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Research and Theory

Are joint health plans effective for coordination of health services? An analysis based on theory and Danish pre-reform results

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Abstract

Background: Since 1994 formal health plans have been used for coordination of health care services between the regional and local level in Denmark. From 2007 a substantial reform has changed the administrative boundaries of the system and a new tool for coordination has been introduced.

Purpose: To assess the use of the pre-reform health plans as a tool for strengthening coordination, quality and preventive efforts between the regional and local level of health care.

Methods: A survey addressed to: all counties (n = 15), all municipalities (n = 271) and a randomised selected sample of general practitioners (n = 700).

Results: The stakeholders at the administrative level agree that health plans have not been effective as a tool for coordination. The development of health plans are dominated by the regional level. At the functional level 27 percent of the general practitioners are not familiar with health plans. Among those familiar with health plans 61 percent report that health plans influence their work to only a lesser degree or not at all.

Conclusion: Joint health planning is needed to achieve coordination of care. Efforts must be made to overcome barriers hampering efficient whole system planning. Active policies emphasising the necessity of health planning, despite involved cost, are warranted to insure delivery of care that benefits the health of the population.

Keywords

integrated care, coordinated care, health planning, National Health System, Denmark

Introduction

Many health care providers believe that integrated health care services will lead to higher quality care at a lower cost while maintaining or improving the recipients' health and satisfaction. Consequently, policymakers and system planners are striving to build and manage health systems that can accommodate delivery of coordinated care services. The reasons for change and reforms are seemingly similar across nations. Economic, political and socio-demographic forces have moved the modern health care system beyond the largely reactive acute care paradigm to a more holistic paradigm emphasising optimisation of the population's health [1]. At the core of this shift is the movement away from episodic treatment of acute illness events to the provision of a coordinated continuum of services that will support those with chronic conditions and enhance the health status of defined populations [1, 2]. In the search for effective strategies for systemic optimisation towards delivery of more coordinated care services, much can be learnt from

assessing the impact and pitfalls of local solutions, for instance those in Denmark.

The delivery of coordinated health services is an explicit aim in the first paragraph of the Danish Health Act. In Denmark, laws and formal regulation imposed at the state level have traditionally been sought to be minimised due to the decentralised structure of the health care system mainly funded through taxation [3]. The planning system reflects the decentralised nature of the Danish health care system, with the regions and municipalities as planners and providers of health care services and the state being responsible for providing the overall framework to accomplish this task [3, 4]. The Danish health care system belongs to the same family as the other Scandinavian countries and the United Kingdom. The health care system covers all inhabitants and most services are produced by public providers at the regional or local level [3]. An important exception to this is the general practitioners who are self-employed. The general practitioners are, however, reimbursed for their services by the regional authorities through a combination of capitation and fee-for-service. The Danish system involves a gatekeeper function where the general practitioners are expected to guide patients through the system as it relates to access to specialised care and to ensure follow up after hospitalisation [3]. The patient pathways in the Danish health care system are, however, sometimes problematic [5–7]. The elderly and the chronically ill are particularly vulnerable groups. For them lack of coordination can harm the delivery of coordinated care with unnecessary delays and complications, possibly leading to a sub-optimal clinical outcome [8]. In a Danish setting it is crucial for a positive and coherent patient process that cooperation between the hospitals run by the regional level, the general practitioners and the municipal health services is efficient and stable [3].

A structural reform radically changing conditions for coordination of health care services

A major structural reform of the Danish administrative system was passed by parliament in 2005 [4, 9]. The reform was implemented in 2007 with 2006 being a transition year. A central aim of the reform was to improve the conditions for coordinated patient pathways through improved collaboration on administrative and functional levels across sectoral boundaries. The reform reduced the number of regional authorities from 15 counties to 5 regions (0.6–1.6 million inhabitants) and the number of municipalities from 271 to 98 (37% of the new municipalities have more than 50K inhabitants, 38% 30–50K, 18% 20–30K and 7% <20K inhabitants). Both levels are governed by directly elected politicians. The regions' main responsibility is health services and to a lesser extent some environmental and regional development tasks. Most other tasks have been moved to the state or the municipalities. The new municipalities will assume full responsibility for prevention, health promotion and rehabilitation outside hospitals, besides the traditional municipal health care services such as home care, nursing homes and child dental care.

Pre-reform tool for coordination on the administrative level

Up until 2007, the goal of health care coordination was partly formalised through legislation enacted in 1992. The act which came into effect from January 1994 required counties and municipalities to collaborate on their health care activities. A part of this collaboration was the development of a health plan every four years for the coordination of all preventive and curative health care activity and to some extent between the health care sector and other public sectors e.g. the social sector [10, 11]. The health plans often included a statement about the health status of the population, a description of available services and an indication of the nature and extent of collaboration with municipalities and with other counties. The coordination process varied from county to county but was often based on meetings, seminars and joint committee work focusing on specific subjects, for example children, elderly people or mental health. The plans were submitted to the National Board of Health for comments.

Post-reform tool for coordination on the administrative level

With the structural reform and the redrawing of geographical and administrative boundaries within the Danish health care system comes the risk of unintended further fragmentation of the system, due to breakdown of established formal and informal relationships. Additionally, the new organisational structure increases the demand for careful coordination between the municipalities and the new regions, since the responsibilities for providing health services are now more widely distributed. Efforts have been made to avoid fragmentation, mainly by strengthening the principal stakeholders' obligation to cooperate through mandatory health agreements. Accordingly, after the reform, the Health Act was revised. A statutory cooperation between municipalities and regions is to be established in the form of obligatory, regional health agreements to support the required coherence

between treatment, prevention and care. The obligatory part of the health agreements are to include agreements on a) discharge from the hospital for weak, elderly patients, b) patient courses during hospital admission, c) aids and appliances for handicapped persons, d) rehabilitation, e) health promotion and preventive services, and f) social service provision for people with mental disorders. The health agreements are to be anchored in the regional consultative committees consisting of representatives from the region, the municipalities in the region and private practices. The regional consultative committees can be used to resolve disputes, for example about the service level, professional indications and referral criteria in the area of training, and create the basis for a continuous dialogue about planning of the effort. The health agreements are to fulfil requirements defined by central government, and service goals for the joint effort are to be published [12, 13].

The main difference between the pre-reform health plans and the new health agreements are more specific requirements to the content of the agreement. Another difference is that while the pre-reform health plans was negotiated in various ad hoc structures the new health agreements are anchored in a permanent committee with representatives from all stakeholders. Finally, an important difference is that the National Board of Health is not only required to comment on the plans but to approve the obligatory parts of the agreements. The new role of the National Board of Health imposes a stronger central control in a traditionally highly decentralised system [14]. Besides these differences the new health agreements are in principle an extension of the health plans already implemented.

Joint health planning as a tool of coordination in modern health systems

Many modern health systems outside Denmark e.g. the United Kingdom [15, 16], The Netherlands [17, 18] and managed care organisations within the United States [19, 20] also depend on joint health planning. This is done to build coalitions of stakeholders within the health care sector and adjacent sectors, or within strategic alliances in health care that focus on improving population health within the context of limited resources and coordinating an integrated provision of care. The empirical evidence for the benefits of joint working is vast [21, 22]. However, the empirical evidence for the effectiveness of specific practical tools such as joint health plans remains limited [23].

In the Danish setting, Seemann and Mooney have in separate studies addressed possible barriers in the pre-reform health plans that may have impeded coordination between administrative levels and between the administrative levels and the general practitioners at the functional level of care [10, 24].

These qualitative findings can't, however, be generalised to a national level. Thus the aim of this study is to quantify the stakeholders' perception of the health plans as a tool for strengthening coordination, quality and preventive efforts between the Danish counties, municipalities and general practitioners. In the Danish setting the outcome of such a study can be used to assess the potential of the newly implemented health agreements as a substituting post-reform tool for coordination of health services. In an international context empirical knowledge on the effectiveness of joint health plans is needed by policymakers and health care managers trying to ensure a provision of coordinated care within their health system.

Theoretical views on *health plans* as an administrative method of coordinating health services

For the purpose of this study we elaborated on the framework developed by Alter and Hage for conceptualising coordination [21]. Their framework, not originally intended for health system analytical purposes, was adjusted and extended to assess health care service coordination. The extended framework provided a theory-driven approach valuable for analytic and interpretative avenues. The framework is consistent with that of interorganisational network theory/soft system theory, since the health system is seen as a complex ''whole'' that comprises organisations or subsystems, with higher levels becoming progressively more complex [25, 26]. Health care systems differentiate their units to handle the scope and complexity of the work. The differentiation of services has a significant value in reaching a state of resource efficiency and a high level of specialisation. This value will often be evident on a system level, and can at the same time be beneficial for the individual patient in need of care, based on a continuous healing relationship [27]. From an interorganisational network perspective, coordination is thus a necessary response to the differentiation when there is an overall systemic vision of a connected delivery of services. The cost associated with joint working can be sizeable for an organisation within the network and sometimes outweigh the benefits. A willingness to collaborate is,

therefore, a necessary but not sufficient condition for interorganisational collaboration to occur, since it affects the calculus of cost and benefits involved. The willingness to collaborate is not a constant but is formed through historical experiences. Alter and Hage thus state that the perceptions of the stakeholders involved are highly important, when assessing the preconditions for coordination processes to take place [21].

Alter and Hage argue that coordination should be viewed as a measure of service system performance, whereby three objectives of service delivery must be met: comprehensiveness, accessibility and compatibility. These are the most basic elements of service delivery that must be achieved for successful coordination. Comprehensiveness is achieved when all necessary resources, expertise and ranges of services are present in the system. Accessibility is attained when all resources, expertise and services are available to the agents who need them. The final objective of coordination is compatibility. It is maximised when all resources, expertise and services are appropriately linked and sequenced so that components of a service plan are consistently delivered across providers and programmes. In their theory of effective interorganisational coordination, Alter and Hage identify a minimum of two levels that must be coordinated: administrative and operational [21]. Administrative coordination describes interagency activities at the senior management and administrator level. Operational coordination describes interagency activities at the front-line staff or case manager level. In this paper, focus is on joint health plans as a method for administrative coordination. Methods for administrative coordination can be divided according to the amount of feedback needed: a) impersonal methods, including the utilisation of plans, rules, regulations, agreements, contracts etc; b) personal methods, including the use of person-to-person contact between workers, or the designation of an individual to act as a coordinator; c) group methods, including feedback obtained through face-to-face communication by two or more individuals planning and making decisions by consensus. As there is no single approach to coordination to suit all situations, a contingency view on coordination must be deployed. However, coordinating more complex systems, where standardization is not an option, necessitates a coordination method with a high degree of feedback [21]. Poor performance could result when the administrative coordination methods do not match the degree of complexity created by structural and cultural factors in a given health care system. This sets the theoretical framework allowing for analysis and interpretation of the empirical data.

Methods

The questionnaire survey

Since the stakeholders' perceptions are important according to the theoretical framework, we focused on perceptions when gathering data for assessing the use of health plans. To quantify the stakeholders' perceptions of the pre-reform health plans as a tool for strengthening the coordination, quality and preventive services delivered across sectoral boundaries, a postal questionnaire survey was designed. The construction of the questionnaire items was based on a literature review and the items were included as part of a large-scale survey. The survey was conducted in 2005–2006 at the baseline of the Danish structural reform. The survey included items on 1) Administration and management, 2) Financial circumstances, 3) Coordination of health care services, 4) Preventive services, and 5) Rehabilitative services. The purpose of the large-scale survey is to provide empirical data on the Danish health care services at the baseline for the structural reform [28]. A specific questionnaire was constructed for each respondent group on the regional, local and functional level: 1) administrative managers from all counties plus Copenhagen, Frederiksberg and the Regional Municipality of Bornholm with county related functions (n = 15); 2) directors of social and health affairs from all municipalities (n = 271); and 3) a randomised selected sample of general practitioners (n = 700) corresponding to approximately 20% of all general practitioners. At the administrative level the administrative managers and the directors of social and health affairs were asked to assess the influence of the municipalities on the development of the health plans. In another item they were asked to assess the impact of the health plans as a tool for strengthening the coordination, quality and preventive services delivered across sectoral boundaries. Furthermore, they were asked to assess the relative strength of the counties and municipalities in developing health plans. At the functional level the general practitioners were asked to assess the influence of the health plans on their work. The wording of the questionnaire items in the three separate questionnaires was finally decided after a two-step testing procedure. The first step was a peer review process among health service researchers; the second step was a pilot study amongst representatives from each respondent group. This was done to improve face and content validity [29].

Names and addresses of the randomised selected sample of general practitioners were obtained from the General Practitioners' Organisation (PLO) register. For the other two groups of respondents no randomised

selection was necessary since all were invited to participate in the survey. The administrative managers were identified through the Danish County Council Association representing the Danish counties. The municipal directors of social and health affairs were identified through the Association of Directors of Social and Health Affairs (FSD) and the information was confirmed by telephone when necessary. The postal survey was designed to allow the respondent to maintain anonymity, and two postal reminders were made to increase the respondent rate. An ethical review was according to Danish law not required for the study.

Analysis of quantitative data

Data were double keyed-in using EPIDATA. SAS version 9.1 was used to analyse the data. The overall survey response rate for administrative managers was 80% (n = 12), for directors of social and health affairs 62.4% (n = 169) and for general practitioners 63.1% (n = 442). Respondents with missing data on the relevant items for this paper were excluded, leaving 11 administrative managers, 163 directors of social and health affairs, and 429 general practitioners for the analysis. The perceived influence of health plans in counties, municipalities, and in general practice was analysed by descriptive statistics. Fisher's exact test was used to assess the difference in perceptions between the respondents in the counties and in the municipalities.

Results

The administrative managers in the counties and the directors of social and health affairs in the municipalities agree that the municipalities to some, or to a lesser degree, have an influence on the development of the health plans (see Table 1). Even though there is an overall agreement a slightly higher proportion of administrative managers in the counties states that the municipalities have a high or some influence on the development of the health plans than do the municipalities represented by the directors of social and health affairs.

The stakeholders at the administrative level agree that the development of health plans is primarily decided by the counties. However, it is interesting that the assessment of the relative strengths depend on whether the respondent holds a position in a county or in a municipality, since a higher proportion of the directors of social and health affairs compared to the administrative managers finds that health plans are predominantly decided by the county (87 percent vs. 64 percent, see Table 2).

The stakeholders on the administrative level agree that the health plans have a limited influence in terms of fulfilling the objective of strengthening coordination, quality and preventive services between the county at the regional level and the municipalities at the local level. In spite of the overall agreement, a higher proportion of administrative managers assess the impact of the health plans negatively than that of directors of social and health affairs in the counties (see Table 3). Since both groups agree that the health plans are primarily decided by the county (see Table 2) it is surprising that the dominant stakeholder is least positive.

At the functional level of health care the general practitioner often plays a key position as the patient's initial and ongoing contact within the health care sector. Among these front-line stakeholders a large

Table 1. Assessment of the municipalities' influence on developing health plans: *To what degree do you experience that the municipalities influence the joint health plans, developed every four years, between the county and the municipalities?*

Respondents	To a high degree n (%)	To some degree n (%)	To a lesser degree n (%)	Not at all n (%)
Directors of social and health affairs (Municipalities)	11 (7)	58 (36)	80 (49)	14 (9)
Administrative managers (Counties)	1 (9)	5 (45)	4 (36)	1 (9)

p-Value for Fisher's exact test = 0.67.

Table 2. Assessment of the relative strength between the county and the municipalities in developing health plans: *How would you describe the relative strength between the county and the municipalities in the development of the health plans?*

Respondents	Predominantly decided by the county n (%)	Equally n (%)	Predominantly decided by the municipalities n (%)
Directors of social and health affairs (Municipalities)	141 (87)	20 (12)	2 (1)
Administrative managers (Counties)	7 (64)	3 (27)	1 (9)

p-Value for Fisher's exact test = 0.04.

Table 3. Assessment of the health plans as a tool for strengthening coordination, quality and preventive services between the county and the municipalities: *To what degree do you consider the joint health plans, developed every four years, fulfil their objective of strengthening the coordination, quality and preventive services between the county and the municipalities?*

Respondents	To a high degree n (%)	To some degree n (%)	To a lesser degree n (%)	Not at all n (%)
Directors of social and health affairs (Municipalities)	8 (5)	71 (44)	72 (44)	12 (7)
Administrative managers (Counties)	0 (0)	4 (36)	6 (55)	1 (9)

p-Value for Fisher's exact test = 0.83.

Table 4. Assessment of health plans' influence on work as a general practitioner: *To what degree have you experienced that the joint health plans between the county and the municipalities influence your work?*

Respondents	To a high degree n (%)	To some degree n (%)	To a lesser degree n (%)	Not at all n (%)	Am not familiar with health plans n (%)
General Practitioners	27 (6)	97 (23)	137 (32)	53 (12)	115 (27)

proportion (27%) of the general practitioners are not familiar with the health plans, despite a clear intention in the health planning act to involve them in the development of the plans. Amongst those familiar with the health plans (73% of the general practitioners), approximately 61% report that health plans influence work as a general practitioner to only a lesser degree or not at all. Only 6% of the general practitioners state that health plans influence work as a general practitioner to a high degree (see Table 4).

Discussion

The provisions in the health planning act has, through more than a decade, provided the formal framework for system level health planning and coordination between the stakeholders in the Danish health care system. The results of this paper show that the major stakeholders involved in the development of the health plans agree that health plans have not been particularly effective as a tool for health service coordination. Administrative and management staff within health and social care organisations is likely to be critical of joint working, since the experience is often different to the ideal version. The input from the front-line staff is, therefore, a critical addition to assess the effectiveness of the health plans. Among the front-line staff more than a quarter of the general practitioners are unfamiliar with the health plans and approximately two-thirds of those familiar with the health plans state that the plans have little or no influence on their work. From a theoretical perspective this detached role of the general practitioners not actively involved in the coordination process, means that one of the most basic elements of service delivery necessary for successful coordination—the element of comprehensiveness—are not met. The element of accessibility is attained when all resources, expertise and services are available to the agents who need them. As a large part of the general practitioners are not even familiar with the health plans, the element of accessibility is likewise not met.

Furthermore, the results of the present paper show that it is the perception of the stakeholders at the administrative level that the joint health plans are primarily developed by the counties and that the influence of the municipalities have been limited. This asymmetric power relationship is to some degree to be expected due to the size and different weighted policy domains of the collaborative partners, but is an important barrier to joint working and whole system planning across the regional and local level. The municipalities at the local level might have their priorities overruled by the larger counties at the regional level. As a consequence, the health plans could primarily serve the interests of the county rather than a broader health plan also involving the municipality's areas of interest. However, this limits the importance of the health plans in terms of coordination from the perspective of both the counties and of the municipalities. Since the counties invest most resources in the development of the health plans, this can also explain why a higher proportion of administrative managers assess the impact of the health plans negatively than do directors of social and health affairs. Overall the detached administrative and functional levels and the asymmetric power relation impede the compatibility in the network of stakeholders. Compatibility is the final element of service delivery necessary for successful coordination. It is maximised when all resources, expertise and services are appropriately linked and sequenced so that components of a service plan are consistently delivered across providers and programmes.

No quantitative studies have previously been conducted on this topic. However, our findings can be

supported and explained by the barriers to effective joint health planning addressed by Seemann and Mooney in separate qualitative studies, both within the context of the Danish health system [10, 24]. In her work, Seemann points at the Danish health plans as a positive first step that has brought focus on cross-sectoral relations between the involved stakeholders, in particular the counties and the municipalities. However, Seemann finds that health plans have been given status as an institutional duty assignment with limited practical impact on the functional level of health care e.g. the work of general practitioners [24]. This is clearly in line with our findings. This may also have resulted in health plans being more of a balance sheet than the intended proactive planning tool [24]. The latter have also been reported by Mooney [10]. Finally, Seemann has described how the municipalities have tended to build up a negative coordination strategy looking for issues in the health plans that could be considered annoying instead of taking advantage of complementary competencies [24]. These qualitative findings are in agreement with the results of the present study, and can now be generalised to a national level.

We perceive it as a strength of the present study that all major stakeholders involved in the development of the health plans are included. We were aware that the number of questions included in the questionnaire would have to be very restricted to obtain a reasonable response rate. Postal surveys tend to have low response rates especially among physicians [30–34]. Therefore, we choose to construct a multiple factor query in the item regarding the aim fulfillment of the health plans. Our main concern during the testing procedure was if the respondents on the administrative level were able to respond to this multifactor item. The pilot study showed that none of the respondents had difficulties responding to the item and the unusual high response rate also indicates that our concern may have been unjustified. A response rate of 62%–80% is in line or even higher than comparable surveys [35], although this rate means that the possible impact of selection bias must be considered. It was not possible to test the distribution of selected variables against the background population, since the distribution in these is unknown. However, a number of studies argue that the results of a questionnaire survey to a homogeneous group can be viewed as representative when the group is surveyed on issues of central professional importance, even if the response rate is not so high. The result of the present study is comparable to the findings of Seemann and Mooney which are the only known studies on this subject within a Danish setting. On those grounds, and especially due to the relative high response rate, we assume that the results derived are representative on a national level from the stakeholders involved in the development of health plans.

Implications

The Danish experiences with health plans as a tool for coordination provide an important lesson both nationally, where health agreements as a new tool for coordination are implemented based on the health plans already implemented, and outside Denmark where the experience can be used to avoid some of the pitfalls if similar strategies are used to improve system performance.

From a theoretical perspective there are substantial improvements with the new health agreements in terms of formalising a more coordinated care system. First and foremost, that the planning of the health agreements is treated, presumably to a higher degree, as a continuous learning and adaptation process. In the core of this shift is the establishment of regional consultative committees, where the health care agreements will be anchored. Used correctly, this can be a facilitating platform allowing for a more continuous use of administrative coordination methods with a higher degree of feedback, which is theoretically more appropriate for coordinating a highly complex inter-organisational network as the Danish health system. Used incorrectly, the new administrative committees can at worst result in a ''re-disorganisation'' of established informal collaborative relationships, ultimately making it even more difficult for patients and their relatives to navigate within the highly complex setting.

In principle, with the structural reform the larger municipalities are better suited to be involved in the development of the health agreements; however, there is a risk of the asymmetric power relation persisting, since in-hospital planning (regional responsibility) is traditionally given more weight than out-patient services and preventive efforts (partly municipal responsibility) [24]. The requirements to the health agreements defined by the central government could potentially ensure a more equal power relation and balanced weighing of preventive and curative services. However, it is important that the requirements are suited to a decentralised planning process where different municipalities on the local level are allowed to use different approaches to suit the needs of their population. If this is not taken into account in the implementation phase, there is a risk of further detachment between the administrative settings and the practice of the decentralised levels. The general practitioners, with their important gatekeeper function in the Danish health care services, can with benefit be more acquainted with and involved in the development of

the health agreements. New financial incentive structures have already been established, like new fees for general practitioners when coordinating care with the municipal health care services [36], and efforts must, therefore, especially be made to change possible cultural barriers between the stakeholders. In addition, governing bodies have to build stronger coalition of stakeholders and emphasise the necessity of joint health planning, despite the involved cost which can be sizeable for individual stakeholders. New financial incentive structures could be a part of the solution warranted to insure that all stakeholders are proactively engaged in the delivery of care that benefits the health of the population.

Conclusion

Joint health planning is needed to achieve coordination of care in a modern health system. However, all major stakeholders in the Danish setting agree that health plans have not been effective as a tool for coordination. Efforts must, therefore, be made to overcome barriers hampering efficient whole system planning. Joint health planning should foremost actively engage all stakeholders and a high degree of recurrent feedback between the stakeholders is warranted. Policymakers and health managers should be aware that coordination through joint health planning is a necessary cost if there is an overall systemic vision of a connected delivery of services that benefits the individual patient in need of continuous healing relationships.

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Main research area Allan Krasnik: Research on health care reforms and problems of equity in the delivery of health care.

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