISCHARGE VARIABLES.

Independent Variable	Regression Coefficient	Standard Error of Coefficient	Standardized Coefficient (Beta Weight)	t-test	df	Significance	Unique Variance
Support from family	-0.1701	0.019	-0.507	-9.19	170	<.001	.173
Ability in home	-0.1556	0.023	-0.359	-6.81	170	<.001	.095
Financial ability	-0.0402	0.022	-0.093	-1.85	170	.067	.007
Months in hospital	+0.0185	0.011	0.080	1.69	170	.092	.006

Multiple Correlation Squared (R^2) = 0.652

Multiple Correlation = 0.808

Standard Deviation of Residuals = 0.282

Regression Constant = 2.2

$f = 79.71$ $df = 4$ and 170 $p = <.001$

Patients who returned home scored high (intact or limited) on this measure. In fact, this measure is such a powerful predictor that it accounts for 17.3 percent of the unique variance. Further examination of this relationship seems warranted.¹ As Table 11-6 indicates, fully 70 percent of those patients discharged have had an "intact" family unit, while only one patient (1.8 percent) discharged to a LTC facility had an "intact" family unit. Of those discharged to a LTC facility, 89.5 percent and 7.0 percent had family units classified as being able to provide "null" or "helper" level support, compared to 13.7 percent and 9.4 percent respectively of the group discharged to the community. It seems quite clear that the family units' ability to absorb the disabled patient upon discharge is the critical variable in discharge planning and whether the patient returns to the community, given existing community support services. This strongly suggests that the effort to increase the proportion of long-term patients who return to community living will depend on the evolution of social supports which can replace the missing family support. The capacity of families to sustain their support for disabled family members over long periods of time without recurrent hospital admissions also warrants further investigation and is discussed next.

Several additional measures were solicited to determine what effect the family, relatives, and friends' willingness to provide personal care services

1

This finding supports earlier reports from hospital-based home care projects, that family willingness to provide care is crucial for home discharge. These other findings, however, do not introduce any new factor, such as a large increase in supportive social help to encourage a family to receive a patient back home. Such social maintenance helps are customarily not considered a hospital or medical responsibility so that the potential for altering the level of family receptivity has not yet been tested.

Table 11-6

SUPPORT FROM FAMILY BY PATIENT DISPOSITION					
	Null	Helper	Limited	Intact	Total
Discharged to Community	13.7% 16	9.4% 11	6.8% 8	70.1% 82	67.2% 117
Discharged to LTC facility	89.5% 51	7.0% 4	1.8% 1	1.8% 1	32.8% 57
Total	38.5% 67	8.6% 15	5.2% 9	47.7% 83	100% 174
$\chi^2 = 96.87$ $p = <.001$ $df = 3$					

would have on discharge outcome. Of those discharged to a LTC, 70 percent had relatives who had provided personal care services prior to this admission, but only 38 percent had relatives willing to provide personal care services at this discharge. Before this admission, members of the household had provided personal care services to 43 percent of the group discharged to a LTC, and household members were willing to provide personal care support to 41 percent at discharge. The figures imply that while relatives had provided services in the past for those now discharged to LTC facilities, they were unwilling to provide personal care services at the same level at this discharge.

Conversely, among the patients discharged home, 44 percent had relatives who had helped before admission, while 63 percent had relatives who were willing to support the patient with personal care services at this discharge. In a parallel increase, members of the household had provided personal care to 57 percent of this group before the current admission, and were willing to help 76 percent of those discharged home this time. The degree of support the patient receives from his immediate family and other relatives is substan-

tial for those discharged home. While those discharged to LTC facilities may have had support from family and relatives in the past, there is a notable reduction in the number of families willing to continue to assist the patient upon discharge. Even for those patients who enter a LTC facility, however, there is a core of support at home, with 41 percent of family members and 38 percent of other relatives willing to provide some measure of personal care service.

These findings warrant more intensive review of the new ways in which social supports could be used to maintain the willingness of relatives and others to continue care outside of institutions.

Ability in Home

This variable estimates the patient's physical functioning in relation to the "customary" role he would have to perform in the home and uses the same four-point rating as did "support from family." The complete wording of the measure is as follows:

Ability in Home

- | | |
|-------------|--|
| (4) Intact | Able in self care and mobility and able to fulfill the customary and usual role and perform customary and usual chores. |
| (3) Limited | Able in self care and mobility but limited in ability to fulfill the customary and usual role or limited in ability to perform customary and usual chores. |
| (2) Helper | Assistance needed in self care or mobility due to structural barriers; or cannot be left alone due to severe communication or mental problem; |

or else assistance is needed from outside the home to perform household tasks, if a homemaker.

- (1) Null Would be totally dependent at home.

This measure was the second strongest predictor of discharge outcome - with a unique variance of 9.5 percent. An examination of the two-way relationship between patient outcome and "ability in home" confirms the findings of the regression analysis. Of those discharged to a LTC facility, 74 percent were rated as having "null" ability in the home, with only 3.5 percent and 1.8 percent respectively having "limited" or "intact" ability in the home. Those discharged to LTC facilities did not function at a level where they could fulfill their customary roles. On the other hand, those who were discharged to a community setting were able to function much better in the home - 27 percent were intact, 36 percent were limited, 31 percent were "helper", and only 7 percent were classified as null. The question arises, to what extent can socially provided assistance help the patient perform functions previously performed at home, and would this significantly alter the proportion able to return home?

Financial Ability

3 The family's financial solvency was the third strongest predictor of discharge outcome. Those patients who had family units who were able to absorb the costs of the disability without resort to public assistance tended to be discharged home while families who needed public assistance tended to have their members discharged to a LTC facility. In the regression analysis, this measure only contributed a unique variance of 0.7 percent, indicating a fairly weak relationship. Note that (Table II-6) the T-Test has a probability level of .067, not significant at the .05 level. An examination of the two-way re-

lationship confirms the findings of the regression analysis - those families with capital were able to absorb a disabled member better than those families who must rely on some type of public assistance. To be specific, of those discharged home, 61 percent of families had sufficient resources to provide for the disabled member without resorting to public assistance. The equivalent percent in the LTC facility group was only 22 percent. Conversely, 78 percent of those discharged to LTC facilities (versus 39 percent for those discharged home) were in a financial position where they had to rely on public assistance for some or all of their medical and subsistence expenses. In this study, financial ability of the family is an important independent predictor of discharge outcome, although not nearly as strong as "support from family" or "ability in home." The data does not permit answering the question: would alteration in public assistance procedures alter these ratios so that public assistance more nearly functions as a substitute for family resources in determining post-hospital outcomes?

Months in the Hospital

Those patients discharged to a community setting were hospitalized an average of 1.9 months while those discharged to a long-term care facility were away from home a little longer, an average of 2.7 months. This relationship was sufficiently strong that the variable "months in the hospital" was selected the fourth strongest predictor of discharge outcome. The relationship is, however, weak when compared with "support from family" or "ability in home." "Months in hospital" has a unique variance of only 0.6 percent, and the T-Test is not significantly different than zero ($p = .092$). It is interesting to note, however, that those who stay the shortest time go home.

Discharge Barthel Score

On admission the Barthel Scale Score was an important variable in the regression equation. Upon discharge, however, the Barthel Scale Score was not selected into the regression equation primarily because it was highly correlated (.761) with "ability in home." "Ability in home" had a higher partial correlation with the dependent variable (after "support from family" was entered into the regression equation) than did Discharge Barthel Score. "Ability in home" was selected in the equation and the partial correlation of Discharge Barthel Scale Score fell from .313 to .049. In the regression analysis of outcome pre-discharge, Barthel Scale Score was not a strong independent predictor of outcome. In a two-way analysis of Discharge Barthel Scale Score by Outcome, the T-Test is significant ($p < .001$) with those discharged to a LTC facility a score of 49.1. The gain on the Barthel Scale was 16.5 points for those going home and only 6.6 points for those who enter a LTC facility. This difference is statistically significant.

The Barthel Scale, when "ability in home" is in the analysis, is not a strong independent predictor of outcome. "Ability in home" is both a physical and adjustment measure and supercodes the Barthel Scale Score in the analysis. In a two-way analysis, those who go home have a higher score upon entry, improve the most during their stay, and leave with a higher score than those who enter LTC facilities.

The Barthel Scale Score seems to have usefulness in at least two ways. To the extent it measures improvement in a patient's functional capacity during hospitalization, this may introduce encouragement to the family and thus measure patient's "ability in home" when other functional measures are lacking; and it may predict family willingness to resume care at home. Also,

where social data is lacking for discharge planning, the score may be used by hospital staffs.

Discharge Active Motion of Limbs & Communication Scale Scores

Both of these scales were extremely weak independent predictors of discharge outcome. Neither were selected into the regression equation, although in a two-way analysis it is demonstrated that those who return home score significantly higher on both indices. Both scales had fairly high correlations with "ability in home" and, after this variable was selected into the equation, had extremely partial weak correlations with the dependent variable. While patients who return home score higher on these scales, in this analysis these scales did not predict discharge outcome.

Age and Education

Neither age nor education were related to outcome in the analysis of discharge variables.

A discharging medical institution has not completed its responsibilities to a chronically ill patient by just making a pre-discharge assessment. It still remains necessary for the staff to assist patient and family in making the necessary arrangements for care following discharge. For the patient going home, this means the assurance that the family understands the range of tasks which must be performed, striking some viable agreement with family about the extent to which they can, in all honesty, perform the tasks, and arranging for supplementary services to be delivered by community agencies where families cannot bear the entire burden alone. Before considering the extension of a medical institution's responsibility into post-hospital life, this pre-discharge obligation must first be settled.

TABLE 11-7

HOSPITAL STAFF TIME - DISCHARGE PREPARATION
FOR THOSE SENT TO OWN OR FAMILY RESIDENCE *

	<u>All Hospitals</u>			<u>Hussey</u>		<u>Tufts</u>		<u>J.M.H.</u>		<u>Lenox Hill</u>	
	No. Pts.	$\bar{X}$ hrs/pt. Receiving Service Range $\bar{X}$ hrs/pt. (total)		No. Pts.	$\bar{X}$ hours/pt. S.D. Range	No. Pts.	$\bar{X}$ hours/pt. S.D. Range	No. Pts.	$\bar{X}$ hours/pt. S.D. Range	No. Pts.	$\bar{X}$ hours/pt. S.D. Range
All Staff listed below	108	6.4 0.8-23.5		35	8.1 4.6 2.0-23.5	33	8.3 4.5 2.0-24.0	12	5.1 4.0 2.0-14.5	28	2.5 1.2 0.8-6.3
Social Worker	94	2.7 0.4-15.0		35	2.9 1.8 1.0-10.0	23	3.7 2.7 1.5-15.0	11	3.7 3.7 0.5-12.0	25	1.0 0.5 0.4-2.0
	108	2.4									
Nurse - R.N.	93	1.6 0.3-5.0		28	1.8 1.4 0.5-5.0	25	1.9 0.8 1.0-4.0	12	1.3 1.0 0.5-4.0	28	1.3 0.7 0.3-3.5
	108	1.4									
Physical Therapist	62	2.5 0.2-20.0		31	3.4 3.4 1.0-20.0	24	1.9 0.8 0.5-3.5	3	0.4 0.1 0.2-0.5	4	1.4 0.3 0.3-1.0
	108	0.5									

TABLE 11-7 (cont'd)

	<u>All Hospitals</u>		<u>Hussey</u>		<u>Tufts</u>		<u>J.M.H.</u>		<u>Lenox Hill</u>	
Occupational Therapist	33	1.7	12	1.8 1.3	18	1.8 0.8	2	0.2 0	1	1.0 0
	108	0.2-6.0 0.5		1.0-6.0		0.5-3.5				
Other Therapist	7	1.5	2	0.8 0.3	4	2.1 0.2	1	0.2 0	-	-
	108	0.2-2.5 0.1		0.5-1.0		2.0-2.5				
Physician	59	1.0	2	0.8 0.3	31	1.6 0.6	9	0.5 0.2	17	0.2 0.1
	108	0.1-3.5 0.6		0.5-1.0		1.0-3.5		0.2-0.8		0.1-0.3
Psychiatrist	3	1.1	-	-	2	1.3 0.3	-	-	1	0.8 0
	108	0.8-1.5 (n.s.)				1.0-1.5				

*(Nursing Home and Chronic facility not included)

Data in Table 11-7 lists each institution's report on the estimated number of hours (or minutes) used by various staff members in completing these discharge arrangements. The average time required by all to discharge 100 patients home was 6.4 hours, but the actual time ranged from 0.8 of an hour to 28.5 hours for especially complex case situations.

Tufts and Hussey Hospitals were much alike in the amount of time required with Jewish Memorial using 5.1 hours and Lenox Hill only 2.5 hours. The variations may be explained by differences in quality of discharge planning, by differences among patient needs or family capacities. Social workers or therapists usually devote most time, although at Lenox Hill the nurse is most heavily involved.

The amount of time does not seem very great, considering the severity of the conditions treated. This suggests that even heavily burdened rehabilitation institutions might be able to assume, for several months, the management responsibility for the post-hospital phase of community care. The extent to which additional social supports for families must be either developed through other agencies, or directly provided by the hospital, would influence the feasibility of such an evolution. However, if it proves acceptable to rely upon the existing community pattern in which families bear the brunt of the care load and social agencies carry a minor part of the load through fragmented programs, then a modest extension of medical authority into community care seems feasible.

Summary and Conclusions

A hospital's ability to predict discharge outcome fairly close to the patient's admission is not enhanced by this study. The measures selected were unable to reasonably identify those who would return to the community. Those

who scored higher on the Barthel scale and who had had no previous chronic hospitalization tended to be those who eventually returned home.

Several measures were obtained during the period of hospitalization which greatly improved the predictive utility of the multiple regression analysis.

X "Support from family" is easily the outstanding independent predictor of outcome. Those families that were willing and able to provide support for the patient in their home had their members return home. Matched with the willingness and the ability of the family to provide for the patient was the patient's own ability to function physically to a degree where he could fulfill his customary roles. "Ability in home" was the second strongest independent predictor of outcome. The families' ability to absorb the costs of the patients return home and living expenses without resort to public assistance was the third strongest predictor of discharge outcome. Those patients whose families needed to rely on public assistance had a better chance of being discharged to a LTC facility. The regression analysis of pre-discharge variables had a multiple regression correlation squared of 65 percent, indicating a good fit to the linear regression model.

In conclusion, one notes the surprising importance of external, as opposed to internal, measures that seem to influence outcome. Both "support from family" and "financial ability" are out-of-house conditions usually beyond any reasonable degree of control by the medical facility. However, these elements are those which may be influenced by variations in social provision which can supplement basic family capacities. As this time, most of these social maintenance provisions are considered to be outside of the responsibility of medical institutions.

"Ability in home", while describing the patient's physical functioning, the change of which is, to a degree, under the control of the medical facility, also incorporates the patient's ability to resume his customary household role, a situation more dependent on the family than on the patient. It would seem that very early assessment of these three variables, 4 weeks after admission for instance, would enable the medical facilities to more efficiently plan for patient discharges. In cases where family conditions may seem unsuitable, the social worker would have some time to work with social programs and with the family to try to enable them to properly prepare for a return home by the patient. In terms of health manpower, it seems that almost as much work should be done with social programs outside the medical network and with the patient's family as with the patient himself.

CHAPTER III

COMMUNITY MAINTENANCE
*PERSONAL CARE SERVICE UTILIZATION AT HOME

There were 117 patients discharged from the medical institutions to a community setting during the course of the study. The discharge process involved a hospital staff conference at which time the patient's case was reviewed and suggestions were made for the type (if any) of supportive personal care/home health service necessary. This service prescription data was then used by the discharge planner, either a social worker or a nurse, to contact local agencies or the patient's family and friends to arrange for the provision of the prescribed services. As Table III-1 indicates, it was quite problematic in some cases whether the social service worker would be able to carry out the instructions of the discharge planning conference.

TABLE III-1

Comparison of Service Prescription with Service Arrangements

<u>Service</u>	<u>Number Prescribed</u>	<u>Number Arranged</u>	<u>Difference</u>
<u>ADL</u>			
Bathing	54	49	-5
Dressing	26	23	-3
Climbing Stairs	23	23	0
Walking	38	30	-8
Transfer	27	20	-7
Toilet	25	20	-5
Feeding	16	10	-6
<u>HOUSEHOLD</u>			
Light Housekeeping	57	57	0
Heavy Housekeeping	45	34	-11
Laundry	66	56	-10
Cooking	65	57	-8
Shopping	55	47	-8
Sewing/Mending	13	1	-12
<u>MEDICAL SUPERVISION</u>			
Medical Supervision	36	27	-9

ESCORT

Escort to Hospital	55	40	-15
Escort to Community Services	18	6	-12
Escort to Shopping	17	3	-14
	<u>636</u>	<u>503</u>	<u>-133</u>

*In this study, the term Activities of Daily Living (ADL) is defined to mean bathing, dressing, climbing stairs, walking, transfer, toilet, and feeding. The term Personal Care comprises not only physical attention to the individual's ADL needs, but also household, escort and other support services necessary for living.

In the case of services such as climbing stairs and light housekeeping, there was perfect correspondence between prescription and arrangement. With services such as escort, sewing, heavy housekeeping, feeding, and walking, there was a considerable deficit in the arrangements. It is safe to assume that quite a few patients did not find the services they required, or at least the services the medical facility felt they required, when they arrived back in the community.

The next question to be asked is whether the services arranged for by the discharge planner were actually delivered (Table III-2). Seven discrete services showed frequency increases from arrangement to delivery, indicating that while the discharge planner did not feel concrete arrangements were made, or were necessary, someone else did.

TABLE III-2

Comparison of Service Arrangement/Prescription
With Delivery Within the First Two Weeks of Discharge

<u>Service</u>	<u>Number Arranged</u>	<u>Number Delivered</u>	<u>Difference¹</u>	<u>Difference²</u>
<u>ADL</u>				
Bathing	49	51	+2 (%)	-3
Dressing	23	26	+3	0
Climbing Stairs	23	21	-2	-2
Walking	30	25	-5	-13
Transfer	20	20	0	-7
Toilet	20	22	+2	-3
Feeding	10	10	0	-6

HOUSEHOLD

Light Housekeeping	57	56	-1	-1
Heavy Housekeeping	34	36	+2	-9
Laundry	56	57	+1	-9
Cooking	57	63	+6	-2
Shopping	47	45	-2	-10
Sewing/Mending	1	1	0	-12

MEDICAL SUPERVISION

Medical Supervision	27	28	+1	-8
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ESCORT

Escort to Hospital	40	25	-15	-30
Escort to Community Services	6	3	-3	-15
Escort to Shopping	3	1	-2	-16
	<u>503</u>	<u>491</u>	<u>+17</u>	<u>-30</u>

NET -13

1

Delivered minus arranged

2

Delivered minus prescribed

These services were bathing, dressing, toileting, light and heavy house-keeping, laundry, and medical supervision. Dressing was the only service that had a perfect correspondence from prescription to delivery. In several areas differences between the prescription and arrangement were accentuated when the actual service delivery is examined. Assistance in walking, for example, was prescribed for 38 patients. Thirty-three percent (13) of these returned home to find a vital service not available. The escort services also illustrate this phenomenon. Escort services to medical care, a physician or hospital, were prescribed for 55 patients, arranged for 40, and delivered to only 25. The same situation applies to escort to community services where only 3 patients received the service when it had been prescribed for 18 and arranged for 6. In summary, the comparison of service prescription-arrangement-initial delivery indicates a mixed bag. Some services, such as dressing, bathing, and light housekeeping, seem to show a good correspondence. Others, such as walking, the escort services, shopping, feeding, and medical supervision, show a

noted drop between service prescription and actual delivery.

Service delivery was monitored on the 100 patients (out of 117) who received personal care services in the initial two-week post-hospitalization period. Service delivery was measured by the actual number of hours per two-week period the provider spent in actual service delivery for 12 consecutive two-week time periods, or 24 weeks in total. A hospital staff member telephoned the patient at two-week intervals to collect data on the frequency and time spent in the delivery of services for the particular follow-up period. In some cases, a check with a provider agency was made for corroboration. A total of 22 discrete personal care services were examined. These individual services have been categorized into five general areas: activities of daily living (ADL) involving self-care and mobility, housework, medical-professional, escort, and leisure. Each general area will be examined in this chapter.

ACTIVITIES OF DAILY LIVING SERVICES

ADL services consisted of those duties performed for the discharged patients that fell into any of the following areas: assistance in bathing, dressing, climbing stairs, walking, transferring, toileting and feeding. Of the 100 patients who entered the first follow-up (Weeks 1 and 2 post-discharge), 69 were receiving at least one ADL service.

ADL Service Providers: The responsible person or agency selected or designated to provide the ADL service was identified by the discharge planner before the patient was released back to the community. Patients' household relatives were involved in ADL service provision in 64/69 cases, community agencies were involved in 11/69 cases, and non-relatives (friends of the patient or housekeepers) were involved in 2/69 cases. The preponderance of

household relatives as the providers of ADL services is amazing, as is the proportionate non-involvement of community agencies. If a patient was to receive an ADL service, it would nearly always have to be provided by a household member. Those patients who did not have willing household members to assist them in ADL services were either forced to seek agency help or to enter into an institutional arrangement. How many patients from the original sample who were forced to enter nursing homes because of the non-availability of an ADL service provider is not known, but is a subject that deserves further study. It would seem that there is an opportunity for a greater role of private agencies in the provision of ADL services.

ADL Service Utilization

As Table III-3 indicates, the base number of patients in the community in the study receiving any type of services declined from 100 in weeks 1-2 to 62 in weeks 23-24. These dropouts are partially due to deaths, placements in nursing homes, and those who entered hospitals. A further explanation of the dropout phenomena will be offered toward the end of this chapter.

Regardless of the dropouts, the percentage of patients who received ADL services ranged from 69% (Weeks 1-2) to a low of 56% (Weeks 9-10), back up to 65% (Weeks 23-24). It was therefore a fairly consistent proportion of the total service population that received ADL services throughout the 24-week follow-up period, with a range of only 13% of the total group. Demand for each individual ADL service was also fairly consistent over the 24-week follow-up period. Bathing services had the highest utilization, ranging from 51% of the entire population during Weeks 1-2, to a low of 37% in Weeks 11-12, back to 45% in Weeks 23-24. Other ADL services demonstrated similar consistent proportions of utilizers over the 24-week follow-up. Assistance in walking,

for example, ranged from 25% (Weeks 1-2) to a high of 30% (Weeks 17-18) back up to 29% (Weeks 23-24). With the exceptions of bathing and feeding, ADL services used ranged from between 14-30% of the population over the course of the follow-up. Assistance in feeding was least used, with 10% of the group in weeks 1-2 receiving the service, while between 3-5% of the group used this service from Weeks 11-24.

TABLE III-3

ADL Service Utilization During the 24 Week Follow-up Period

	<u>BATHING</u>	<u>DRESSING</u>	<u>STAIRS</u>	<u>WALKING</u>	<u>TRANSFER</u>	<u>TOILET</u>	<u>FEEDING</u>	<u>TOTAL ADL</u>
Wks 1-2 (N=100) X Hours/wk**	51 (51%) 2.8	26 (26%) 3.8	21 (21%) 1.2	25 (25%) 3.9	20 (20%) 2.4	22 (22%) 3.5	10 (10%) 9.2	69 (69%) 8.4
Wks 3-4 (N=94) X Hours/wk	45 (48%) 2.5	21 (22%) 3.4	21 (22%) 1.1	25 (26%) 3.7	17 (18%) 1.8	18 (19%) 2.8	7 (7%) 2.8	61 (65%) 7.1
Wks 5-6 (N=93) X Hours/wk	42 (45%) 2.5	20 (22%) 3.3	20 (22%) 1.1	24 (26%) 3.8	18 (19%) 1.8	17 (18%) 2.8	7 (8%) 7.8	58 (62%) 7.2
Wks 7-8 (N=88) X Hours/wk	36 (41%) 2.4	17 (19%) 3.1	17 (19%) 1.2	25 (28%) 4.3	16 (18%) 1.7	16 (18%) 2.2	5 (6%) 7.8	51 (58%) 7.2
Wks 9-10 (N=88) X Hours/wk	35 (40%) 2.4	15 (17%) 3.3	16 (18%) 1.1	24 (27%) 4.3	16 (18%) 1.8	16 (18%) 2.4	5 (6%) 7.8	49 (56%) 7.4
Wks 11-12 (N=83) X Hours/wk	31 (37%) 2.5	12 (14%) 3.4	15 (18%) 1.0	21 (25%) 4.3	14 (17%) 1.7	16 (19%) 2.6	3 (4%) 6.0	48 (57%) 6.4
Wks 13-14 (N=79) X Hours/wk	31 (39%) 2.7	13 (16%) 4.0	15 (19%) 1.0	20 (25%) 6.1	13 (16%) 2.0	14 (18%) 3.0	3 (4%) 6.0	46 (58%) 7.8
Wks 15-16 (N=77) X Hours/wk	32 (42%) 2.5	13 (17%) 3.9	15 (19%) 1.0	21 (27%) 4.8	14 (18%) 1.7	15 (19%) 2.8	3 (4%) 6.0	47 (61%) 7.0
Wks 17-18 (N=70) X Hours/wk	32 (46%) 2.1	11 (16%) 3.1	14 (20%) 1.0	21 (30%) 4.0	14 (20%) 0.8	14 (20%) 1.8	3 (4%) 6.0	46 (66%) 5.5
Wks 19-20 (N=68) X Hours/wk	31 (46%) 2.1	11 (16%) 3.0	14 (21%) 1.1	19 (28%) 3.9	14 (21%) 0.9	13 (19%) 1.8	3 (4%) 6.0	46 (68%) 5.2
Wks 21-22 (N=64) X Hours/wk	29 (45%) 2.0	10 (16%) 3.0	12 (19%) 1.1	17 (27%) 4.0	12 (19%) 0.8	11 (17%) 2.0	2 (3%) 7.0	42 (66%) 5.1
Wks 23-24 (N=62) X Hours/wk	28 (45%) 2.1	9 (15%) 2.9	12 (19%) 1.1	18 (29%) 3.9	12 (19%) 0.7	12 (19%) 1.9	3 (5%) 6.0	40 (65%) 5.4

* The size of the community group

** Completed on a 1 week basis.

Service was also measured by the number of hours providers spent in delivery (including transportation if necessary) over the 24-week period. The number of hours spent in service delivery for all ADL services ranged from a weekly average of 8.4 hours (Wks. 1-2) to 5.4 hours (Wks. 23-24). There was a consistent, though slow, decline in the number of hours devoted to service use over the course of the follow-ups. Assistance in feeding was the ADL service that required the most time per patient per week, ranging from 9.2 hours (Wks. 1-2) to 6.0 hours (Wks. 23-24). Though feeding required the most per unit time, it was the least utilized ADL service (from 3-10% of the population). The most heavily used ADL service, assistance in bathing, required from 2.8 hours per week (Wks. 1-2) to 2.0 hours per week (Wks. 21-22). The general pattern seemed to indicate a decline in provider hours per patient used over time. For example, assistance in toileting declined from 3.5 hours per week (Wks. 1-2) to 1.9 hours per week (Wks. 23-24). However, assistance in walking seemed to contradict the overall trend, ranging from 3.9 hours per week (Wks. 1-2) to a high of 6.1 hours per week (Wks. 13-14), back to 3.9 hours per week (Wks. 23-24).

In general, however, a slight decline over time was observed in both the percent of the community population receiving ADL services (from 69 - 65%), and in the average number of provider hours per ADL service user (from 8.4 to 5.4 per week). This seems to indicate that there was a dropout of some of the heavier users of the ADL services during the course of the follow-up, or that some patients became more independent.

Predictions of ADL Service Utilization

A multiple regression analysis was conducted with total ADL service utilization hours (all follow-ups) as the dependent variable and with the same 10 pre-discharge measures (Table III-4) as independent variables as were used in the latter half of Chapter II. The basic reasoning behind the analysis was the assumption that a service planner, for budgetary reasons, would want to know the pre-discharge or discharge measures that best identified potential heavy (or light) users of the ADL service group. The multiple regression analysis identified Discharge Barthel Score as the pre-eminent predictor of ADL service utilization, accounting for 47.2% of the unique variance (Table III-4). Those that score highest on the Barthel Scale were the lowest users of the ADL service group. There is a very high correlation, then, between ADL score achieved at discharge and the patient's need for assistance in the ADL service group. Three other independent variables were selected into the equation-- months in hospital, highest educational grade, and support from family. Each of these measures contributed less than 0.5% to the unique variance and can be assumed to be extremely weak predictors of ADL service use. Those who were in the hospital longer tended to be higher utilizers; those who were better educated tended to be higher utilizers; and those who had the least support from the family unit tended to be higher users. The regression equation, with the four independent predictors, was able to explain 57% of the variance in the dependent variable, indicating a relatively good fit of the linear regression model. Discharge Barthel score is by far the most powerful predictor, and by itself, (after the first step in the regression routine) accounts for 50.5% of the multiple correlation/unique variance.

TABLE III-4

Final Step of Multiple Regression Analysis of ADL Service Hours (all follow-ups) using
Pre-Discharge Variables

Independent Variable	Regression Coefficient	Standard Error of Coefficient	Standardized Coefficient (Beta Weight)	t-test	df	Significance	Unique Variance
Discharge Barthel Score	- 3.6776	0.414	-0.691	-8.89	72	<.001	.472
Months in Hospital	14.3976	6.265	+0.179	2.30	72	.025	.032
Education	5.5603	2.917	+0.149	1.91	72	.061	.022
Support from Family	-13.8362	9.966	-0.108	-1.39	72	.170	.012

Multiple Correlation Squared (R^2) = 0.570
 Multiple Correlation = 0.755
 Standard Deviation of Residuals = 95.756
 Regression Constant = 356.271

$f = 23.86$ $df = 4$ and 72 $p < .001$

Summary of ADL Services

ADL services were required by 56-69% of the population throughout the 24-week period. There was amazing consistency in service use over the 12 follow-ups, whether the data are examined by hours per patient per service, or by the proportion of the total population utilizing a particular service. There was a slight dropout of the heavier users or increase in independence over the 24-week follow-up period, a trend indicated by both the service hours and by the proportion of patients who used those services that indicated greater personal dependence, such as feeding and dressing. By far the strongest predictor of ADL service use is the discharge Barthel scale, with those scoring the highest (most independent) using the ADL service group the least, as measured in hours of service delivery. The major provider of ADL services is the patient's household relatives, with community agencies playing a minor role.

HOUSEHOLD SERVICES

Household services consist of 6 discrete services: light and heavy housecleaning, laundry, cooking, shopping, and sewing. Of the 100 patients in the first follow-up, 81% were receiving at least one of the household services.

Household Service Providers

Similar to the situation with ADL services, the patient's immediate household relatives provided the bulk of the household services. In 65/81 cases, relatives did some or all of the service provision. Community agencies contributed more service in this area, 26/81 cases, than in the ADL area, and friends (non-relatives) were also a factor in service delivery, operating in 11/81 cases.

As a result of these figures, a basic question occurs--what happens to those who did not have household relatives who would be willing to perform these duties?

Household Service Utilization

Household services were used by 4/5 of the discharged population, with the proportion ranging from 81% (Wks. 1-2) to a low of 77% (Wks. 21-22), and finally ending up at 79% (Wks. 23-24). There was a very consistent, high demand for this group of services. Service hours for the total also were quite consistent over the length of the follow-up, ranging from 12.2 hours per patient per week in Weeks 1-2 to a low weekly average of 10.4 hours in Weeks 15-16, and finally concluding at 11.6 hours per patient per week during Weeks 23-24.

Individual services also exhibited similar consistency. Cooking, perhaps the most heavily utilized of the household service group, ranged from 64% of the community group (Wks. 1-2), to a low of 51% (Wks. 15-16), back up to 52% (Wks. 23-24). Average weekly hours of service provision for the same period ranged from 8.1 (Wks. 1-2) to 7.8 (Wks. 3-4) to 9.2 (Wks. 15-16) and finally ended at 8.6 (Wks. 23-24). With the exception of sewing which was hardly used, every service was used by 30-60% of the population. The hours of service provision per week was generally lower than the ADL services. Cooking and light housecleaning required the highest number of service hours per week during the follow-up period (9 and 7 respectively) while everyone of the remaining four services required less than 2 hours weekly per follow-up period. Utilization both in proportion of the population requiring the individual service and in the hours of service provision was consistent over the follow-up period and did not exhibit the tendency of slightly lower use over time found in the ADL services. Those who dropped out over the course of the 24-week follow-up, in relation to their use of household services, did not seem to be the heavier utilizers.

TABLE III-5

Housework Services Utilization During the 24-Week Follow-up Period

	N	Light Housecleaning	Heavy Housecleaning	Laundry	Cooking	Shopping	Sewing	Housework Total
Weeks 1-2 $\bar{X}$ hours/wk* 100		56 (56%) 5.7	36 (36%) 1.6	58 (58%) 1.4	64 (64%) 8.1	45 (45%) 1.1	1 (1%) 0.2	81 (81%) 12.2
Weeks 3-4 $\bar{X}$ hours/wk 94		51 (54%) 5.0	35 (37%) 1.7	56 (60%) 1.1	60 (64%) 7.8	46 (49%) 1.2	1 (1%) 0.2	79 (84%) 11.3
Weeks 5-6 $\bar{X}$ hours/wk 93		48 (52%) 4.9	34 (37%) 1.6	55 (59%) 1.2	56 (60%) 8.1	48 (52%) 1.2	1 (1%) 0.2	77 (83%) 11.2
Weeks 7-8 $\bar{X}$ hours/wk 88		44 (50%) 4.8	30 (34%) 1.6	52 (59%) 1.2	53 (60%) 8.3	45 (51%) 1.2	1 (1%) 0.2	73 (83%) 11.1
Weeks 9-10 $\bar{X}$ hours/wk 88		42 (48%) 4.8	33 (38%) 1.5	52 (59%) 1.2	51 (58%) 8.4	46 (52%) 1.1	1 (1%) 0.2	72 (82%) 11.0
Weeks 11-12 $\bar{X}$ hours/wk 83		41 (49%) 4.5	26 (31%) 1.6	46 (55%) 1.1	47 (57%) 8.3	43 (52%) 1.1	1 (1%) 0.2	67 (80%) 10.6
Weeks 13-14 $\bar{X}$ hours/wk 79		40 (51%) 4.5	26 (33%) 1.5	46 (58%) 1.1	46 (58%) 8.5	41 (52%) 1.3	1 (1%) 0.2	64 (81%) 11.1
Weeks 15-16 $\bar{X}$ hours/wk 77		33 (43%) 4.5	25 (32%) 1.3	42 (55%) 1.2	39 (51%) 9.2	35 (45%) 1.4	1 (1%) 0.2	61 (79%) 10.4
Weeks 17-18 $\bar{X}$ hours/wk 70		32 (46%) 4.5	21 (30%) 1.5	40 (57%) 1.2	39 (56%) 8.7	31 (44%) 1.2	1 (1%) 0.2	55 (79%) 10.8
Weeks 19-20 $\bar{X}$ hours/wk 68		30 (44%) 4.4	21 (31%) 1.5	38 (56%) 1.2	37 (54%) 8.4	31 (46%) 1.3	1 (1%) 0.2	53 (78%) 10.7

TABLE III-5, Continued

	<u>N</u>	<u>Light</u> <u>Housecleaning</u>	<u>Heavy</u> <u>Housecleaning</u>	<u>Laundry</u>	<u>Cooking</u>	<u>Shopping</u>	<u>Sewing</u>	<u>Housework Total</u>
Weeks 21-22	64	30 (47%)	19 (30%)	35 (55%)	34 (53%)	31 (48%)	1 (2%)	49 (77%)
$\bar{X}$ hours/wk		5.1	1.5	1.2	8.9	1.2	0.2	11.5
Weeks 23-24	62	29 (47%)	18 (29%)	32 (52%)	32 (52%)	28 (45%)	1 (2%)	49 (79%)
$\bar{X}$ hours/wk		6.7	1.5	1.3	8.6	1.3	0.2	11.6

* Hours per one week period

Predictors of Household Service Utilization

The multiple regression routine was used to identify those measures that best predict level of household service utilization. The dependent variable was total hours of household services (all follow-ups) while the independent variables were the same 10 pre-discharge measures used earlier in the analysis of ADL services. The regression analysis indicates that the strongest predictors of household service use are patient's intellectual-emotional adaptability, followed by discharge active-motion-of-limbs score, financial ability, and discharge communication and Barthel scale scores. The multiple correlation squared is only (.173), indicating a very poor fit of the linear regression model. The strongest predictor, intellectual-emotional adaptability, has a unique variance of only 3.8%. The direction of the relationship indicates that these patients who are the least well adapted intellectually and emotionally use a greater level of household service than those who are better adapted. Those who score higher on the Active Motion of Limbs Scale at discharge require fewer household services, but the t-test (-1.23) of this predictor is not significantly different than zero ($p=.225$), and the unique variance is low (1.6%). The unique variance of the remaining three predictors are so small, and the t-tests are not significantly different than zero, so that a discussion of the contribution of each borders on speculation. In general, the independent variables used in this equation were unable to account for a reasonable amount of variance in the dependent variable and offer little guidance to the planner who is attempting to predict utilization of household services by a disabled or elderly population.

Summary of Household Services

Household services were required by fully 80% of the population throughout the 24-week follow-up period. There seemed to be consistent demand for these services both in hours and in the proportion of the population requiring the particular service over the follow-up period. Cooking, laundry and light housecleaning were more heavily used than were shopping and heavy housecleaning. Sewing was hardly used at all. The multiple regression analysis was unable to identify strong, reliable predictors of the use of household services.

MEDICAL-PROFESSIONAL SERVICES

The Medical-Professional Service group is comprised of five services generally administered directly or under the supervision of a medically trained person. The services in this group were: medical supervision, physical therapy, occupational and speech therapy, foot care and other professional visits. Medical supervision usually referred to the efforts taken by non-medical people (usually family members) to insure that patients took their prescriptions in a timely manner. Other professional services referred to doctor's and nurse's (VNA) visits to monitor the patient's condition or to perform maintenance-related services such as changing catheters or administering needles (shots).

Medical-Professional Service Providers

Of the 57 patients for whom this type of service was arranged prior to discharge, hospitals or other community agencies (VNA's) were to be active in 49 cases. Family or household relatives were also to be active in 21 cases, indicating some cases where both family and agency/hospital personnel were involved. Family members were usually initially instructed or supervised in their responsibilities by medical personnel.

Medical-Professional Service Utilization

These services were used by almost half of the population throughout the entire follow-up period, with the percentages ranging from 57% in weeks 1-2 to a low of 44% in weeks 15-16 and finally concluding in weeks 23-24 at 47%. There did seem to be a slight decline in the proportion who demanded this service over the course of the follow-up period. The decline in proportion of users is in contrast to a slight increase in the actual service delivery hours over the same period. During weeks 1-2, 3.8 hours per week were expended per patient, while this figure increased to a high of 4.8 hours weekly at the last follow-up. The increase in hours seems due to two services in particular--other professional and foot care. Other professional services declined in use proportion-wise from 27% of the group in weeks 1-2 to 16% in the last follow-up, but the number of weekly hours per individual increased from 3.9 to 5.6 over the same period. Similarly, foot care hours increased from 1.6 to 2.7 over the period, but the small demand (4-8% of the population) would indicate this service had a slight effect on the total medical-professional service figures.

Medical supervision services were used by 27% of the population in the beginning, but declined to 18% by the final follow-up. However, the number of hours remained quite constant over the same period, ranging from 1.2 to 1.5 per week over the entire period spent by either household relatives or agency personnel supervising medications and prescriptions for the discharged population. There was a greater use of physical therapy than the occupational/speech therapy service over the course of the follow-ups. Physical therapy was used by 25% of the group at the first follow-up, but this steadily declined to 19% at the final follow-up. Occupational/speech therapy was very seldom used initially (3%), but picked up to the point where 8-9% were using these services at the end of the study period. The hours devoted to each therapy service were fairly consistent

TABLE III-6

Medical-Professional Service Utilization During The 24-Week Follow-Up Period

	<u>N</u>	<u>Medical Supervision</u>	<u>Physical Therapy</u>	<u>Occupational Speech Therapy</u>	<u>Other</u>	<u>Foot Care</u>	<u>Total Medical-Professional</u>
Weeks 1-2 $\bar{X}$ hours/wk	100	27 (27%) 1.5	25 (25%) 2.4	3 (3%) 1.5	27 (27%) 3.9	4 (4%) 1.6	57 (57%) 3.8
Weeks 3-4 $\bar{X}$ hours/wk	94	22 (23%) 1.4	23 (24%) 2.2	5 (5%) 1.9	24 (26%) 3.9	4 (4%) 2.0	51 (54%) 3.7
Weeks 5-6 $\bar{X}$ hours/wk	93	21 (23%) 1.5	23 (25%) 2.0	4 (4%) 1.8	27 (29%) 3.2	4 (4%) 2.1	53 (57%) 3.4
Weeks 7-8 $\bar{X}$ hours/wk	88	17 (19%) 1.3	20 (23%) 2.1	5 (6%) 1.7	21 (24%) 3.7	4 (5%) 1.9	44 (50%) 3.6
-52- Weeks 9-10 $\bar{X}$ hours/wk	88	18 (20%) 1.3	19 (22%) 2.1	5 (6%) 1.5	19 (22%) 4.0	7 (8%) 3.8	46 (52%) 3.8
Weeks 11-12 $\bar{X}$ hours/wk	83	15 (18%) 1.4	16 (19%) 2.4	5 (6%) 1.5	16 (19%) 4.5	6 (7%) 4.1	41 (49%) 3.9
Weeks 13-14 $\bar{X}$ hours/wk	79	16 (20%) 1.2	15 (19%) 2.5	5 (6%) 1.5	14 (18%) 5.1	5 (6%) 3.5	39 (49%) 3.9
Weeks 15-16 $\bar{X}$ hours/wk	77	15 (19%) 1.2	14 (18%) 2.7	5 (6%) 1.5	14 (18%) 5.0	3 (4%) 2.9	34 (44%) 4.2
Weeks 17-18 $\bar{X}$ hours/wk	70	15 (21%) 1.3	14 (20%) 2.5	6 (9%) 1.5	15 (21%) 4.8	3 (4%) 2.9	35 (50%) 4.1
Weeks 19-20 $\bar{X}$ hours/wk	68	14 (21%) 1.3	13 (19%) 2.7	6 (9%) 1.5	13 (19%) 5.5	3 (4%) 2.7	31 (46%) 4.6

TABLE III-6 Continued

	<u>N</u>	<u>Medical Supervision</u>	<u>Physical Therapy</u>	<u>Occupational Speech Therapy</u>	<u>Other</u>	<u>Foot Care</u>	<u>Total Medical-Professional</u>
Weeks 21-22 64		14 (22%)	10 (16%)	6 (9%)	12 (19%)	3 (5%)	32 (50%)
$\bar{X}$ hours/wk		1.3	3.3	1.2	4.8	2.7	3.9
Weeks 23-24 62		11 (18%)	12 (19%)	5 (8%)	10 (16%)	3 (5%)	29 (47%)
$\bar{X}$ hours/wk		1.2	2.9	1.3	5.6	2.7	4.8

over time, with physical therapy ranging from 2.0 to 3.3 per week, and occupational/speech therapy ranging from 1.2 to 1.9 hours.

Predictors of Medical-Professional Service Utilization

The multiple regression analysis identified three independent variables that accounted for 25.3% of the variance in total medical-professional hours. Active Motion of Limbs discharge score was inversely related to service utilization, indicating those who scored well on the scale, i.e., were relatively intact with their limbs, used the services in this group the least. The unique variance of this independent variable was fairly strong, 20.3%.

The second predictor identified in the analysis was support from family. Those that had the better family support required less service in their overall group. This variable, however, did not produce a significant t-test score (-1.73, $p=.09$) and the unique variance was low (0.034). The third variable selected into the regression equation was financial independence, indicating a positive relationship between financial independence and use of medical and professional services. Those that were better off financially used the services more intensely. The multiple correlation squared is moderately low, 0.253, indicating a 50-50 goodness of fit of the linear regression model to these data.

Summary of Medical-Professional Services

Medical-Professional services were not as heavily used by the population as were ADL or household services. Both the proportion of the population who used the services and the actual service hours per follow-up period were smaller than found in the earlier two services. There was, however, the same consistent utilization over time, with even a slight increase in overall hours from the first to the last follow-up. The providers were mainly hospital or agency personnel, with a smaller, but nevertheless important role played by household

TABLE III-7

Final Step of Multiple Regression Analysis of Medical-Professional
Service Hours (all follow-ups) Using Pre-Discharge Variables

Independent Variable	Regression Coefficient	Standard Error Of Coefficient	Standardized Coefficient (Beta Weight)	t-test	df	Significance	Unique Variance
Active Motion of Limbs Score	-35.8026	8.523	-0.450	-4.20	65	<.001	.203
Support from Family	-32.5657	18.863	-0.189	-1.73	65	.090	.034
Financial Ability	31.8049	20.586	0.169	1.54	65	.128	.027

Multiple Correlation Squared (R^2) = 0.253
 Multiple Correlation = 0.503
 Standard Deviation of Residuals = 169.363
 Regression Constant = 545.479

$f = 7.34$ $df = 3 \text{ and } 65$ $p < .001$

relatives. The regression analysis identified a strong inverse relationship between active motion of limbs score and utilization of medical-professional services.

ESCORT SERVICES

Escorts were followed through the course of the study to three specific destinations--to a physician or a hospital/clinic, to community services, or to go shopping. Escort was used by more than a quarter of the patient population with the percent beginning at 28 and concluding at the last follow-up at 24% of the population.

Escort Service Providers

Of the 42 patients who had escort services arranged during the discharge planning process (note: only 28 patients received escorts during the first follow-up period), household members were to be involved in 36 cases, friends in 3 cases and agencies in 4 cases. Household relatives were clearly the major providers of escort services.

Escort Service Utilization

Escort services as a total were used by a quarter of the population consistently throughout the follow-ups. The total number of hours spent providing escort services was minimal, varying from 1.6 per week (weeks 13-14) to a weekly low of 0.9 (weeks 23-24). Among the individual escort services, trips to a physician or a hospital/clinic were more heavily used than trips to community services or shopping. Between 20-29% of the population was escorted to a physician while only 1-3% visited community services and the shopping group varied from 1-10%. Escort to shopping showed a remarkable gain, however, moving from 1% of the population at the first follow-up, steadily increasing to 10% during weeks 15-16, and finally ending at 6%. The number of hours per week during the follow-up periods consumed by individual escort services was quite

small, with medical escorts varying between 0.9 and 1.6 hours, community escorts between 0.4 and 0.5 hours, and shopping escorts between 0.5 and 2.0 hours.

Predictors of Escort Service Utilization

The multiple regression analysis was conducted on total escort service hours (dependent variable) with the same ten independent measures used throughout the chapter. The strongest predictor of escort service use was patient's age, followed by financial independence, intellectual-emotional adaptability, education, and support from family. Those who used escort services tended to be younger, be in a stronger financial position, be least well adapted intellectually/emotionally, be better educated, and have stronger support from their family unit. The beta weights and unique variances attributed to each independent measure are not particularly high, indicating that no one independent measure is a singularly strong predictor. The multiple correlation squared (R^2) is moderately high (.399), indicating a relatively good fit of the linear regression to this problem.

Summary of Escort Services

Escort services were used consistently by 25% of the patient population, with escort to medical facilities the predominant individual service. The actual number of hours devoted to escort services by the providers (mostly household members) was small, averaging between 1-2 hours per week per patient. Those who were heavier users of escort services tended to be younger, have a stronger financial position, be least well adapted emotionally and intellectually, be better educated, and have stronger support from their family unit than light users of this service.

LEISURE SERVICES

Provider personnel were used to provide leisure time activities to between 8-16% of the patient population over the course of the follow-up (Table III-8).

TABLE III-8

Escort and Leisure Service Utilization During the 24-Week Follow-up Period

	<u>N</u>	<u>Escort To</u> <u>M.D., Hospital</u>	<u>Escort To</u> <u>Community Service</u>	<u>Escort To</u> <u>Shopping</u>	<u>Total</u> <u>Escort</u>	<u>Leisure</u>
Weeks 1-2 $\bar{X}$ hours	100	25 (25%) 1.2	3 (3%) 0.4	1 (1%) 2.0	28 (28%) 1.2	8 (8%) 1.7
Weeks 3-4 $\bar{X}$ hours	94	19 (20%) 1.5	2 (2%) 0.7	2 (2%) 1.5	23 (24%) 1.4	11 (12%) 1.9
Weeks 5-6 $\bar{X}$ hours	93	24 (26%) 1.2	2 (2%) 0.5	2 (2%) 0.8	28 (30%) 1.1	11 (12%) 1.9
Weeks 7-8 $\bar{X}$ hours	88	18 (20%) 1.2	2 (2%) 0.4	5 (6%) 1.0	24 (27%) 1.2	12 (14%) 1.7
Weeks 9-10 $\bar{X}$ hours	88	23 (26%) 1.3	2 (2%) 0.5	7 (8%) 0.8	29 (33%) 1.2	12 (14%) 1.9
Weeks 11-12 $\bar{X}$ hours	83	15 (18%) 1.5	3 (4%) 0.5	6 (7%) 0.8	21 (25%) 1.4	12 (14%) 2.1
Weeks 13-14 $\bar{X}$ hours	79	23 (29%) 1.6	2 (3%) 0.5	7 (9%) 0.7	28 (35%) 1.6	12 (15%) 1.9
Weeks 15-16 $\bar{X}$ hours	77	14 (18%) 1.3	2 (3%) 0.5	8 (10%) 0.7	19 (25%) 1.3	12 (16%) 1.6
Weeks 17-18 $\bar{X}$ hours	70	17 (24%) 1.1	1 (1%) 0.5	5 (7%) 0.6	19 (27%) 1.2	9 (13%) 1.9
Weeks 19-20 $\bar{X}$ hours	68	16 (24%) 1.0	1 (1%) 0.5	5 (7%) 0.5	19 (28%) 1.0	8 (12%) 2.0

TABLE III-8 Continued

	<u>N</u>	<u>Escort To</u> <u>M.D., Hospital</u>	<u>Escort To</u> <u>Community Service</u>	<u>Escort To</u> <u>Shopping</u>	<u>Total</u> <u>Escort</u>	<u>Leisure</u>
Weeks 21-22	64	16 (25%)	1 (2%)	4 (6%)	19 (30%)	8 (13%)
$\bar{X}$ hours		1.3	0.5	0.5	1.2	1.8
Weeks 23-24	62	13 (21%)	1 (2%)	4 (6%)	15 (24%)	8 (13%)
$\bar{X}$ hours		0.9	0.5	0.5	0.9	1.9

The actual number of service hours varied from 1.6 to 2.1 hours per week over the course of the follow-up period. Leisure services play a minor part in the overall service use picture presented in this chapter.

Total All Service Categories

The figures for all categories of service were combined to produce a single number of hours for each follow-up period per patient. The actual number of service hours per patient per week varied between 14.4 and 18.3 over the course of the 24-week follow-up. This is a surprisingly small figure and, as pointed out through the chapter, is remarkably consistent over time.

TABLE III-9

Total Service Utilization During the 24-week Follow-up Period

<u>Weeks</u>	<u>N</u>	<u>$\bar{X}$ Hours/wk</u>
1 - 2	100	18.3
3 - 4	94	16.6
5 - 6	93	16.2
7 - 8	88	15.7
9 - 10	88	15.7
11 - 12	83	14.9
13 - 14	79	16.3
15 - 16	77	14.9
17 - 18	70	14.7
19 - 20	68	14.4
21 - 22	64	14.6
23 - 24	62	15.8

Who provided the services in this study is somewhat interesting with household relatives involved in 85% of the cases, friends 7%, and community agencies and hospitals 58%. The household relative figure seemed high while, correspondingly, the agency figure seemed low (especially when one realizes they were mostly involved in the medical-professional services).

The regression analysis conducted with total service hours as the dependent variable identified three independent measures as significant predictors--discharge Barthel score, discharge active motion of limbs score, and intellectual-emotional adaptability. Those who were heavy service users had achieved lower Barthel scale scores on discharge, lower active motion of limbs scores, and were judged to be the least well adapted emotionally and intellectually to their circumstances. Although the three measures accounted for 33.4% of the variance in the dependent variable (total service hours), the unique variance attributed to each of the predictors varied from 3.1 to 2.4%, extremely small. Unlike the analysis of individual service categories, there are no clear, strong predictors of service utilization when examining all service hours as the dependent measure.

Population Loss Throughout the Follow-ups

While the study began with 100 people in the first follow-up, a total of only 60 were present for the last follow-up period. Second examination of the figures (Table III-10) reveals that the losses to either nursing homes, hospitalization that removed the patient permanently from the study, or deaths were rather small; 6, 8, and 2 patients, respectively.

The major population loss was due to a limitation in the data collection in that the cut off date was 1-1-74, leaving 17 persons still in the 24-week follow-up period. Four patients refused to participate in the study while 5 others reported that they no longer needed the services and were not followed

TABLE III-10

Population Loss Throughout Study

Follow-up	Services Not Needed	Entered Nursing Home	Entered Hospital For Duration Of The Study	Died	Refused To Participate	Entered Hospital Temporarily ¹	Services At Home Continuing	Study Period Ended (Jan. 1, 1974)*
Weeks 1-2		2	3		3	2	95	
Weeks 3-4	1		1	1		1	93	1
Weeks 5-6				1		2	89	1
Weeks 7-8	1		1			1	88	1
Weeks 9-10		1			1	1	85	1
Weeks 11-12	1	1				1	82	1
Weeks 13-14			1			4	75	3
Weeks 15-16	1		1			1	70	6
Weeks 17-18		1				3	66	1
Weeks 19-20							67	2
Weeks 21-22						3	64	
Weeks 23-24	1	1	1			3	60	
Totals	5	6	8	2	4	22		17

1. Home care patients who entered an acute hospital for short-term treatment during their 24-week follow-up period and were discharged again into their homes later during the follow-up. Data collection on home services was resumed when the patient came home.

*Data gathering time limitations necessitated terminating follow-ups on 17 persons before they had completed 24 weeks.

by the study group beyond this point. There were, in summary, only 14 patients (14%) who might be considered failures in the program in that 6 entered nursing homes and 8 were hospitalized and remained in the hospital for the remainder of their follow-up periods. Those who entered a hospital on a temporary basis usually returned to the community and data collection continued.

Those patients who either entered a nursing home or a hospital permanently differed from those who remained in the community on the following variables: major handicapping condition, discharge Barthel Scale score, and total months disabled before discharge.

Major Handicapping Condition

Of the total community population, 44% were identified as having a neurological condition. All the patients who entered a nursing home and 62.5% of those entering a hospital permanently had neurological problems.

Discharge Barthel Score

While the total group score at discharge on the Barthel Index was 78.8, those who entered nursing homes had achieved a score of 53.0. Those who entered the hospital and did not leave before the end of the study had scored higher, 83.4, while those who refused to participate averaged 92.5, those who claimed services were not needed averaged 95.0, and those who continued in the study and were receiving services averaged 79.5. Of those who continued in the study 17% scored below 60 on the Barthel, 36% scored between 60-80, and the remaining 47% scored above 80. Of the 6 who entered a nursing home, only 2 scored below 60 on the Barthel.

Total Months Disabled

The total group was disabled an average of 11.4 months before discharge from the hospital but those who entered nursing homes or entered a hospital permanently had been disabled much longer, 25.3 and 25.7 months, respectively.

Those who had been continued in the study receiving services, on the other hand, had been disabled only 9.5 months. The people who entered institutions were not only older than the rest of the population, they had been disabled for a significantly longer time.

The total group was disabled an average of 11.4 months before discharge

from the hospital but those who entered nursing homes or entered a hospital

with the same level of disability had much longer, 25.3 and 22.7 months, respectively.

CHAPTER IV

SUMMARY AND IMPLICATIONS

Can the Comprehensive Hospital and Post-Hospital Requirements of the Chronic Impaired Be Insured As An Inclusive Medical Program?

The post-hospital requirements of the chronic long-term handicapped have traditionally lacked a coherent or agreed-upon strategy, a responsible organizational framework and clarity about either professional or fiscal responsibility. In 1972, a study was launched to ascertain whether a factual basis could be developed for a model of care for the long-term disabled patient whereby a medical institution or a health agency could assume integrated responsibility for such patients during a period of rehabilitation in a medical unit and for at least six months time following discharge into community or own home care. Responsibility was defined to include both the personal care and special supportive and maintenance needs of the severely handicapped as well as the conventional medical-therapeutic interventions. The existing mosaic of fragmented community agency services was relied upon to supplement in-hospital clinical services so that no new experimental programs were established.

The questions asked about the study population were: (1) is it possible to determine, at either hospital admission or discharge, which patients, and in what numbers, could manage at home and which would require transfer to long-stay institutions? (2) What is the administrative staff load involved in arranging for post-hospital community care? (3) What is the relationship between a prescribed package of community care services, the services actually received, and the stability of the home care plan? (4) What is the volume of each prescribed service actually used and what is the imputed cost over a six months period.

Study Design

The Rehabilitation Institute at Tufts-New England Medical Center, the Earl E. Hussey Memorial Hospital, Jewish Memorial Hospital, and the Lenox Hill Nursing and Rehabilitative Care Facility were selected since each provides rehabilitation for chronic sick patients, does not provide life-time care, and each was interested in the post-hospital experience for their patients. Each provided the following information on 60 consecutive discharges, yielding at least 25 community care discharges each: (1) on admission: Barthel score on self care and mobility performance, communication and limb motion scores, major diagnostic condition, age, sex, education, marital status and previous hospitalization in present or other long-term facility; (2) on discharge: Barthel, communication and limb motion scores, family roles, support available from family, family or patient financial capacity to absorb care costs, elapsed time since onset of condition, and patient's intellectual/emotional adaptation, plus a prescription package of home care services recommended by hospital staff; (3) bi-weekly follow-up: to monitor care services provided in fact, by whom they were provided, and the stability of the community care plan as recommended. PULSES, another measure assessing physical condition, self-care, mobility, and intellectual and emotional adaptability, was used in a discharge assessment (see Appendix). However, the PULSES score was found to be highly correlated with the Barthel score, so that in outcome analysis, the Barthel scale was used.

Admission data was secured on 297 patients, of whom 96 died and were dropped from the study. Of the survivors, two-thirds were returned home and one-third were transferred to acute hospitals and long-term stay institutions. Subsequent losses reduced the effective study population to 175; 117 returned home; 100 were monitored bi-weekly by telephone for 6 months. The major handicapping conditions of the study population were distributed among mutually ex-

clusive groups as follows: 47.7 percent of the patients suffered from neurological conditions which were considered to be the primary cause of disablement, 24.7 percent from musculo-skeletal conditions, 13.8 percent had lower limb amputations, and 13.8 percent had a variety of other conditions including cardiac, pulmonary, and malignant disorders. Despite differences among the institutions, the characteristics of patients from each institution were quite similar, except that: The Tufts population was younger (nearly 25 percent being under 50 years, whereas the others had between 2 and 5.7 percent under age 50); had shorter length of stay; and had nearly as many men as women (in contrast to a 2 to 1 majority of females in the other three facilities). The Tufts patients were better educated and their primary condition was neurological in 68 percent of the cases, whereas patients in the other facilities showed a more even distribution of diagnoses over the major handicapping condition categories. Overall, 38.5 percent of the study population was married at the time of admission, 23.1 percent were under age 60 years. For 88 percent, this was the first admission to a rehabilitative facility of any kind, and admission took place within 6 months of condition onset. 25.6 percent were high school graduates and another 15.5 percent had an additional 1-5 years education.

Prediction of Post-Hospital Outcome

Multiple regression correlations were analyzed between the data collected during hospitalization and post-hospital placement with return home and utilization of various personal care services as dependent variables. On admission, no statistically significant pattern was found to distinguish those likely to return home from those destined to go into other long-term institutions. A more independent rating on the Barthel scale and absence of previous chronic hospitalization or institutionalization tended to be associated with return

to own home. However, additional measures secured during the course of rehabilitation significantly improved the ability to predict outcome. A high score on the families' willingness and competence to provide some care in the patients' or in their own homes, combined with the patient's ability to fill his or her customary social and physical roles plus financial ability to absorb home care costs produced a reasonably strong correlation with his/her residence in the community (a multiple regression correlation squared of 65 percent).

This salience of family readiness to provide care is reinforced by the finding that for patients who went to institutions, relatives had cared for them in the past in 70 percent of the cases, but were willing to resume such care now in only 38 percent of the cases. For patients who returned home, the proportion for whom relatives were now willing to give care as compared with those who had given care in the past rose from 44 percent to 63 percent. Since community agencies were involved in relatively few cases as is discussed below, it remains moot whether an increase in social agency partial support to families for care would increase the proportion of patients able to return home.

This suggests that a composite of relatively easy to obtain clinical and social scores is reliable to discriminate between home and other institutional outcomes. However, two factors which produce this reliability (family readiness to care for and financial ability) both lie outside of a medical institution's customary orbit of responsibility, and such institutions now rely upon the existing fragmentary social provisions for reinforcing family social care capacity. It is necessary to ask whether integrated health efforts to influence these two factors (family readiness to care for and financial ability) would improve the rate of return home and whether such efforts can be

justified on economic as well as upon social grounds. This question is considered below.

The Cost of Post-Hospital Planning

If a medical institution is to assume any serious continuing responsibility for post-hospital episodes, then a convenient starting point is the administrative overload which this might introduce into an already overloaded institutional operation. The study procured from each unit the number of hours estimated to have been used by all staff in arriving at a discharge prescription package for 108 patients and in arranging for the discharge plan, including contact with families as well as with community service agencies. For these 108 home-discharged patients, a mean average of 6.4 hours staff time was required to arrange the discharge. Standard deviation was 4.6 and the distribution ranged from 0.8 to 28.5 hours per case. Staff time was distributed as follows:

tributed as follows:				<u>N</u>	<u>$\bar{X}$ hrs/pt. N = 108</u>
Social worker average hours	2.7	94			2.4
Nurse	"	"	1.6	93	1.4
Physical Therapist	"		2.5	62	1.4
Occupational Therapist	"		1.7	33	0.5
Physician	"	"	1.0	59	0.6
Psychiatrist	"	"	1.1	3	Not Sig.
Other Therapist	"		1.5	7	0.1

Tufts and Hussey spent more staff hours, an average of 8.3 and 8.1 respectively, but they also had some cases using as much as 28.5 hours per patient (it may be that either had more complex cases or worked harder to effect a home care plan). Jewish Memorial and Lenox Hill used an average of 5.1 and 2.5 respectively. Hussey relied much more heavily on physical therapists and

social workers (6.3 hours of an average total of 8.1 hours), whereas Tufts and Jewish Memorial relied on social workers (3.7 hours out of average totals of 8.3 and 5.1).

The Course of Post-Hospital Community Care - 6 Months

One hundred and seventeen patients were returned home with a prescription of services planned by hospital staff for 108 to be delivered either by relatives, friends, or by community agencies. The actual delivery and receipt of these services was monitored at bi-weekly intervals for 100 patients (a few either refused to participate or indicated they no longer required the services recommended or moved to areas beyond the follow-up capability of the staff). Table III-2 notes the major services prescribed and the percent actually delivered. If escort services, the least successfully arranged for service, are excluded, nearly 90 percent of the recommended home care services were delivered in the first two weeks following discharge. Overwhelmingly, these services were provided by family or household members, sometimes by social agencies, and occasionally by friends or neighbors.

Activities of Daily Living (ADL) Services (help in bathing, dressing, climbing stairs, walking, transferring, toileting, and feeding) were provided for 69 of the 100 monitored cases, with the family providing the care in 64 cases while social agencies were involved in only 11 cases (usually supplementing family care) and friends were involved in 2 cases. Over a six-month period, the utilization dropped to a low of 51 cases and rose, by the end, to 65 cases. At the start, an average of 8.4 hours of ADL help was delivered each week to each patient requiring such help and, by the end of the 6-month period, the average dropped to 5.4 hours per week of care from all sources including family members. Significant variations in use were found among

specific ADL functions. Help with feeding involved the most time (dropping from 9.2 hours to 6 hours a week per utilizing case), but was needed by the fewest patients - 10 percent at the start and dropping to 3 percent. The most used service, help with bathing, required an average of 2.8 hours a week for each of 51 using cases, dropping to an average of 2 hours for each of 28 cases. The reduction in use and in hours may have been due either to an increase in functional independence, a drop-out of the heaviest users due to death or to institutional transfer or to a decline in the quality of care.

Using ADL utilization as the dependent variable, and 10 pre-discharge items previously described as independent variables, it was found that the pre-discharge Barthel score was the most powerful single predictor of the use of ADL services - the higher the Barthel score, the fewer hours of care were subsequently required. Three other factors increased predictability marginally: patients with higher education, those with longer hospital stay, and patients who had least financial support from families or families least able to be fully supportive tended to use more services.

Household services (help with cooking, light or heavy cleaning, laundry and shopping) were used by 81 of the 100 monitored cases. Relatives provided the help in 65 of these cases, and agencies were involved in a full or supplementing role in 26 cases. Such services involved 12.2 hours on the average in the first weeks, and dropped to an average of 10.7 hours at the end of the period. Cooking and light housekeeping required the most hours. There was little variation in utilization throughout the six-month study period.

None of the independent variables significantly explained the variation in use; the intellectual/emotional adaptability score, the strongest, explained only 3.8 percent of the unique variance. This raises the question whether it would be appropriate for the rehabilitation training in the hospital to include more emphasis on performance of household tasks.

Medical and professional services were defined primarily to mean supervision of a medically prescribed regimen (medication), physical or occupational therapy, speech therapy and pedicare. Fifty-seven percent of the study population used such services at the beginning, and 47 percent were still using them at the end. Hours per week of care increased from an average of 3.8 hours to 4.8 hours after six months time. The increase was accounted for mainly by other professional (such as physical check-ups and catheter changes by visiting nurses) and foot care services.

Four pre-discharge factors explained 25 percent of the variance in use. Patients with the best score on limb motion, who had household members willing to help and who had least financial strength made least use of these services.

Escort services, either to visit medical facilities or to shop, were prescribed for 42 patients and were used by 28, mainly with the help of relatives. Patients who were younger, had strong family support, were poorer in intellectual-emotional adaptability, were in a better financial position and who were better educated tended to use such services following discharge.

Leisure time services were also monitored on the grounds that the quality of life for the seriously disabled constituted a proper subject for medical attention. Eight percent of the study population received such services in the first week, the figure increasing to 13 percent at the end of six months. Such services involved an average of 1.6 to 2.1 hours of service attention a week for each user. Such services included reading aloud to patients, escorting on outings and playing games and cards.

Summary of Post-Hospital Experience

When all home care service utilization is combined for the total population using any service, the volume of care, measured by hours of attention by

relatives or agency staff, is relatively modest; an average of 16.8 hours per week in the first week following discharge and dropping to an average of 14.4 hours near the end of the 6-month follow-up period (19-20 week period; 23-24 week hour figure is 15.8). Family members remain in bedrock for post-hospital care, as other studies have also reported, with relatives involved in direct care provision in 85 percent of the cases, while agencies and hospitals were involved in 58 percent of the cases, a figure heavily weighted by the medical/professional category. Friends contributed in 7 percent of the cases.

No single pre-discharge factor adequately predicts the use of such home care services, taken in the aggregate. The combination of a low Barthel score, a low score on intellectual-emotional adaptability, and a low score on the limb activity scale are reasonably well-associated with a higher use of a package of home care services, explaining about 33.4 percent of the variance. Unfortunately, funding was not available to allow re-testing of independence according to the Barthel scale at the conclusion of the 6-month follow-up.

Discussion and Implications

The existing pattern of scattered, fragmented social agency provision for home care still yields a high return home result for seriously disabled persons, mainly because of family and relatives willingness to assume caring tasks. In one sense, the present pattern can be said to work reasonably well. However, since a key discriminating variable influencing the choice between home and institutional care still remains family competence and willingness to provide care (along with level of disability as measured by the Barthel rating) it remains to be tested whether a more serious effort to supplement family capacity to care through social agency supports could produce an even better record of return to home living from the chronic sick. While the answer is probably yes,

we still need to consider the marginal costs of making such an effort.

Medical institutions such as those studied can arrange for return home for a majority of discharged patients at a reasonable administrative cost, relying mainly upon families who need to be briefed and reassured, and using limited social agency resources as supplements. What stands out is the extent to which unskilled relative care is significant in home care and the relatively modest amount of high skill medical time required, once the active in-patient rehabilitation episode is completed.

If one attempted to develop an insurance program for the post-hospital care of such patients, for at least a six month period, the key components of insured population selection and prediction of utilization of benefits can be developed. True, the proportion of the population at risk seems high, but this is only high as a percentage of a previously identified risk population. The long-term handicapped needing home care continuously are a significant proportion of those already sick enough to enter a rehabilitation hospital. They are less significant among all sick persons and even less significant among the total population.

For this residually disabled population, the home care prescription or the package of services seen as necessary by hospital staff can be fairly well predicted as to initial volume, declining slowly over time. The decline in utilization seems highest for the most costly services, at least most costly in hours of personnel time required. The volume of care required - in insurance terms, the volume of benefits to be used - does not seem as threatening as it has appeared in the past to many who are argued that home care is much more costly than institutional care. This favorable finding is due to the salience of care by relatives, the potential for imputing lower hourly costs than would be paid to highly skilled technical staff, and to the limited number of hours required

at least for this population, to assure a stable life at home for at least six months time. The hours of care per person, in the aggregate, compares very favorably with the hours of staff time imputed in the better long-term institutions. Whether there exists a built-in tendency to inflate benefit use over time remains an issue, but no more so than for any other form of insurance.

Several questions remain for further analysis. The duration for service (or benefit) utilization is not yet established. It certainly extends beyond the six-month period but at what rate of decline or increase, and for how long, is unclear. This need not deter attention to an insurance alternative, since limitation on total coverage or variations in cost-sharing can be imposed until further data is available.

It also remains unclear whether all of the prescribed services are in fact equally necessary to assure a life in a normal family situation. For this sample certainly, such services as escort appear to be less vital, over a six-month period, than is usually argued for by proponents of mobility (transportation and escort) services.

Finally, the marginal utility of increasing and paying for social agency supports in an effort to change the mix and to increase the proportion of patients who go home rather than going to a long-term institution warrants further experimental testing.

The case for testing an insurance approach for the longer term care of the chronic impaired seems reasonable and attainable. A preliminary framework of population at-risk, of service benefits to be covered and their cost can now be constructed. The fears about ballooning costs can be contained by ceilings on total benefits or by co-insurance. An insurance approach would simplify handling many difficult technical questions: the long-established importance of the family as a foundation for home care can now be built upon by treating fam-

ily care as important as long-term institutional care through the simple device of recognizing the family cost of providing such care in the same fashion that we now recognize a nursing home's right to receive payment. It appears, from this data, that the costs, as measured by family plus social agency home care hours, are relatively modest, even though extended over a surviving lifetime. The same can be said about most nursing home patients.

Under such a system, medical functions continue to be those of prescription and monitoring, past the institutional days into community living for the chronic sick. Under such a system, with hospital responsibility extending into the post-hospital phase of care and with family care as its foundation, physician functions would continue to be those of prescription and monitoring. However, the role of medical program manager continuing past the institutional days and into community living for the chronic-impaired will need to be strengthened much more than is usual practice. Most of the responsibility for making choices about what care to give directly and what care to purchase from a community agency is placed upon family and patient, with financial means assured. How much of an administrative apparatus would be necessary to make such an insured approach work is not clear, but experimental testing would seem to be the logical next step in the evolution of planning for the long-term handicapped.

If there is lacking a willingness to test an insurance approach, the study provides a factual framework for comprehensive health planning. The volume of post-hospital care required for specific patient populations can be predicted and the planning for delivery of such services can proceed more rationally. Questions can be better examined: how to mobilize family support; how to integrate agency support with family responsibility without undermining family competence and capacity; and how to structure home care agency services; what responsibility for out-of-hospital follow-up should be assigned to hospitals or to

non-medical community agencies

The data presented here were gathered only to test whether quantitative measures of community care service volume and demand could be assembled. However, it is possible to go one step further and, by making some broad assumptions, try to apply these data to the task of costing out a comprehensive program for the chronic impaired, which attempts to reassimilate them into a normal life situation which the severely disabled face once they leave a hospital, a medical rehabilitation center. The projected costs only apply to this specific population leaving these four institutions for a life at home. The total number of hours of home services of all kinds used by 100 patients going home was 1830 hours during the first week at home. Cost values for each hour were assigned as follows: \$4.00/hour for ADL service (the average rate charged by home health agencies in Mass.); \$3.00/hour for household services, being somewhat above the federal minimum wage of \$2.00/hour, to reflect real labor charges; \$10.00 for escort service, based on taxi charges for 4 miles of travel plus an hour of waiting time. Fees for therapy, visiting nurse, and other professional medical home services are charged per visit rather than per hour, so the total number of visits by such professionals during the first week was used as a basis for estimating costs. Calculations were made using the 1973 U.S. median charge for a physical therapy visit, \$12.58, and the median charge per nursing visit, \$10.96 (from the 1973 National League for Nursing - Department of Home Health Agencies and Community Health Services Yearly Review). Since the 41 hours included in the category "medical supervision" consisted of checking to make sure the patient took prescribed medication on schedule and was performed by household members or home health aides, costs of this service were estimated at the \$4.00/hour rate. These dollar values produced a total cost of \$7191 for the

week for all 100 patients and for all services, whether or not any specific patient used any specific service or not. This yields an average cost of almost \$72.00 per week. (One patient engaged a live-in licensed practical nurse, a costly service which would raise the medical-professional average. This situation was atypical of this population, however, and was not included in the estimate.)

Of course, this calculation proceeds as if all services were paid for, whereas, in fact, most services were contributed by family members. However, if an insurance basis is to be considered for the home maintenance and support of the long-term disabled, then benefits are paid for on the basis of condition, not on the basis of means testing as to indigency. Control over unwarranted shifting of cost burdens from family care to tax sources can be reduced by the same means now used to control other insurance overutilization. What stands out, if this calculation is valid, is the modest sum, translated into dollar terms, required to fill the prescription package recommended by hospital staffs. Since this is the population most at risk of entering a long-term institution where insurance or other funds already undertake to pay the full cost of care, the cost attractiveness of the alternative of care at home warrants testing even if family members may gain from the benefit to some extent. The advantage in proceeding further to test the value of this approach lies not only in the cost-saving as compared with nursing home care, although this is persuasive since the one key variable discriminating between the two outcomes (home or institution) has been the willingness and capacity of family members to assume care burdens. In addition, the approach offers the prospect of retaining as much family responsibility as is humanly possible by providing incentives to family members and by providing the means for purchasing supplementary help.

By having means and responsibility vested in families for ensuring the continuity of home care, the scope of administrative machinery required to administer home care programs is reduced.

APPENDIX

INSTRUMENTS

Tufts-New England Medical Center Rehabilitation Institute Forms

In-Patient Admission
Discharge Planning Decision
In-Patient Discharge

Brandeis University Forms

Expanded Social History
Personal Care Services - Prescription
Activity Register
Service Record
Bi-Weekly Service Summary

T-NEMC REHABILITATION INSTITUTE (X)G01()
LONG-RANGE EVALUATION SUMMARY (X)G02
Facility: _____ (X)G15
IN-PATIENT ADMISSION (X)G20

*Intake Date (1st Adm): ____ / ____ / ____ ()G49

*Admission Date: ____ / ____ / ____ (X)G50

Name: _____ (X)G53
(see stamp)

No. & Street: _____ (X)G54
(see stamp)

Town & State: _____ (X)G55
(see stamp)

ZIP Code: _____ (X)G56
(see stamp)

Telephone No. ____ -- ____ (X)G57

Hosp. No. ____ -- ____ (X)G58
(see stamp)

*D O B: ____ / ____ / ____ (X)G59

*SS#: ____ -- ____ (X)G60

Male()G64 Female()G65
(see stamp)

*Single()G66 Married()G67 Widowed()G68

Divorced()G69 Separated()G70

*Major Handicapping Condition (X)G71

R T 7 Code: ____

*Physician: _____ Code: _____ (X)G72
(see stamp)

*Source of Referral:

Living in LTCF (nursing home/chron. hosp)()K24

Rehab In-pt.()K26

In-House Acute Care()K27

In-House OPD()K28

Other hospital _____ ()K29

Other physician _____ ()K30

MRC or State Vocational Agency()K31

Welfare()K32

Community Agency not MRC/Welfare()K33

*Community Agency Involved:

VNA()K34

MRC or Other State Voc. Agency()K35

Welfare()K36

Other _____ ()K37

*Source of Payment:

Self/Family()K38

Insurance/Plan()K39

Workmen's Compensation()K40

State Voc. Agency()K41

Welfare/Medicaid()K42

Medicare()K43

Assoc/Fund()K44

Other _____ ()K45

*Vocational Status:

Homemaker()K46

Student()K47

Competitive employment()K48

Non-compet. employment()K49

Unemployed/employable cannot find work()K50

Retired due to age()K51

Too disabled to work/homemaker/student()K52

Has motivation problem for work()K53

IF A REVISIT:

Less than 2 years()K93

More than 2 years()K94

TYPIST--GO TO REVERSE SIDE AND RETURN

Evaluator: _____ Code: _____ (X)L42

G52(X) Today's Date: ____/____/____ Name: _____

G79(X)	Good	Fair	Poor	Null	ACTIVE MOTION OF LIMBS
	G80()	G81()	G82()	G83()	Right upper limb
	G84()	G85()	G86()	G87()	Left upper limb
	G88()	G89()	G90()	G91()	Right lower limb
	G92()	G93()	G94()	G95()	Left lower limb

G96() Remarks on active motion:

H17(X)	INDEPENDENT		DEPENDENT		SELF CARE
	Intact	Limited	Helper	Null	
	H18()	H19()	H20()	H21()	Drink from cup
	H22()	H23()	H24()	H25()	Feed from dish
	H26()	H27()	H28()	H29()	Dress upper body
	H30()	H31()	H32()	H33()	Dress lower body
	H34()	H35()	H36()	None()	Don brace or prosthesis
	H37()	H38()	H39()	H40()	Grooming
	H41()	H42()	H43()	H44()	Wash or bathe
	H45()	H46()	H47() Acc.	H48() Inc.	Bladder continence
	H49()	H50()	H51() Acc.	H52() Inc.	Bowel continence
	H53()	H54()	H55()	H56()	Care of perineum/clothing at toilet
	H57()	H58()	H59()	H60()	Other hand skills

H61(X) Barthel sub-score ____/53. Remarks on self care:

	Intact	Limited	Helper	Null	MOBILITY
	H62()	H63()	H64()	H65()	Transfer, chair
	H66()	H67()	H68()	H69()	Transfer, toilet
	H70()	H71()	H72()	H73()	Transfer, tub or shower
	H74()	H75()	H76()	H77()	Transfer, automobile
	H78()	H79()	H80()	H81()	Walk on level 50 yards or more
	H82()	H83()	H84()	H85()	Up and down stairs for 1 flight or more
	H86()	H87()	H88()	H89()	Walk outdoors 50 yards or more
	H90()	H91()	H92()	None()	Wheelchair/50 yds-Only if <u>not walking</u>

H93(X) Barthel sub-score ____/47. Remarks on mobility:

H94(X) Barthel Total Score ____/100.

	INDEPENDENT		DEPENDENT		
	Intact	Limited	Helper	Null	
	I68()	I69()	I70()	I71()	VERBAL COMMUNICATION
	I72()	I73()	I74()	I75()	HEARING COMMUNICATION
	I76()	I77()	I78()	I79()	VISION

I80() Remarks on communication and vision:

M52(X)

DISCHARGE PLANNING DECISION

Institution: _____

M53(X) Name and #: _____ Date: _____

M76(X) MAJOR DIAGNOSES OR HANDICAPPING CONDITIONS:

Explanation: 1) Medical Problems relate to pathological conditions.

- 2) Disability Problems relate to dependency or need for assistance in self-care, mobility, communication or visual activities; or to poor intellectual or emotional adaptability such as in marked depression; or to marked conflicts relating to home or job situations; or to incapacitating pain; etc.

The patient is ABLE and will be discharged home

M77() because medical problems are stable and disability problems are not prominent.
or

M78() despite continuing unstable medical problems or prominent disability problems.

OR ELSE

The patient is BORDERLINE for discharge home

M79() because unstable medical problems require physician or skilled nursing attention daily to weekly.

or

M80() despite stable medical status because prominent disability problems require that major assistance be provided by family members or by a community agency.

OR ELSE

The patient's condition is CATASTROPHIC

M81() prohibiting reasonable expectation of successful discharge home and requiring continued institutionalization.

M82() DISPOSITION PROBLEMS checked are delaying discharge:

M83() Unavailability of a bed for chronic care

M84() Family is unable to receive patient or else the patient lives(d) alone

M85() Unavailability of needed medical care services at home

M86() Unavailability of needed personal care services at home

M87() Marked confusion, memory impairment, impaired judgment or behavioral disturbances

M88() Major architectural barriers at home

M89() Inadequate financial coverage for needed care

M90() Other: _____

M91() Remarks on disposition problems and plans for discharge: P__ U__ L__ S__ E__ S__

M98(X) REPORTED BY: _____

T-NEMC REHABILITATION INSTITUTE (X)G01()
LONG-RANGE EVALUATION SUMMARY (X)G02
Facility: (X)G15
IN-PATIENT DISCHARGE(short) (X)G21

Discharge Date: ___ / ___ / ___ ()G51

Name: (X)G53
(see stamp)

No. & Street: (X)G54
(if different from stamp)

Town & State: (X)G55
(if different from stamp)

ZIP Code: (X)G56
(if different from stamp)

Telephone No. (X)G57
(if different from stamp)

Hosp. No. (X)G58
(see stamp)

Active Motion of Limbs (X)G79

Good	Fair	Poor	Null	
()G80	()G81	()G82	()G83	R Upper
()G84	()G85	()G86	()G87	L Upper
()G88	()G89	()G90	()G91	R Lower
()G92	()G93	()G94	()G95	L Lower

INDEPENDENT DEPENDENT SELF-CARE & MOBILITY (X)H17

Intact	Limited	Helper	Null	
()H18	()H19	()H20	()H21	Drink from cup
()H22	()H23	()H24	()H25	Feed from dish
()H26	()H27	()H28	()H29	Dress upper body
()H30	()H31	()H32	()H33	Dress lower body
()H34	()H35	()H36	()None	Brace/Prosthesis
()H37	()H38	()H39	()H40	Groom
()H41	()H42	()H43	()H44	Wash/bathe
()H45	()H46	()H47	()H48	Bladder continence
()H49	()H50	()H51	()H52	Bowel continence
()H53	()H54	()H55	()H56	Perineal care
()H57	()H58	()H59	()H60	Hand skills

(X)H61--Self care subscore ___/53. Remarks:

()H62	()H63	()H64	()H65	T/Chair
()H66	()H67	()H68	()H69	T/Toilet
()H70	()H71	()H72	()H73	T/Tub or shower
()H74	()H75	()H76	()H77	T/Automobile
()H78	()H79	()H80	()H81	Walk 50 yards
()H82	()H83	()H84	()H85	Stairs 1 flight
()H86	()H87	()H88	()H89	Outdoors
()H90	()H91	()H92	()None	Wheelchair

(X)H93--Mobility subscore ___/47. Remarks:

(X)H94--Barthel total score ___/100.

Communication

Intact	Limited	Helper	Null	
()I68	()I69	()I70	()I71	Verbal
()I72	()I73	()I74	()I75	Hearing
()I76	()I77	()I78	()I79	Vision

(X)J65(Choose one)INTELLECTUAL/EMOTIONAL

()J66 Able to cope with the usual problems and stresses of daily life.

()J67 Needs assistance, coaxing, supervision or structured environment to function.

()J68 Not able to be benefitted by assistance or supervision.

(X)J70(Choose one)PERSONAL ADJUSTMENT

()J71 Is hopeful about situation.

()J72 Is indifferent to situation.

()J73 Is depressed about situation.

(Choose one)

()J74 Has reasonable insight into problems.

()J75 Has limited insight into problems.

()J76 Insight and/or judgment are poor.

(X)J78(Choose one)SUPPORT FROM FAMILY UNIT

()J79 Able to support patient at home physically and mentally.

()J80 Able to support patient at home if provided with help from an agency.

()J81 Patient lives(d) alone or else family is unable to cope.

(X)J84(Choose one)EXPECTED ABILITY IN HOME

()J85 Able in self care and mobility without architectural barriers.

()J86 Assistance needed in self care or mobility.

()J87 Totally dependent in self care or mobility.

(Choose any if applicable)

()J88 Architectural barriers cause need for assistance.

()J89 Communication or visual problems cause need for assistance.

()J90 Intellectual or emotional problems cause need for assistance.

Vocational Status:

Homemaker()K46

Student()K47

Competitive employment()K48

Non-compet. employment()K49

Unemployed/employable cannot find work()K50

Retired due to age()K51

Too disabled to work/homemaker/student()K52

Has motivation problem for work()K53

✓ Vocational Ability
Intact Limited Helper Null

()K59 ()K60 ()K61 ()K62

New Medical or Disability Problems or
Complications:
Present()K63 Absent()K64

Remarks: _____ ()K65

Functional Profile:

	One	Two	Three	Four
P	()L03	()L04	()L05	()L06
U	()L07	()L08	()L09	()L10
L	()L11	()L12	()L13	()L14
S	()L15	()L16	()L17	()L18
E	()L19	()L20	()L21	()L22
S	()L23	()L24	()L25	()L26

Major Handicapping Condition (X)L33

R T 7 Code: _ _ _

New Action Taken (Referrals made):

VNA()K77
MRC or Other State Voc. Agency()K78
Welfare/Medicaid()K79
Private physician()K80
Other hospital _____ ()K81
Other _____ ()K82

Medical Diagnoses (International Code) (X)L34

#1	_____	(X)L35
#2	_____	(X)L36
#3	_____	()L37
#4	_____	()L38
#5	_____	()L39
#6	_____	()L40
#7	_____	()L41

✓ Financial Ability
Intact Limited Helper Null

()K83 ()K84 ()K85 ()K86

Household Constellation:

Alone()K17
Spouse()K18
Children()K19
Spouse and children()K20
Parent(s)()K21
Other relatives()K22
Friends()K23
Institution()K24
Other _____ ()K25

Discharged to:

Home()L43
Acute hospital _____ ()L44
Chronic hospital _____ ()L45
Nursing home()L46
Other _____ ()L47

Physician: _____ Code: _ _ (X)K92

Onset of disability--Month: _ _ Year: _ _ (X)L48

CRITERIA for PROGRAMMED SUMMARY OF FUNCTIONAL STATUS - PSFS

and LONG-RANGE EVALUATION SUMMARY - LRES

ACTIVE MOTION OF LIMBS

- | | |
|---|---|
| Good-- <u>All</u> muscle groups of the limb complete <u>full</u> range of motion of the joints against moderate or greater resistance. No limitation due to contracture, pain, spasticity, diminished sensibility, etc. | Poor--Some active motion in the limb or it is used as a helper, includes amputation with functional prosthesis. |
| Fair-- <u>All</u> muscle groups of the limb complete <u>available</u> range of motion against gravity. Any limitation due to contracture, pain, spasticity, etc. still permits <u>ordinary</u> use of the limb. | Null--No motion and/or usefulness, includes amputation without functional prosthesis. |

INDEPENDENT

DEPENDENT

- | | |
|--|---|
| Intact--Activity completed under ordinary circumstances, without modification, and within reasonable time. | Helper--Activity completed only with partial help or assistance or under supervision for safety or by cuing.
ANOTHER HUMAN IS INVOLVED IN ACTIVITY |
| Limited--Activity completed with prior preparation or under special or modified circumstances, or with assistive devices or aids, or beyond a reasonable time. | Null----Patient unable to assist, or totally dependent, or activity is not performed. |

SELF CARE

Drink from Cup

- Intact--Able to drink from a cup at a tray or table as customarily prepared; able to pour liquids and open a milk carton.
- Limited--Requires prior preparation such as liquid being poured, or an adaptive or assistive device such as a straw, or takes more than a reasonable time.

Feed from Dish

- Intact--Able to feed from a dish on a tray or table as customarily prepared; able to cut meat and to butter bread.
- Limited--Requires prior preparation such as meat being cut or bread buttered, or an adaptive or assistive device such as a spork, rocking knife, etc., or takes more than a reasonable time.

Dress Upper Body

- Intact--Able to dress and undress upper body including obtaining clothes from their customary places such as drawers and closets; able to handle bra, slip, pull-over garment and front-opening garment as well as manage zippers, buttons, and snaps.
- Limited--Requires prior retrieval or arrangement of clothes, or able to dress presentably in spite of omission of some of above, or through use of special closures, or takes more than a reasonable time.
- Helper--Patient performs at least half the effort himself.

Intact--Able to dress and undress lower body including obtaining clothes from their customary places such as drawers and closets; able to handle underpants, slacks, skirt, belt, stockings (if elastic), and shoes with laces; able to manage zippers, buttons, snaps and garters.

Limited--Requires prior retrieval or arrangement of clothes, or able to dress presentably in spite of omission of some of above, or through use of special closures, suspenders, or loafer shoes; or takes more than a reasonable time.

Helper--Patient performs at least half the effort himself.

Don Brace or Prosthesis

Intact--Able to don prescribed sling, splint, brace, corset or prosthesis with reasonable ease.

Limited--Able to don prescribed sling, splint, brace, corset or prosthesis but with difficulty, or over more than a reasonable time.

Helper--Needs assistance to don brace or prosthesis.

Grooming

Intact--Able to clean teeth or dentures, comb and brush hair, shave, apply make-up including all preparations.

Limited--As above but requires adaptive or assistive device or takes more than a reasonable time.

Wash or Bathe

Intact--Able to wash and dry face and entire body (except shampoo hair) including all preparations such as obtaining water if bath is taken away from the sink or tub.

Limited--As above but requires an adaptive or assistive device or takes more than a reasonable time.

Bladder Continence

Intact--Complete voluntary and elective control of the bladder (never incontinent).

Limited--Has catheter, urinary collecting device or urinary diversion; able to insert or irrigate catheter without assistance; able to clean, sterilize and set up the equipment for irrigation without assistance; able to assemble and apply condom drainage or an ileal appliance without assistance; able to empty, put on, remove, and clean leg bag, or empty and clean ileal appliance bag; no accidents. May have bladder urgency.

Helper--Needs assistance with external device, or has occasional accidents, or cannot wait to get bed pan or to the toilet in time.

Null----Frequent wetting due to incontinence despite aids or assistance.

Bowel Continence

Intact--Complete voluntary and elective control of the bowels (never incontinent).

Limited--Regularly requires stool softeners, digital stimulation, suppository, laxative or enema but does not require assistance; has colostomy but does not require assistance; no accidents. May have bowel urgency.

Helper--Needs assistance using suppository or taking an enema or has occasional accidents.

Null----Frequent soiling due to incontinence despite aids or assistance.

- Intact--Able to cleanse self after voiding or bowel evacuation; able to adjust clothing after using toilet; able to put on/insert sanitary napkins/tampons.
- Limited--Able to perform above with some difficulty, with adaptive equipment, or takes more than a reasonable time but without assistance.
- Helper--Needs assistance in adjusting clothes, or in using toilet paper, or in personal hygiene.

Other Hand Skills

- Intact--Able to write name, turn a doorknob, turn a key in a lock, handle money, manipulate lamp and wall light switches, dial a telephone, turn a radio or TV on and off and turn a faucet handle.
- Limited--As above but requires adaptive or assistive devices, or has difficulty, or takes more than a reasonable time but does not need assistance.

MOBILITY

Transfer, Chair

- Intact--Able to approach, sit down or get up from a regular chair safely; if in wheelchair, able to approach a bed or another chair, lock brakes, lift foot rest, and safely perform either a standing pivot or sliding transfer; able to return safely, changing the position of the wheelchair if necessary; able to remove and replace arm rest if necessary.
- Limited--As above but requires adaptive or assistive devices such as a sliding board or a lift, or takes more than a reasonable time but does not require assistance.
- Helper--Minimal assistance or lifting is required.

Transfer, Toilet

- Intact--Able to perform as in transferring to and from a chair with safety.
- Limited--As above but requires adaptive or assistive devices such as grab bars, or takes more than a reasonable time but does not need assistance.
- Helper--Needs assistance for balancing as in adjusting clothes.

Transfer, Tub or Shower

- Intact--Able to enter and leave a tub or shower stall safely.
- Limited--As above but requires adaptive or assistive devices such as grab bars or special seat or a lift, or takes more than a reasonable time but no assistance.

Transfer, Automobile

- Intact--Able to enter and leave an automobile safely.
- Limited--As above but requires adaptive or assistive devices such as a sliding board or lift, or takes more than a reasonable time but does not require assistance.

Walk on Level/50 Yards

- Intact--Able to walk at least 50 yards; does not have brace or prosthesis on leg or special adaptation of shoes; does not use a cane, crutches, or walkerette.
- Limited--Able to walk 50 yards but uses a brace or prosthesis on leg; or uses a cane, crutches, walkerette, or special shoes; if there are locks these are manageable; no assistance, supervision for safety or guarding is needed.
- Helper--Able to walk at least 50 yards with assistance or supervision for safety.

- Intact--Able to go up and down at least one flight of stairs without using any type of support and with safety; does not have a brace or prosthesis on leg.
- Limited--Able to go up and down at least one flight of stairs with the use of side support or hand rail, or by using a cane or portable supports which must be managed without assistance.
- Helper--Able to go up and down at least one flight of stairs but needs assistance or supervision for safety.

Walk Outdoors/50 Yards

- Intact--Able to walk outdoors at least 50 yards; does not have a brace or prosthesis on leg or special adaptation of shoes; does not use a cane, or crutches or walkerette; can manage rough terrain, curbs, or ramps.
- Limited--Able to walk outdoors at least 50 yards but uses a brace or prosthesis on leg or a cane, or crutches, or walkerette, or special shoes; if there are locks these are manageable; no assistance or supervision is needed except possibly for rough terrain, high curbs or steep ramps.
- Helper--Able to walk at least 50 yards with assistance or supervision for safety.

Wheelchair/50 Yards--Only if Not Walking

- Intact--Able to propel wheelchair independently for at least 50 yards; must be able to go around corners, turn around, maneuver the chair to a table, bed, toilet, etc.; able to negotiate up to a 3% grade, maneuver on rugs, over doorsills, etc.
- Limited--As above but requires a powered wheelchair, or takes more than a reasonable time.
- Helper--Needs assistance in propelling or maneuvering wheelchair.

CRITERIA FOR COMMUNICATION

- Intact--No language barrier; no difficulty in reading, writing or verbal communication.
- Limited--Slight to moderate limitation in communication due to a language barrier or else due to reading, writing or verbal communication disorder.
- Helper--A structured setting or interpreter is needed in order to facilitate communication.
- Null----Communication not consistently feasible even in a structured setting.

CRITERIA FOR VISION

- Intact--Visual fields and visual acuity intact without need for medication or eyeglasses.
- Limited--Mild to moderate impairment of visual field or visual acuity and/or need for medication or eyeglasses (including contact lenses).
- Helper--Severe visual impairment requiring assistance on an intermittent or constant basis.
- Null----Legally blind.

FINANCIAL ABILITY

- Intact--The family is able to absorb the costs of the disability without increased indebtedness.
- Limited--The family is required to incur debts to handle costs of the disability.
- Helper--The family requires some form of public assistance to cover medically related costs (Medicaid).
- Null----The family requires public assistance to cover medical and subsistence costs (Welfare or SSI).
- DATA BASE--ADEQUACY OF FINANCES (present and potential)----a) Method of payment for hospital services, b) Method of payment for additional needed services or equipment, c) Method of payment for continuing care, d) Whether receiving state assistance for medical expenses and/or subsistence.

- Intact**--The family unit consists of at least one member beside the patient related by marriage, kinship or else a close personal companion; as a unit the family is sufficiently competent physically and mentally to provide adequate support to the patient at home at this time and under foreseeable circumstances.
- Limited**--The family unit is as above but under particular conditions of stress may not be able to support the patient either physically or mentally or else particular circumstances such as a job require a crucial family member to be away from the home part of the day.
- Helper**--Another person other than a regular family member is needed to provide some service to the patient or family.
- Null**----The family is unable to cope with the patient or else the patient lives(d) alone.
- DATA BASE**--ADEQUACY OF SUPPORT FROM FAMILY UNIT (present and potential)----a) Number, relationship and ages of members of household, b) State of health (physical and mental) of members, c) Interpersonal relationships, d) Adequacy of living quarters, e) Monitoring of family group and its sense of adaptation to the patient's handicap, f) Identification of needs to support appropriate discharge planning

ABILITY IN HOME

- Intact**--Able in self care and mobility and able to fulfill the customary and usual role(s) and perform customary and usual chores.
- Limited**--Able in self care and mobility but limited in ability to fulfill the customary and usual roles(s) or limited in ability to perform customary and usual chores.
- Helper**--Assistance needed in self care or mobility due to structural barriers; or cannot be left alone due to severe communication or mental problem; or else assistance is needed from outside the home to perform household tasks, if a homemaker.
- Null**----Would be totally dependent at home.
- DATA BASE**--ADEQUACY OF ABILITY AT HOME (present and potential)----a) Ability to resume usual role(s), b) Availability of other supporting agencies, c) Need for and willingness of family to accept outside assistance, d) Architectural barriers in living quarters

EDUCATIONAL OR VOCATIONAL ABILITY

- Intact**--Able to be vocationally independent or attend school without limitation at work or school or in transportation to and from.
- Limited**--Able to be vocationally independent or attend school but with some limitation either at work or school or in transportation to and from.
- Helper**--Is receiving assistance by way of counseling, training, or fiscal sponsorship for work or education or assistance is received in transportation to and from.
- Null**----No ability at present for work or education outside of the home; or else retired.

ARCHITECTURAL BARRIERS

- Absent**--Has access into and out of home, to all levels if multi-story, and to all rooms without safety hazard or requiring assistance.
- Minor**----Has access into and out of home and to all essential levels if multi-story and to all rooms essential to well-being and participation in family activities. Some non-essential rooms may not be accessible or else inconvenience may be imposed by threshold, narrow passages or awkward arrangement of furniture. However, able to manage without assistance.
- Major**----Not able to manage without assistance in getting into or out of home or in gaining access to rooms essential to well-being and/or participation in family activities.

INDEPENDENT--(Intact or Limited)--Patient functions independently without impairment (Intact) or mild impairment (Limited).

DEPENDENT--(Helper or Null)--Patient is observed to function appreciably better with assistance, supervision, cuing, coaxing or structured environment (Helper) or is not able to be benefitted by assistance (Null).

Intellectual Ability / Problem-Solving

Able to comprehend meaning, retain instructions and follow through a sequence of steps particularly in a novel situation. Makes use of previously learned information. Able to self correct if errors are made. Sustains attention until task is completed.

Emotional Stability / Regard for Others

Able to remain cooperative without being demanding or overly dependent upon others. Evidence of satisfying interactions with staff, other patients and family members.

Perceptual-Motor Ability / Gnosis-Praxis

Able to discriminate between differences in the environment by hearing, sight, touch and visuo-spatial orientation. Able to reproduce a requested motion or activity.

Judgment-Reliability / Insight (Realistic)

Aware of and understands limitations and disability problems. Able to plan or work out compensations or substitutions incorporating appropriate assistance.

Self Esteem / Regard for Self (Hopeful)

Able to feel hopeful about situation with sense of purpose and worthwhileness preserved. No evidence of inappropriate discouragement or anxiety, hypochondriasis, or misuse of drugs or alcohol. Able to go through grief reaction to real loss without undue denial, indifference or hysteria.

CRITERIA FOR HAND FUNCTION TESTING (Jebsen)

- I 7/7 All values of subtests are within normal limits.
- II 4-6/7 Majority of values of subtests are within normal limits.
- III 0-3/7 Majority of values of subtests exceed normal limits.
- IV Incompl. Unable to complete one or more subtests.

REHABILITATION GOAL ACHIEVEMENT:

Goals have been identified, level of achievement has been recorded and achievement has met the goals.

FURTHER REHABILITATION POTENTIAL:

Goals have been identified and level of achievement has been recorded. Further achievement can be expected with prescribed treatment and care.

NEED FOR MAINTENANCE CARE SERVICES: (In-Patient or Out-Patient)

Functional status has been recorded. Whether or not rehabilitation potential exists, an unstable medical condition and/or need for personal assistance require prescribed treatment and care to prevent loss of functional status or unnecessary medical deterioration.

EDUCATIONAL OR VOCATIONAL NEEDS:

Unmet educational or vocational needs are present.

- P Physical condition including diseases of the viscera (cardiovascular, gastro-intestinal, urologic, and endocrine) and neurologic disorders:
1. Medical problems sufficiently stable that medical or nursing monitoring is not required more often than 3 month intervals.
 2. Medical or nurse monitoring is needed more often than 3 month intervals but not each week.
 3. Medical problems are sufficiently unstable as to require regular medical and/or nursing attention at least weekly.
 4. Medical problems require intensive medical and/or nursing attention at least daily (excluding personal care assistance only).
- U Self care activities (drink/feed, dress upper/lower, brace/prosthesis, groom, wash/bathe, perineal care) dependent mainly upon upper limb function:
1. Independent in self care without impairment of upper limbs.
 2. Independent in self care with some impairment of upper limbs.
 3. Dependent upon assistance or supervision in self care with or without impairment of upper limbs.
 4. Dependent totally in self care with marked impairment of upper limbs.
- L Mobility activities (transfer chair/toilet/tub or shower, walk, stairs, wheelchair) dependent mainly upon lower limb function:
1. Independent in mobility without impairment of lower limbs.
 2. Independent in mobility with some impairment in lower limbs; such as needing ambulatory aids, a brace or prosthesis, or else fully independent in a wheelchair without significant architectural or environmental barriers.
 3. Dependent upon assistance or supervision in mobility with or without impairment of lower limbs, or else partly independent in a wheelchair or else there are significant architectural or environmental barriers.
 4. Dependent totally in mobility with marked impairment of lower limbs.
- S Sensory components relating to communication (speech and hearing) and vision:
1. Independent in communication and vision without impairment.
 2. Independent in communication and vision with some impairment such as mild dysarthria, mild aphasia, or need for eyeglasses or hearing aid, or needing regular medication.
 3. Dependent upon assistance, an interpreter or supervision in communication or vision.
 4. Dependent totally in communication or vision.
- E Excretory functions (bladder and bowel):
1. Complete voluntary control of bladder and bowel sphincters.
 2. Control of sphincters allows normal social activities despite urgency or need for catheter, appliance, suppositories, etc. Able to care for needs without assistance.
 3. Dependent upon assistance in sphincter management or else has accidents occasionally.
 4. Frequent wetting or soiling from incontinence of bladder or bowel sphincters.
- S Consider intellectual and emotional adaptability, support from family unit, and financial ability:
1. Able to fulfill usual role(s) and perform customary tasks.
 2. Must make some modification in usual role(s) or performance of customary tasks.
 3. Dependent upon assistance, supervision, encouragement or assistance from a public or private agency due to any of the above considerations.
 4. Dependent upon long-term institutional care (chronic hospital, nursing home, etc.) excluding time-limited hospitalization for specific evaluation, treatment or active rehabilitation.

PULSES TOTAL -- BEST SCORE IS 6/6. WORST SCORE IS 6/24. C. V. Granger, M.D. March, 1975

From Moskowitz, E., and McCann, C.: Classification of disability in the chronically ill and aging. J. Chr. Dis., 5:342-346, 1957.

Stroke, Hemiplegia; Parkinsonism; Aphasia; CP	011	Neurological--Cerebral (focal)
Paraplegia; Quadriplegia; Poliomyelitis	012	" --Spinal Cord
Peripheral neuropathies; Guillain-Barre	013	" --Peripheral Nerve
Multiple Sclerosis	014	" --General CNS
Dementia, Seizures, etc. without focal deficit	015	" --Cerebral (general)
Fracture; Disc disease;	Ortho	021 Musculoskeletal--Cervical
" ; " ; Scoliosis	"	022 " --Thoracic
" ; " ; Low back pain	"	023 " --Lumbo-sacral-Pelvis
" ; " ;	"	024 " --Upper Limb
" ; " ;	"	025 " --Lower Limb
Muscular dystrophy; Polymyositis	030	Myopathy
Rheumatoid Arthritis	041	Arthropathy--Rheumatoid
Osteoarthritis	042	" --Degenerative
	043	" --Other
All limb amputations	051	Amputation--Single--Upper AE
	052	" -- " --Upper BE
	053	" -- " --Lower AK
	054	" -- " --Lower BK
	055	" --Double--AK/AK
	056	" -- " --AK/BK
	057	" -- " --BK/BK
	058	" --Other combinations
	061	Skin--Burn
	062	" --Ulceration
Psoriasis; Chronic skin condition	063	" --Dermatosis
All cardiac conditions	070	Cardiac
Pneumonia; Pulmonary embolism; Pre/Post-operative	081	Pulmonary--Acute
Asthma; Chronic bronchitis; Emphysema; COLD	082	" --Chronic
Diabetes mellitus; Obesity; Deficiency states	090	Endocrine/Metabolic
Arterial or venous insufficiency	100	Peripheral Vascular
Birth defects; Developmental anomalies	110	Growth/Development
Cancer	120	Malignancy
Chronic neurosis; Psychosis; Conversion reaction	130	Psychiatric
Deafness	140	Hearing
	150	Gastrointestinal
	160	Genito-urinary
Blindness	170	Vision
	180	Oral-Dental
	190	Hematological
	200	Other

AN oxic	NE oplastic, malignant
BA cterial	PS ychiatric or Psychogenic
CO mplications of Treatment	SE nescence
DE generative	SK eletal
EM bolic	TH ermal Injury
GE netic or Congenital	TO xic
HE matologic or Hemorrhage or Hematoma	TR aumatic
IN flammatory or Granulomatous	TU mor, benign
MA lformation	VA scular or Circulatory
ME tabolic or Endorinologic or Nutritional	VI ral

BARTHEL INDEX

CATEGORIES	INDEPENDENT	WITH HELP
i. Feeding (if food needs to be cut up = help)	10	5
ii. Moving from wheelchair to bed and return (includes sitting up in bed)	15	10-5
iii. Personal toilet (wash face, comb hair, shave, clean teeth)	5	0
iv. Getting on and off toilet (handling clothes, wipe, flush)	10	5
v. Bathing self	5	0
vi. Walking on level surface (or if unable to walk, propel wheelchair) *score only if unable to walk	15 *5	10 *0
vii. Ascend and descend stairs	10	5
viii. Dressing (includes tying shoes, fastening fasteners)	10	5
ix. Controlling bowels	10	5
x. Controlling bladder	10	5

A patient scoring 100 Barthel Index is continent, feeds himself, dresses himself, gets up out of bed and chairs, bathes himself, walks at least a block, and can ascend and descend stairs. This does not mean that he is able to live alone; he may not be able to cook, keep house, and meet the public, but he is able to get along without attendant care.

From: Mahoney, F. I., and Barthel, D. W.: Functional Evaluation: The Barthel Index. Maryland Medical Journal 14:61-65, 1965.

The following items are most frequently misunderstood and therefore incorrectly coded:

1) Drinking and Feeding

INDEEDENDENT

Intact -- Refer to Criteria
Limited -- Refer to Criteria

DEPENDENT

Helper or Assistance -- The individual takes full meals by mouth (ie, chews, and swallows) but requires the presence or help from someone else during the activity of drinking or feeding. The individual does not rely on alimентация through other routes such as parenteral or gastrostomy feedings.
Null -- The individual cannot take full meals by mouth but must rely at least in part on alimентация through other routes such as parenteral or gastrostomy feedings.

2) Bladder and Bowel Continence

INDEPENDENT

Intact -- Refer to Criteria
Limited -- Refer to Criteria

DEPENDENT

Helper or Assistance -- Refer to Criteria. This means that another person is required to help in maintaing a voiding or excretion pattern or else the individual has occasional sphincter accidents but not on a daily basis.
Null -- Refer to Criteria. This means that despite aids or help from another person the individual is wet or soiled on a frequent or almost daily basis. This might necessitate the wearing of diapers or other absorb-tive pads. This does not include the simple presence of a catheter or ostomy device provided that it is well maintained such that wetting or soiling of skin, clothing or bedding does not occur.

3) Walking versus Wheelchair

Refer to Criteria. This means that if an individual walks 50 yards independently or with assistance from another person, always mark "None" for wheelchair or else leave it blank (despite a circumstance in which the individual might use a wheelchair for particular travelling needs -- ie, extra long distances). However, if an individual is rated "Null" on walking, then check the appropriate category for wheelchair.

In other works, rate "Walking" first. Then only rate "Wheelchair" if "Walking 50 Yards" is rated as "Null".

INSTRUCTIONS FOR COMPLETING FORMS B-1 - B-5

A. ON ADMISSION

Items 1-3 of Form B-1 are designed to obtain a detailed understanding of patient's vocational, educational and hospital experience prior to this admission. Feel free to describe situations that do not seem to fit the listed responses. Note Item 1A - Patient's occupation- When patient is a homemaker and has not had substantial work experience of her own, please record husband's occupational title. If patient is young person without full time work experience, please record father's occupational title.

B. AT DISCHARGE CONFERENCE

Form B-2, "Personal Care Services Prescription" is to be completed with all services prescribed by physician or nurse or arranged by social worker prior to discharge. Please mark frequency these services are to be delivered to patient according to hospital personnel. First 25 patients only.

Form B-3, "Incident Activity Register," is to be completed every time hospital personnel work on the patient's case - either arranging for services or following up in the community.

C. ON DISCHARGE

Form B-4, "Service Record" is to be completed and updated if additional services are found to be needed. Items 4-5 of Form B-1 are designed to obtain a more detailed description of the family and other supports the patient may have available in the community and a general picture of patient's financial situation.

D. FOLLOW-UP EVERY 2 WEEKS

Form B-5, "Bi-monthly Service Summary" to be completed as the result of a personal visit or telephone call. Note item "Name of Provider Agency." If the family assumes the duties of a paid or volunteer agency in providing a certain service, the "family" should be considered the provider agency. Similarly, if a friend of the patient provides this service, "friend" should be noted in the provider agency column.

COMMUNITY BASED MAINTENANCE CARE FOR THE AGED AND DISABLED

EXPANDED SOCIAL HISTORY (B-1)

Patient _____

Date Initiated _____

Hospital _____

By _____

ON ADMISSION

1) Vocational Status:

a. What has been patient's main occupation for most of his lifetime? For example, truck driver, laborer, salesman, student, homemaker, military, teacher. Main occupation was: (Please indicate title) _____

b. How long has it been since patient was employed full time?

- () until this admission
- () less than 6 months ago
- () 6-12 months ago
- () 1-2 years ago
- () more than 2 years ago
- () has either been a student or in the military and has had no full time employment
- () has never been employed full time

2) Education:

a. What is the highest grade patient completed in school?

4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20+

3) Previous Hospitalization:

a. How long has patient resided in a nursing home, chronic disease hospital or other custodial care facility before this admission to your hospital?

- () Patient has never resided in a chronic care facility
- () less than 6 months
- () 6-12 months
- () 1-2 years
- () more than 2 years

b. If patient has resided in a chronic care facility, how long has it been since his last discharge?

- () less than 1 month ago
- () 1-6 months ago
- () 6-12 months ago
- () 1-2 years ago
- () more than 2 years ago

c. When was patient last discharged as an inpatient from your hospital?

- () This is his first admission-never discharged before
- () less than 6 months ago
- () 6-12 months ago
- () 1-2 years ago
- () more than 2 years ago

ON DISCHARGE

4. Household Constellation:

a. When patient is discharged from your hospital, with whom will he live? Note age of person and relationship to patient (e.g. Spouse-60 and Son-29 or Friend-72 or children 10-9-4) Please list:

OR () patient will live alone

OR () patient to go to chronic care facility

b. Does patient have friends or relatives other than those in his household, within $\frac{1}{2}$ hour drive or bus ride from his home?

() Yes

() No

c. Have these friends, relatives or members of patient's household, (listed above) provided personal care or maintenance services (at least weekly) in the past?

Friends () Yes () No () No friends within $\frac{1}{2}$ hr.

Relatives () Yes () No () No relatives within $\frac{1}{2}$ hr.

Members of household () Yes () No () No other members of household

d. Will these friends, relatives or members of patient's household be able to provide personal care or maintenance services (at least weekly) upon discharge?

Friends () Yes () No () No friends within $\frac{1}{2}$ hr.

Relatives () Yes () No () No relatives within $\frac{1}{2}$ hr.

Members of household () Yes () No () No other members of household

5. Financial Situation

a. Please check range of patient's monthly income:

() less than \$100

() \$101-200

() \$201-300

() \$301-400

() \$401-500

() \$501-600

() \$601-700

() more than \$701

b. How does patient plan to pay for personal care or maintenance services upon discharge (check all that apply)?

() Patient's own funds

() family funds

() Medicare

() Medicaid

() Other private sources

() Other public sources

OR () No personal care services required

OR () Patient to go to chronic care facility

c. Is this patient presently receiving welfare payments?

() Yes () No

COMMUNITY BASED MAINTENANCE CARE FOR THE AGED AND DISABLED

PERSONAL CARE SERVICES - PRESCRIPTION (B-2)

PATIENT _____

DATE _____

HOSPITAL _____

COMPLETED BY _____

Services Available	Frequency Recommended						
	2 X Day	Daily	3 X Week	2 X Week	Weekly	Every 2 Weeks	Monthly
A. Assistance in ADL							
1. Bathing							
2. Dressing							
3. Climbing Stairs							
4. Walking							
5. Transferring							
6. Toileting							
7. Feeding							
B. Household Tasks							
1. Housecleaning (light)							
2. Housecleaning (heavy)							
3. Laundry							
4. Cooking or Meal Serv.							
5. Shopping							
6. Sewing/Mending							
C. Supervision of Medication							
D. Escort Tasks							
1. Doctor's Office, Hospital Health Care							
2. Comm. Services-Gas co., Welfare Office, etc.							
3. Shopping							
E. Child Care							
F. Emotional Support, Counselling, etc.							
G. Leisure - Social Activities including drives, outings, etc.							

PRECAUTIONS OR PARTICULAR OBSTACLES TO BE RECOGNIZED IN PROVIDING SERVICES
(use back of this page)

COMMUNITY BASED MAINTENANCE CARE FOR THE AGED AND DISABLED

ACTIVITY REGISTER (B-3)*

PATIENT _____

DATE _____

HOSPITAL _____

BY _____

1. Describe reason for case activation

2. Personnel (positions) in your hospital who were involved, e.g., head nurse, social worker, administrator.

a. _____ c. _____ e. _____
b. _____ d. _____ f. _____

3. Names of community agencies (if extra-institutional activity).

4. Describe incident in some detail.

5. Total time each person in your hospital devoted to incident described above. (numbers correspond to personnel listed in #2 above)

a. _____ c. _____ e. _____
b. _____ d. _____ f. _____

*To be completed every time there is action regarding B-2

COMMUNITY BASED MAINTENANCE CARE FOR THE AGED AND DISABLED

SERVICE RECORD (B-4)

PATIENT _____

DATE INITIATED _____

HOSPITAL _____

COMPLETED BY _____

<u>1. Services Prescribed</u>	<u>Frequency Prescribed</u>	<u>Frequency Arranged</u>	<u>Provider</u>
A. _____	_____	_____	_____
B. _____	_____	_____	_____
C. _____	_____	_____	_____
D. _____	_____	_____	_____
E. _____	_____	_____	_____
F. _____	_____	_____	_____
G. _____	_____	_____	_____
H. _____	_____	_____	_____
<u>2. Other services not prescribed but found to be needed:</u>			
I. _____	_____	_____	_____
J. _____	_____	_____	_____
K. _____	_____	_____	_____
L. _____	_____	_____	_____

COMMENTS: _____

COMMUNITY BASED MAINTENANCE CARE FOR THE AGED AND DISABLED
BI-WEEKLY SERVICE SUMMARY (B-5)

Patient _____

Two week period of (dates) _____

Hospital _____

By _____

1. Services Prescribed	Frequency Provided	Name of Provider Agency	*Hrs./2 wk. Provider Agency	Bi-Weekly Charge to Patient
A. _____	_____	_____	_____	_____
B. _____	_____	_____	_____	_____
K C. _____	_____	_____	_____	_____
D. _____	_____	_____	_____	_____
E. _____	_____	_____	_____	_____
F. _____	_____	_____	_____	_____
G. _____	_____	_____	_____	_____
H. _____	_____	_____	_____	_____

2. Other services not prescribed but found to be needed:

I. _____	_____	_____	_____	_____
J. _____	_____	_____	_____	_____
K. _____	_____	_____	_____	_____

COMMENTS:

*Hours include transportation time