

Basic curative care: demand, supply and infrastructure

(report number 585, May 2005)

SUMMARY AND CONCLUSIONS

SUMMARY

Introduction

As a consequence of developments in medical technology, the further ageing of the general population with corresponding changes in pathology, and various socio-cultural developments, the coming 15 years are expected to be marked by a considerable increase in the demand for health care, including hospital care. Not only the *volume* of the demand will change in the coming years, but also its *composition*.

Against this background, the Netherlands Board for Hospital Facilities (NBHF) has conducted a study to find answers to the following questions:

- what changes have taken place in the demand for secondary curative somatic care in the past years, and what changes can be expected in the coming 10 to 15 years?
- what are the observable developments on the supply side of health care? What are the past and present factors that influence changes on the supply side?
- are the developments on the demand side and those on the side of supply and constructional infrastructure sufficiently in balance?

Range and scope in the search for answers

Hospital care (specialist curative care) is provided in various forms along a continuous spectrum.

These forms of supply range from the boundary between front-line and second-line care (transmural care), via the basic general hospital, up to and including the university hospital.

The emphasis in this study is laid on forms of supply from front-line care up to and including the basic general hospital (basic hospital). The basic hospital provides the most common hospital care plus emergency care, which together comprise 80-85% of all hospital care.

The reason for taking this part of the care spectrum into consideration is that a sharp increase is expected in the number of persons with chronic and age-related illnesses over the coming years. In its study *Care Pathways for the chronically ill and care infrastructure* (October 2004), the NBHF has already drawn attention to the consequences for capacity of the expected sharp increase in the number of persons with a chronic disorder. It is the care provided on the above-mentioned part of the care spectrum, from front-line care through to basic care at general hospitals, that will mainly be confronted with this care demand.

The functional performance of basic hospitals has been under pressure for some time now. For example, it is difficult for smaller hospitals to fulfil the availability and accessibility requirements for acute functions. Any decision to close the acute functions will have far-reaching consequences for the functioning of the hospital as a whole. The development of top-care hospitals also plays a part in the pressure on basic hospitals. The number of top-care hospitals is growing. Being qualified as a top-care hospital makes such an institution all the more attractive when it comes to recruiting personnel and attracting patients. The effect is that basic hospitals are more or less squeezed out of the market for patients *and* personnel.

In the feasibility study on hospital care distribution, part 1 (January 2002), the NBHF concluded that, based on current planning, the distribution of hospital care is not jeopardised for the coming years.

Accessibility could well come under pressure, however, due to the closure of (acute functions of) basic hospitals in the more rural parts of The Netherlands.

The developments in the "top segment" itself, and acute hospital care coverage, fall outside the scope of this report.

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The introduction of market elements into health care will have (possibly great) consequences for developments on both the supply and demand sides. The study does consider aspects that are relevant within the context of the questions posed at the outset. An extensive analysis of the consequences of market forces falls outside the scope of this study, however.

Place in the work programme

This study is taking place within the context of the annual theme "Innovation and construction" of the NBHF work programme 2005, and complements various previous reports.

For the demand side in this study, the emphasis is on the influx into second-line care. The entire chain is taken into account, and therefore also the relationship with front-line care. Data from a great diversity of data sources are analysed and correlated.

Developments in demand in the past years

The number of new referrals per 1,000 residents from general practitioners to medical specialists has remained virtually constant over the last years. Given the ageing of the population, this is rather surprising. The number of GP contacts per 1,000 residents has also shown no increase in the last few years; in fact, it has fallen slightly.

Apparently, people are making more selective use of consultations with the family doctor. GPs are doing more themselves, and are more able to take their lead from solid and reliable guidelines for medical decision-making. Against the background of these developments, it does seem likely that the referred patients are 'heavier' cases.

The number of first outpatient visits (FOVs), the total number of outpatient visits, and the number of visits to the emergency care department per 1,000 residents have only risen slightly in the last years. The development in the number of FOVs does track the development in the number of first-time referrals by GPs.

These figures do not confirm in any way that the number of self-referrals has strongly increased.

The number of day-admissions per 1,000 residents and per 1,000 new referrals continues to rise explosively. Over the past 10 years, the number of day-admissions per 1,000 residents increased on average at more than 10% per annum to 1.2 million in 2003.

Just 2 diagnoses (on 3-digit coding level of the ICD9) account for 22% of the growth in the number of day-admissions between 1994 and 2003: cataract, and an "other" code for various types of post-care. This limited number of diagnoses should be viewed in the light of the \pm 890 diagnosis codes of all day admissions made in 2003.

The following factors have contributed to the substantial increase in the number of day admissions:

- substitution of multi-day admission care with day admission care;
- reverse substitution;
- an "autonomous" increase in treatments carried out in day care.

There are signals that activities that were previously recorded as outpatient visits or outpatient treatments are now being registered, for financial reasons, as day admissions: reverse substitution. For outpatient treatments, the underlying reason is that substitution of clinical for polyclinical handling is financially unattractive for the hospital. However, the boundary between outpatients and day admission is vague. Analysis of data from the national medical registration indicates that this reverse substitution has taken place.

After a period of decline, the number of multi-day admissions per 1,000 residents increased in 2002 and 2003. This is also noteworthy, and is unexpected in the light of substitution with day admission. This can partially be attributed to postponed demand related to illnesses for which there are waiting lists, and which belong to the B segment of the diagnosis/treatment combinations (DTCs).

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In 2003, 30% of the multi-day admissions could be attributed to 20 diagnoses under the 3-digit coding level of the ICD9. One third of this 30% is attributable to acute and chronic heart disease. The multi-day admissions in 2003 were related to a total of approximately 950 diagnoses.

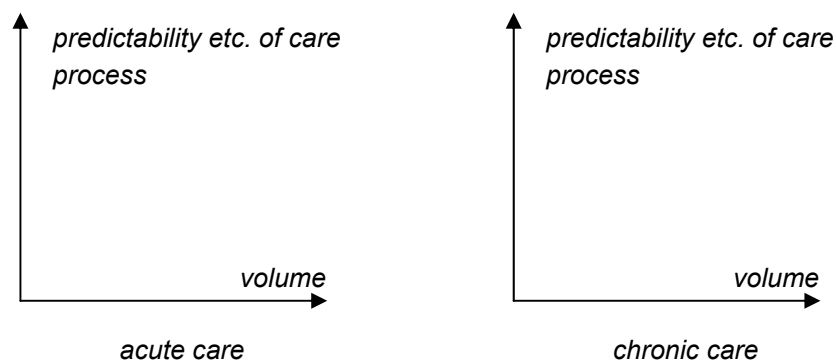
The increase in the number of single-day and multi-day admissions is supported by the introduction in 2001 of total cost accounting (subsequent calculation) for the production actually achieved ("cash on the nail").

The bed occupancy for multi-day admission per 1,000 residents continues to decline due to a progressive decrease in the period of hospitalisation.

Expected developments in demand in the coming years

Typology of patient flows / care demand

The demand for care can be divided into the principle flows acute/urgent, elective and chronic. The boundaries of these flows are not sharp. To match supply and demand, it is necessary to divide these three principle flows further along two dimensions: on the one hand, volume, and on the other, the degree to which the care process is based on predictability and evidence. High-volume care with a predictable and evidence-based care process is suitable for deconcentration and an organisation that works as a focused factory; the care at the other extreme of the diagonal is the top-referential care, which is mainly offered in university hospitals.



and ditto for elective care

Changing composition of demand

Lifestyle factors and the continued ageing of the population will lead to a strong increase in the prevalence of chronic illnesses among the population. The continued ageing will be accompanied by an increase in many types of cancer and age-related joint disorders. This trend will lead to a change, albeit non-proportional, in the composition of the demand for care.

Chronic care: In its study Care Pathways for the chronically ill (October 2004), the NBHF has already drawn attention to the consequences for capacity of the expected sharp increase in the coming years in the number of persons with a chronic illness, if the circumstances remain unaltered (for example, the prevalence of COPD and CHF will increase between 2000 and 2020 by $\pm 40\%$ simply on the basis of demographic changes). Patients with a chronic disorder may be stable (predictable care process), or unstable and/or with many secondary disorders; for many types of cancer, the prevalence in the stated period will often increase by as much as 50%.

Across the wide variety of disorders covered by *acute care*, we expect that here also a variation in the long-term prevalence will manifest itself. In addition, there are disorders with both an acute and a chronic phase. Some accidental injuries have a predictable care process, others an unpredictable.

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The ever-increasing high-volume *elective care* for age-related disorders, such as osteoarthritis and cataract, have a care process that to a large degree is predictable and evidence-based.

Volume and form of care

The following changes can be expected:

- a moderate growth in the number of outpatient visits;
- in parallel, ongoing strong growth in both therapeutic and diagnostic procedures performed in either outpatients or with daytime nursing;
- uncertainty in regard to the development in the number of multi-day admissions;
- a progressive decline in the period of hospitalisation.

The 2003 NBHF study *Developments in hospital bed use* (based on projections of possible developments in the number of multi and single day admissions etc., plus research into the possibilities for shortening the hospitalisation period), concluded that development towards 2 hospital beds per 1,000 residents would be possible, as envisioned in Ministerial policy (both for day admissions and multi-day admissions). Following evaluation in the current study, this conclusion is still valid.

Developments on the supply side

In the follow-up feasibility study on hospital care distribution (January 2002), the NBHF offered a framework of definitions for the various existing forms of hospital care across the care spectrum. In the meantime, other terms have come into use than those common at that time. This report therefore discusses in chapter 4 the framework of definitions for the various forms in which care is provided in hospitals in The Netherlands. The relevant international terms are also reviewed.

The present differentiation in forms of hospital care between the basic general hospital and front-line care (profile hospital, day hospital, satellite outpatients) is primarily the result of a concentration drive since the mid-1970s. Supply factors are the main cause of this (government policy and policy of care providers).

The basic general hospital in The Netherlands is a hospital with an all-round package of specialisms, the so-called basic specialisms. In 2002, the minister referred to this as the benchmark for hospital care. From a background study into small hospitals abroad, performed by the Julius Centrum on behalf of the NBHF for the present study, it appears that The Netherlands is the only country where every basic hospital has every ("Dutch") basic specialism. For example, not every basic hospital abroad has an obstetrics function. Narrowing down the function package of the hospital in this direction is not opportune in the Dutch context. In respect to hospital care distribution in the more thinly populated parts of our nation, retention of acute functions such as obstetrics is precisely the key issue.

Profile hospitals are facilities that profile themselves to certain patient groups or certain aspects of hospital care. This type of hospital is also referred to as a focus clinic. Specialised hospitals, independent treatment centres and satellite locations of general hospitals that are converted into focused factories, all fall within this definition.

The government had long held to a policy that specialised hospitals were undesirable, and should be integrated into general hospitals. The admission of independent treatment centres implies a turnaround in policy, and a revival in specialised facilities. This revival is an international phenomenon. These specialised facilities target a niche in the market: high-volume elective care, with a care process that to a large degree is predictable and evidence-based.

With the introduction of more market elements, specialised facilities will increase in both number and variety.

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A movement opposing the concentration of hospital facilities has arisen in various countries, extending also to government policy. The objective is to organise second-line care as locally as possible, and in conjunction with front-line care. Task delegation and information technology offer possibilities to achieve this. The abovementioned background study into smaller hospitals abroad also concluded that the cooperation between front-line and second-line care should be seen more as a result, rather than a cause, of the revival in small hospitals.

Confrontation between supply and demand

Chronically ill

In its study Care Pathways for the chronically ill (October 2004), the NBHF indicated that a bottleneck in the present situation is that stable patients and chronic patients with more lightweight disorders stay in hospital or under specialist medical supervision, while their illness could be just as adequately managed by the front-line or transmural programmes. The cure-focused medical/hospital model is not designed to cope with long-term care and supervision of chronic disorders.

Large numbers of (re)admissions is a phenomenon that is observed internationally (especially COPD, CHF and diabetes). In principle, these (re)admissions are avoidable. It was concluded in the NBHF's abovementioned earlier study, that it is feasible for intramural hospital capacity to absorb the consequences of the growth in the number of chronically ill, using disease management programmes focused on the chronically ill.

In these disease management programmes, an important place is taken by prevention, counselling and support for patients in managing their own illness; specialised nursing staff also fulfil a key role. Various ICT applications for communication, between care providers mutually, as well as between patient and care provider (telemonitoring), are an essential component of these disease management programmes.

So far, only a few places in The Netherlands have functioning regional disease management programmes with protocol-driven cooperation between front-line and second-line care. For the efficient deployment of medical manpower, it is essential to reshuffle the tasks performed by clinicians and nursing staff, as well as to classify patients according to the degree of progression of the disorder, with a subsequent tuning of the care pathway to the relevant disciplines.

Disease management programmes centred on the chronically ill patient will entail a massive shift in patient flows: from medically specialised hospital care to a mix of prevention, front-line and second-line health care, and "cure and care".

Bearing in mind accessibility, the integration of second-line and front-line health care and the associated public welfare, and a demedicalisation of care, it is desirable to locate the care and supervision in small-scale facilities away from the main site of general hospitals. This mainly concerns the care offered to persons living in their own homes, who have chronic disorders such as chronic heart disease, COP and diabetes. For a proportion of patients with a chronic illness such as CVA, a temporary or permanent stay in a nursing home often follows the acute hospital phase. It is also desirable for this nursing home function to provide adequate geographical distribution.

High-volume care with a highly predictable care process: focused factory

Running the organisation as a focused factory will promote the throughput, infrastructure utilisation, efficiency and focus on the customer. The development of focused factories for high-volume care is a response to the capacity bottlenecks in high-volume elective care. A focused factory can be achieved either within the walls of a general hospital or as an independent clinic. The latter situation is often referred to as a profile hospital or focus clinic.

Focused factories are currently being implemented in the main for the B segment of the diagnosis/treatment combinations (DTCs), covering some 10% of the care volume with single-day or multi-day admissions, and probably a higher percentage of the outpatient care.

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The focused factory concept is relevant not only for elective one-time treatment, but also for diagnosis and “treatment” of the chronically ill. However, the chronically ill are characterised by comorbidity. For this reason, focused factories for the chronically ill should operate as part of a greater organisational whole.

Heavily populated urban versus thinly populated more rural areas

Profile hospitals (focus clinics) for elective and chronic care are in general more suited to urban areas, where there are sufficient residents living close enough to the facility to generate the required volume. However, this does not preclude the feasibility of a focus clinic in the more central rural areas of our country.

In rural areas, with their low population density, “complete” basic hospitals for elective, chronic and acute care continue to be necessary. In order to broaden the economic base of a basic hospital in a rural area, it may make sense to add a department that is organised according to the focused factory concept.

Profile hospitals in the form of *step down* and *step up* facilities between front-line and second-line care, as encountered in the United Kingdom and New Zealand (*community* or *cottage hospital*), are not relevant for the Dutch context, given the mediocre quality reported, and our front-line care and nursing home care.

The new care offering to be developed at the interface between front-line and second-line care for the chronically ill is relevant for both the urban and the rural areas.

There are many possibilities for differentiation in the care supply in urban areas; in rural areas there are few. The basic hospital is the backbone of the care spectrum, and in rural areas, it is the leading form.

	acute care	elective care	chronic care
urban	BGH; TCH; UH	BGH; TCH; UH; PH/FC	BGH; TCH; UH; NTC; PH/FC
rural	BGH	BGH; (P/FC)	BGH; NTC

BGH: basic general hospital; TCH: top-care hospital; TH: university hospital; PH/FC: profile hospital / (independent) focus clinic; NTC: new (forms of) transmural care

CONCLUSIONS

- A considerable growth in demand can be expected in the coming years. For “hospital care” this will not so much mean growth in the number of patient referrals from the front-line, but more an increase in the care per referred patient;
- this increase will manifest itself primarily in ambulatory care forms. There is uncertainty in regard to the development in number of multi-day admissions. The conclusion from the NBHF’s 2003 study is still valid, i.e. it is possible for the number of beds for single and multi-day admissions to develop towards 2 per 1,000 residents;
- perhaps more significant than the volume development is the expected shift in the composition of the demand. A particular increase can be expected in the number of patients with chronic and long-term disorders, as well as elective patients with age-related joint (and other wear) disorders;
- the present differentiation in the forms in which hospital care is provided between the general hospital and the front-line is primarily a consequence of supply factors. The influence of market elements will cause this differentiation to increase further, particularly in the form of “clinics” focused on certain niches: profile hospitals, also known as focus clinics;

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- organising care as a focused factory will promote the throughput, infrastructure utilisation, efficiency and focus on the customer. Focused factories can be achieved within the walls of a general hospital or as independent clinics. The latter are referred to as profile hospitals, or focus clinics. The development of specialised clinics along these lines seems relevant today for only a relatively small proportion of the care volume (roughly the B segment of the DTCs), plus for second-line diagnosis;
- part of the care for the chronically ill is also suitable for an organisation in a focused factory. Given the typical comorbidity of persons with a chronic disorder, it is essential that they function within a greater organisational whole;
- it can be expected that the development of focused factories and market elements will ensure equilibrium between supply and demand, or an overcapacity for high-volume elective care, including age-related joint (and other wear) disorders. A tendency towards equilibrium between supply and demand for chronic disorders is less self-evident;
- the number of people with a chronic disorder will increase sharply in the coming years. The cure-focused medical/hospital model is not designed to cope with long-term care and supervision of these people. Development is essential of a new care offering that features an integration of front-line and second-line health care and associated public welfare;
- it is desirable that these new care types for people with chronic disorders be implemented as much as possible in easily accessible small-scale facilities away from the hospital's main site. This is mainly related to the care offered to persons living in their own homes, who have chronic disorders such as chronic heart disease, COPD and diabetes. For a proportion of patients with a chronic illness such as CVA, a temporary or permanent stay in a nursing home often follows the acute hospital phase. It is also desirable for this nursing home function to provide adequate geographical distribution;
- now and in the future, on the care spectrum for specialised medical hospital care, the all-round basic hospital will continue to be the pivot/backbone where 80 to 85% of demand for acute/urgent, complex chronic and elective care can be fulfilled. For the more rural parts of the country it is the leading form;
- profile hospitals/focus clinics are in general better suited to urban, rather than more rural areas, because in the cities there are sufficient residents living at a short distance from the facility to generate the required volume. However, this does not preclude the feasibility of a focus clinic in the more central rural areas of the country. Possibilities exist for the basic hospital in a more rural area to set up a department along the lines of a focused factory, in order to broaden its economic base;
- profile hospitals in the form of step down and step up facilities between primary and secondary care, as encountered in the United Kingdom and New Zealand, are not relevant for the Dutch context, given the mediocre quality reported, and our primary care and nursing home care.

The government continues to distance itself, thereby creating a free market by transferring responsibility to players in the field. It is up to these parties to focus on the future and successfully match supply to demand, while the government's role is to ensure access for all. For this to be achieved, it is vital that the (financial) incentives are correctly positioned on all fronts.