PLANNING PRIMARY HEALTH CARE PROVISION
Assessment of Development Work at a Health Centre

by
Göran Westman
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by
Göran Westman

Umeå, 1986
ABSTRACT

Westman Göran: "Planning primary health care provision. Assessment of development work at a health centre".
From the Division of General Practice, Department of Social and Preventive Medicine, Umeå University, Umeå, Sweden.

At the Primary Health Care Centre in Vännäs (VPHCC), northern Sweden, a development work was implemented in 1976-1980. The overall purpose was to enhance primary health care planning. In trying to improve health care delivery cooperation with community members was initiated and some organizational changes like a new appointment system, a new medical record and local care programs for some common diseases were introduced. Official statistics were also used for comparative purposes.

The aims of the work were postulated (increased accessibility, higher continuity, more equitable distribution and enhanced cooperation) and suitable methods were designed. From postal surveys, chart reviews and administrative data (from hospitals, out-patient clinics and health centres) figures and information were collected.

Accessibility was studied by waiting room time which was reduced and continuity, analyzed with a new concept - visit based provider continuity - was improved. The question of equitable distribution was studied by the consultation rates at different out-patient clinics. It seemed as if the local development work changed the patterns of utilization but some important issues were not decisively answered.

Repeated postal surveys reflected the question of equitable distribution and the cooperation between the VPHCC and the community members. Positive responses were recorded in aspects like telephone accessibility and health care information. In a tracer study of diabetes the quality of care was studied. The local care program was actually implemented in the daily practice but the question of care quality needs further penetration.

Within the frames of the development work new methods in the health care planning were introduced. Our work started from the prerequisites of the VPHCC and other health centres might find other ways of planning for care provision. On a general level, however, the structure of our work - defining aims, means and evaluation methods - can be used by others.

KEY WORDS: Primary health care planning, quality of care, evaluation, ambulatory care assessment, health centre management.

ISBN 91-7174-267-0
ERRATA

— Replace the word "vital" with "official" on the following locations:
  — Page 19, first paragraph, second line from the bottom
  — Page 20, third line from the top
  — Page 24, heading Table 1
  — Page 25, heading Table 2

— Table 1 in paper V, page V:7.

— In paper IV, page IV:14, the reference number 14 is to be deleted, hence, the reference numbers 15 and 16 becomes the reference numbers 14 and 15.

Table 1. Reported hospitalized individuals (%) during two-year periods, 1977 and 1979. (Number of patients 1977/1979 in Vännäs - 405/549 and Bjurholm - 172/194.)

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<tr>
<th></th>
<th>Before 1977</th>
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<th>After 1979</th>
</tr>
</thead>
<tbody>
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<td>Vännäs</td>
<td>Bjurholm</td>
<td>Vännäs</td>
</tr>
<tr>
<td>Male</td>
<td>14.1</td>
<td>18.8</td>
<td>11.1</td>
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<tr>
<td>Female</td>
<td>32.9*</td>
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</tr>
<tr>
<td>Total</td>
<td>24.9</td>
<td>18.8</td>
<td>17.2</td>
</tr>
</tbody>
</table>

* p < 0.05  all other changes not statistically significant
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KEY WORDS: Primary health care planning, quality of care, evaluation, ambulatory care assessment, health centre management

ISBN 91-7174-267-0
To Karin, Lina and Jonas
"The special features of primary health care are first contact and long term continuing care in a relatively small and static community. The nature of the work is such that there is an emphasis on the common and the less dramatic and serious medical, psychiatric and social disorders of the community."

John Fry
The thesis is based on the following papers, referred to in the text by their Roman numerals:


VI Westman G. Treatment of diabetic patients in primary care. A chartreview of consultations in the assessment of a development work. In manuscript.
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10. PAPER I - VI
INTRODUCTION

1.1. From Secondary to Primary Health Care
Health and medical care is, the world over, laying claim to larger and larger proportions of the total financial assets of a nation. In many countries there have been investments in specialized hospital based medical care without any signs of improvements in public health or reductions in public demand for care (1, 2). Efforts to implement specialized hospital care in developing countries have also shown similar results (3). In many countries, it has been suggested that a development of primary care could be an alternative to meet the needs of people and to get a more equitable distribution of a nation's health care resources (4, 5).

1.2. Need of Assessments
Economical considerations are reasons for the increased interest in primary care. As primary care is a less expensive alternative compared to more technically advanced hospital care, savings are expected if primary care is to be developed. In this shift of interest it is important, however, that providers of primary care assess their daily work and evaluate the efforts to provide care according to the needs of people. A reflection of this interest is the increasing reports on the evaluation of primary health care (6, 7, 8), its effectiveness, (9, 10) and quality (11, 12, 13).

1.3. Development in Sweden
The development of primary health care was supported by the Swedish government by passing a new health care act (14). Research and development work have also been supported during the 1970s by other central authorities (15, 16), and single county councils have also initiated and participated in projects to further primary health care (17, 18, 19, 20, 21). Moreover, several research projects varying in size have been implemented in Swedish primary care (22).
In the community of Vännäs, Västerbotten county in the north of Sweden, a development work took place during the years 1976-1980, with the main object to enhance the efficiency and quality of primary health care. An increased cooperation with community members, and the introduction of a new appointment system, a new medical record and local care programs for some common diseases were used as means to reach the goals (I).

2. AIMS
The main purpose of the development work at the Vännäs Primary Health Care Centre (VPHCC) was to optimize primary care work. The project was given the stringency of scientific work and it was striven to evaluate some specified aspects of the project (I). The goals were:
- The waiting room times at the VPHCC should be shorter (II).
- The provider continuity should increase (III).
- The health care utilization should be more oriented towards the VPHCC (IV, V).
- The attitudes to the activities of the VPHCC should be more positive (V)
- The care of diabetic patients should follow treatment standards and recommendations (VI).
- The use of vital statistics in health centre management should be explored.

3. MATERIAL
3.1. Demography
The municipality of Vännäs with its two larger communities, Vännäs and Bjurholm had during the years 1976 to 1980 about 11 500 inhabitants. The Vännäs and Bjurholm areas were quite similar except that Bjurholm had a somewhat older population.

A small negative trend was noted regarding the number of inhabitants during the study period (- 0.4 %). The municipality was scarcely populated, six inhabitants/km², and a small shift from
rural to urban areas was noted (54% lived in urban areas in 1975 and 56% in 1979).

Employments in the Vännäs municipality were stable during the study period: agriculture and forest work - 24%, industry - 23%, trade and communications - 30%, public administration and service - 18% and others - 5%. Compared to the county and the nation Vännäs inhabitants were working with agriculture and forest work and communications to a higher degree (the national railroad company had workshops and personnel stationed in the community). Seventyfive per cent of the men and 42% of the women had a job compared to 78% of the men and 48% of the women in the county. About 10% of the Vännäs community inhabitants had to commute to other communities to their work, most of them to the city of Umeå, 35 km away. A majority, 75%, lived in small houses in the municipality, the county figure was - 58%.

3.2. Health care resources
The health care facilities in Vännäs and Bjurholm were organized at two health care centres. They had similar responsibilities and resources in relation to the number of inhabitants. At the VPHCC there were three general practitioners, three district nurses, two office nurses, two nurses' aids, three secretaries (one working part time), one part time working midwife, one physiotherapist and one occupational therapist to serve just below 8000 inhabitants. A nursing home/cottage hospital with 30 beds was also available. Bjurholm had just below 4000 inhabitants and about half of the resources seen in Vännäs. A university hospital was located in Umeå (RiUm) with about 1200 beds.

3.3. Current Studies
The material for the evaluative studies of the Vännäs project was selected in different ways. The selection of appropriate material is discussed in paper I. In the study of waiting room time (II) we analyzed all consultations during the month of March 1977 and March 1979. The continuity study was based on all consultations,
with at least one consultation 12 months prior to the current consultation, during periods of six weeks starting January 1st 1978, October 15th 1978 and October 15th 1979 (III).

In the study of health care utilization we analyzed hospital discharges as reflected in the patient administrative system (PAS) of the county council in 1977 to 1979 and consultations recorded in a special register at the Emergency Clinic at RiuM during September to November in 1976 to 1980. Consultations from Vännäs and three reference areas were recorded (IV). These studies were all based on patients visiting the health care system.

We also used a community approach. In a study of health care utilization and attitudes, by repeated mailed questionnaires, two random independent samples were selected, 10% in 1979 and 12% in 1979. The study population was 16-70 years of age (V).

Finally a chart review of consultations made by diabetic patients at the VPHCC, 1976 to 1980, was also based on patients known at the health centre or retrieved by diabetic prescription in the Vännäs pharmacy (VI).

3.4. Official statistics
In the planning stage of the project we looked for demographic data to identify local needs of our catchment area. Moreover, the possibility of using official statistics in health planning was under way in the county (23). Together with those presented earlier, we were especially interested in data on unemployment, sickness, and the use of drugs. We decided to examine official statistics regarding availability and quality by asking for data on unemployment at the local office for job counselling (AF), information on sick leave from the National Health Insurance (RFV) (24, 25, 26, 27, 28) and sales figures from the local pharmacy store provided by the department of statistics, The National Corporation of Swedish Pharmacies. Figures were received.
4. METHOD

4.1. Design
The overall design was a before-and-after study, where the years before (1976, 1977) were contrasted to the years after (1979, 1980) with the changes being introduced in the interval, during the first half of 1978 (I). In the study of health care utilization three reference areas were selected (IV), whereas in the postal survey studies Bjurholm served as a control area (V). In the other studies no control areas were used. Statistic data regarding Vännäs were compared to those of Bjurholm, the county and the nation except for data on sick leave, where the municipality of Vännäs was studied as a whole.

4.2. Current studies
In the study of waiting times at the health care centre the actual waiting time and waiting time in relation to time scheduled before (March 1977) and after (March 1979) the development work, were contrasted (II).

In the study of continuity we confined ourselves to the chronological dimension of continuity, provider continuity, adopting a visit-based approach defined in detail elsewhere (29) (III).

Health care utilization was measured by individual discharges from hospital care in the county and consultations at the Emergency clinic at RiUum (IV).

Attitudes towards and utilization of health care were studied in the postal surveys by statements about telephone accessibility, health information and quality of care using a Likert scale technique (30) and with questions on physician consultations and hospitalizations during the last two years (V).
The study of patients with diabetes was a tracer study (31) based on a retrospective chart review extracting data according to a predetermined protocol (VI).

4.3. Official statistics
The registration of unemployed persons was divided into two age groups 16-24, and 25-64 years of age. Information on sick leave was defined in three different ways; sick days: number of compensated days per insured person, sick frequency: number of completed sick episodes per insured and year and sick duration: average number of sick days per sick episode completed during a year. The supply of drugs to pharmacies was analyzed as the number of recommended daily dosages (DDD) for 16 groups of drugs.

4.4. Statistical methods
The data in the study of waiting times were assumed to be normally distributed and the 95% confidence limits were calculated (II).

The continuity data were assessed by two reference values, potential continuity (the highest possible value with respect to physician availability) and random continuity (a value equal to if chance alone were to assign available providers to patients) (III).

In the study of health care utilization the data were standardized by age and in the Emergency Clinic study inference with linear regression regarding the slope was used (IV).

In the postal surveys (V) and in the tracer study of diabetes (VI) the Student’s t-test was used to analyze differences in attitudes and physician consultations in different years and documentation habits among different physicians respectively. (32).
5. RESULTS

5.1. Current studies

5.1.1. Waiting room time in primary care (Paper II)
The actual waiting time as well as waiting time in relation to
time scheduled were reduced.

In analyzing the results it must be pointed out that waiting time
was defined as the time from the receptionist being notified by
the patients to the moment when they saw the physician. The wait­
ing time included thus those who arrived hours ahead (due to
transport accommodations and personal habits) and those who had to
perform laboratory tests prior to their consultations. Consultations
with tests taken in advance increased from 28% in 1977 to
40% in 1979.

No control area was used why general trends in waiting times and
unconscious alterations in assessment criteria were not directly
controlled.

5.1.2. Continuity in primary care (Paper III)
The results indicated that actual continuity - although not
particularly high - was significantly higher compared to random
continuity but also lower compared to potential continuity. More­
over, after the organizational changes were implemented, actual
continuity did increase, absolutely, as well as in relation to
potential continuity.

To further improve provider continuity a reduction of physician
mobility would be advantageous.

5.1.3. Primary Care Impact on Hospital Utilization (Paper IV)
Consultations at the Emergency Clinic from the Vännäs catchment
area decreased but no definite changes were found regarding hos­
pital in-patient care.
Due to instabilities in the reference areas no decisive statement can be made regarding the impact of the development work in Vännäs on hospital utilization. The question remains whether changes within primary care policy and work style can affect hospital use.

5.1.4. Attitudes and Health Care Utilization (Paper V)
We found a relative increase in physician consultations at the VPHCC compared to other surgeries. No changes were seen in hospitalizations. Attitudes to telephone accessibility and health information were more positive after the development work. No changes in attitudes were found regarding quality of care.

The development work at the VPHCC was thought to be one of the explanations of the results, as no changes in attitudes were found in the reference area.

5.1.5. Diabetes in Primary Care (Paper VI)
The result showed an increased awareness of the importance of an adequate diet and the new routines recommended in the care program were in reality implemented. According to the care program the biochemical control was impaired whereas, according to the physicians' judgements the clinical control was unaltered.

The information on biochemical control need further analysis. The doubling of patients during the study period urge for a necessity to analyze subgroups of patients separately. A new method to assess biochemical control with repeated measurements of urinary glucose levels, done in the patient's homes, was also introduced. This procedure reflected probably the biochemical situation more realistically compared with the old method.

5.2. Official statistics
5.2.1. Unemployment
The proportion of unemployed persons are shown in Table I. Young people in Vännäs were below county levels except in 1976 and in 1980 i.e. there were less unemployment in Vännäs these years.
Among older people the figures were above county levels during the entire study period as were those of the county of Västerbotten in relation to the nation.

5.2.2. Sick-leave
The number of sick days decreased successively in Vännäs during the study period except for a temporary increase in 1978, (See Table II). The sick frequency was constantly lower than the county average whereas sick duration in Vännäs was somewhat longer compared to the county and national averages.

To use information regarding sick-leave for planning, data must be standardized for age and analyzed in relation to the number of sick pensions, as many sick pensions were preceded by long periods of sick leave.

5.2.3. Drug Consumption
In Vännäs the supply of drugs to the pharmacy increased from 1977 to 1980 for diseases of the respiratory system, of the digestive system and for pain relief. Only drugs for respiratory diseases were higher for Vännäs inhabitants compared to the county levels both years. Vännäs and the county were below the national levels for all groups of studied drugs, see Table III.

The available data only reflect prescriptions attended to at the Vännäs pharmacy. Inhabitants of Vännäs served at other pharmacies (in Umeå for instance) were not included. The Vännäs physicians accounted for a varying degree of expedited drugs at the Vännäs pharmacy. Prescriptions from Umeå physicians were also served in Vännäs. In order to analyze the work of the Vännäs physicians exclusively further analyses must be made.
6. GENERAL DISCUSSION AND CONCLUSIONS

6.1. Data analysis
All studies were based on a before and after design. The postulated model "aims - means - evaluation" (I) has also been used in all of the empirical studies.

6.1.1. Current studies
Control areas were used in two studies (IV, VI) but in the others they were not available. In each paper (II, III and VI) other references for comparisons were used and the possible influence of general trends were analyzed. In studies II, III, V and VI some hypotheses were confirmed while no decisive statements could be made about the results in some other papers (II, IV, V and VI).

6.1.2. Official statistics
Official statistics can be used in two ways in the delivery of primary care, for the description of the demography of the catchment area and for evaluative studies. Information of unemployment gave further knowledge of the catchment area, whereas the information on sick leave and drug consumption reflected the provided care. If official statistics used in this study should be used as an instrument of evaluation it must, however, be refined further. Doing so, it might give more specific information on the users and prescribers of drugs, for example.

6.2. Project Aims and Means
The study lasted for five years. However, some of the project aims were partly related to decades and the span of a life time. Therefore, it was difficult to evaluate these aims, but nevertheless these aims were important to postulate in order to get the work performed.
6.2.1. Goal fulfilments

The goals of the project were outlined in paper I. Some of the goals were not reached or were not possible to operationalize or to evaluate in this project for example holistic care and prevention. Other goals were, on the other hand, more concrete and possible to evaluate, for instance; accessibility, continuity, equitable distribution and cooperation (II, III, IV, V and VI).

6.2.2. Adequacy of means

In each study the reliability of applied methods were discussed as were the means to attain postulated aims. The discussion of appropriate means were limited for the entire study by the frames explicitly given to the project, i.e. excessive costly alternatives were unrealistic and hence, not penetrated. In one of the studies alternative means were, however, discussed (III).

6.3. Implications

Within the work at a health centre, studies and measurements of unique problems ought to be part of the routines (c.f. II-VI). Supplementary information of vital statistics regarding the catchment area can describe demography and may under certain circumstances also serve as a basis for assessments.

Such a working method resembles that of a private company, where an activity plan guides the work for a defined time period (financial year) and the work is analyzed in an annual report, (See Figure 1). In an activity plan for primary care information is to be found in some important areas. Demography of the catchment area should be known and aims and responsibilities ought to be defined. Organizational prerequisites and resources, must also be clear and cooperation (with municipality, hospitals and other organizations), and conclusions (regarding planned changes, means and assessments) need to be described. In an annual report changes should be analyzed regarding goal attainment and the adequacy of
means. Then the annual report is the basis for a new activity plan and so on.

The described working method implies an interested party, who can evaluate the information of an annual report. In a primarily private system boards of registered patients of specific surgeries, physicians or insurance companies can be organized to assess annual reports whereas in a primarily public system layman boards within the existing political system could serve as an evaluative body. In order to make these boards function, however, they must be in charge of the organization and to have full responsibility for the economy. Then, and only then an integration of economic, quantitative and qualitative aspects of health care delivery is possible.

Figure 1. Model for health care planning.
SUMMARY

A development work at the Vännäs Primary Health Care Centre (VPHCC) in Västerbotten County, in northern Sweden, was carried through 1976-1980. Project aims were postulated; accessibility, continuity, equitable distribution and cooperation. Means for fulfilment of aims were: enhanced cooperation with community members, a new appointment system, a new basic case record and care programs for some common diseases. Vital statistics on unemployment, sick leave and drug consumption was collected.

The results were:

- Shorter waiting times at the health centre (actual waiting time as well as time in relation to time scheduled after the organizational changes).

- Patient provider continuity - although not particularly high - was considerably higher than what could be expected according to chance alone. Continuity increased after the implementation of organizational changes.

- A decrease in consultations at the hospital emergency clinic and no changes in hospital admission rates. Instability in reference areas made it impossible to make any decisive statements whether health centre work style had affected hospital utilization.

- A relative increase in physician consultations at the VPHCC compared to other surgeries after the development work and increased positive attitudes to health information and telephone accessibility at the health centre. No changes in attitudes towards quality of care was noted.

- Routines recommended in a local care program were actually implemented according to record documentation. Biochemical control according to program standards was impaired, whereas
no changes were seen in the physician judgements of clinical control.

- Vital statistics on unemployment, sick-leave and drug consumption could serve descriptive purposes but to function as an evaluative instrument further refinements were necessary.

It is concluded that the planning procedures of the development work could be used in the practice of health centre management. The work procedure is analogue to those of private companies. An activity plan is made for a defined time period and then assessed in an annual report. The influence of laymen in assessing such reports must be organized differently in public and private health care systems.
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Table 1. Vital statistics, relative frequency of unemployed 1976-1980.

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<td>25-64</td>
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<td>16-24</td>
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<td>1.3</td>
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</table>
Sick days: Number of compensated days per insured.

Sick frequency: Number of completed sick episodes per year and insured.

Sick duration: Average number of sick days per sick episodes completed during a year.

Table 2. Vital statistics, National Health Insurance (RFV), sick days, sick frequency and sick duration.

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* Includes the municipalities of Örnsköldsvik and Byrumswall, combined.

Sweden

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<th>Men</th>
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<td>18</td>
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Västerbotten County

<table>
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Värnamo Municipality
Table 3. Defined daily dosage of drugs (DDD), 1977 and 1980, for different groups of drugs I-XVI.

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VIII and XV not accounted for due to few observations.

I  Respiratory system  
II Circulatory system  
III Parental nutrition  
IV Allergy  
V Digestive system  
VI Diseases of blood  
VII Antibiotics  
IX Vitamins  
X Endocrine and metabolic diseases  
XI Mental disorders  
XII Analgetics  
XIII Pregnancy, child birth and puerperium  
XIV Ear-, nose- and throat diseases  
XVI Diseases of subcutaneous tissue
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