

Research and Theory

Linking up with the community: a fertile strategy for a university hospital?

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Abstract

Purpose: To systematically identify, describe and characterise the collaborative initiatives, which have been established between the Academic Medical Centre/University of Amsterdam and local health care providers in the adjacent community.

Background: The viability of university hospitals is jeopardised. Their narrowed orientation on delivering the most advanced services to the sickest patients challenges their missions in patient care, science and education. By linking up with local health care providers, university hospitals create synergistic relationships that should secure these three academic missions for the future.

Methods: We conducted a multiple case study in two stages. Initially, division leaders and the director of integrated care were consulted to identify all existing collaborative initiatives of the Academic Medical Centre. Successively, face-to-face interviews were held with the leaders of these initiatives. During these interviews data were primarily collected through a questionnaire. Notes of the interviewer, and documents (if available) were also collected. The analysis focused on systematically describing and characterising the initiatives using the concept of ‘community-based integrated care’.

Results: Twenty-seven heterogeneous initiatives were identified. Half of these initiatives are targeted to the adjacent community of the Academic Medical Centre, but only four of them are initiated on the basis of community information and involve the community and/or patients. Furthermore, the extent of integration differed per dimension. Functional integration within the initiatives has been relatively low, clinical integration mixed, and professional integration quite advanced.

Conclusions: The results indicate that a considerable number of collaborative initiatives have emerged. Still, these initiatives are loosely ‘community-based’ and hardly focus on the full integration of care services. This suggests that the community linkages of the Academic Medical Centre in Amsterdam could be further developed by gaining the full support of all clinical departments for the strategic approach and by adapting an overall hospital perspective to monitor the progress towards community-based integrated care.

Keywords

academic medicine, university hospitals, integrated care, community health planning

Introduction

Wider societal pressures jeopardise the viability of university hospitals [1, 2]. The basic problem is that these hospitals have become high-tech knowledge intensive institutions providing highly-specialised and complex medical services to the sickest patients. Routine patient care is increasingly transferred out, which is facilitated by the advancements in medical

technology and knowledge. Financiers, governments and patients advocate this natural transformation as they consider outpatient care to be more efficient and patient centred [3–5].

The high-tech profile challenges the multiple missions of university hospitals. It raises issues in patient care—how to offer effective, efficient and patient-centred services that neatly fit in with the care delivered by other professionals and institutions; in medical edu-

cation—how to educate undergraduate and graduate medical students in the full spectrum of medicine while they only see the sickest patients; and in science—how to create new knowledge and evaluating new technologies for medical practices that are located outside the university hospital.

In order to address these issues, academic institutions have adopted several strategies. They primarily started to collaborate and merge with other hospitals. The rationale underlying this strategy is often economic, reactive and defensive—i.e. reducing uncertainty by building monopolies and cartels. These strategies seem to have been successful [6–8]. Apart from that, university hospitals also developed more proactive approaches by building organisational and community linkages through which the multiple missions of academic institutions can be fulfilled and secured [9, 10]. This strategy can be seen as an opportunistic way to get more patients in, to minimise costs, to use community sites for training and research, and thus to maintain the status quo in health care [11]. However, if university hospitals seriously attempt to optimally serve their adjacent communities, they can contribute to maximise population health within restricted resources. It would mean that they look across all the various community needs and preferences, set priorities among them, and then build collaborative arrangements in which those needs and expressed preferences can be adequately met. Such a strategy is articulated in the vision of community-based integrated care [12].

The topic outlined above has been particularly relevant to US academic health centres. There are fewer reports on the situation of academic institutions elsewhere. However, the natural transformation of hospitals into high-tech knowledge intensive institutions is common and visible in many industrialised countries [4, 5]. Moreover, the International Campaign to Revitalise Academic Medicine has considered the situation of academic medicine on a global level and underscores the aforementioned instabilities [13]. So, one can expect university hospitals in other countries to be pressured as well.

This is certainly the case for university hospitals in The Netherlands. Generally, the Dutch hospital sector faced a similar restructuring and strategically responded as elsewhere [14, 15]. In January 2006 the Health Insurance Act will come into force, which will formalise regulated competition among care providers and among care insurers [16]. In anticipation to this Act, a new system for hospital and medical specialists' reimbursement has partially come into force. This so-called diagnosis treatment combinations approach reimburses hospitals through output prices that are

based on the production process instead of the original budgeting system. This approach is broader than the Diagnosis Related Group concept, as it also covers ambulatory care and includes the remuneration of medical specialists [17]. Moreover, increased competition for research funding and for subsidisations of undergraduate and graduate medical education is also visible [18, 19].

Consequently, Dutch university hospitals face more competition and financial pressures in all their core activities, which challenge them to develop sustainable strategies for the future. In anticipation to these changes, 7 out of the 8 university hospitals have transformed into University Medical Centres. They merged with their adjacent faculties of medicine in order to synergistically organise patient care, research and education [19]. The first university hospital to do that was the Academic Medical Centre/University of Amsterdam established in 1992. This merger was followed by the introduction of a community-based integrated care strategy, called the 'academic population' [20, 21]. Since its introduction in 1996, the evolution of community-based integrated care throughout the Academic Medical Centre has not been systematically monitored or evaluated. Thus, there was a need for conducting a multiple case study as presented in this paper. We focused on all collaborative initiatives in patient care, which we systematically identified, described and characterised. Collaborative initiatives in science and in medical education were excluded. In this paper, the results of this multiple case study are reported and discussed.

Methods

Identification of the initiatives and data collection

All collaborative initiatives of Academic Medical Centre departments with partners outside the hospital such as general practitioners, home care agencies and nursing homes were the cases to be studied. In the absence of a readily available list, we had to identify them first. Therefore, division leaders were asked to sum up their collaborations with one or more external care providers and to name the person in the Academic Medical Centre most knowledgeable of the ongoing activities—often the professional in the lead of the collaboration. The resulting list was appraised and validated by the director in charge of integrated care.

Then, we used multiple data sources to collect data on the initiatives. Data were primarily collected through a questionnaire filled out during face-to-face interviews with the aforementioned leaders or an appointed rep-

Table 1. Selected documents

a.	Protocol book. Stroke Service Amsterdam. June 1998.
b.	Start document Professional Knowledge Centre Elderly Care (KOZ). November 2002.
c.	Annual report Discharge planning department 2001.
d.	Brouwer HJ. General practitioner network AMC. Amsterdam: AMC. October 2002.
e.	AMC. Protocol Home treatment with Lasix for patients with chronic heart failure. April 2003.
f.	Research contract between the AMC and the OLVG hospital. City-wide transmural programme for premature children and their parents in a multicultural society (STIPP).
g.	Zizo. Annual report 2004. Amsterdam Southeast: Zizo.
h.	De Meren. Strategic policy plan 2000–2003: Preventive, effective & caring.
i.	DIANET. Annual report and quality report 2004.
j.	DIANET. Business plan integrated dialysis care, location AMC. August 15 th 2002.
k.	AMC Polyclinic Dermatology. Transmural project ulcus cruris: innovation plan. May 2001.
l.	Zizo. Evaluation transmural project ulcus cruris Southeast. November 2003.
m.	SIGRA. Annual report 2003.
n.	Project plan. Emergency psycho geriatric care unit Southeasts & Diemen. 2003.

representative. These interviews were held in the period November 2003 to February 2004. Other data were collected by making notes of additional remarks respondents made during these face-to-face interviews and by gathering documents such as project proposals, annual reports or evaluations (see [Table 1](#)). Both data sources were used to corroborate the findings ('triangulation').

Description and characterisation of the initiatives

We used the vision of 'community-based integrated care' to describe and characterise the cases. It builds upon two formerly unattached concepts: *community-based care* and *integrated care*. The former was defined as the extent to which the collaborations are based upon and driven by community health needs as well as assure a certain level of community participation. The latter concept was defined as the methods and types of organisation, which aim at reducing fragmentation in health care delivery by increasing coordination and 'continuity of care' between different care providers [3]. There is a growing awareness that both concepts need to be jointly embedded in health care in order to maximise community health within the context of limited resources [12, 22]. However, it is not obvious that university hospitals set up collaborative initiatives with external parties such on the basis of this combined vision. We analysed whether the collaborative initiatives are developed from this combined vision or not. Thereby, the quantitative anal-

ysis through the questionnaire provided general comparative information while the documents and the notes were used to substantiate the specific case descriptions.

The questionnaire measured 'community-based integrated care' on the basis of 74 closed as well as open-ended questions (see [Table 2](#)). Items Q66-Q71 measured whether the cases were community-based care or not. Notwithstanding some adjustments to the Dutch situation, the concept of integrated care was conceptualised on the basis of the work of Shortell et al. [23]. In comparison to the US context, Dutch academic medicine already shows high levels of *physician integration*. All specialists are salaried, work in a closed hospital model, and several of them have taken up leadership roles. Moreover, Dutch general practitioners function as gate-keepers to inpatient care [24]. We therefore defined physician integration as the extent to which the organisation of professional work merits participation in collaborative initiatives [25]. Moreover, we have broadened it to include also paramedics and registered nurses. Professional integration defined as such was measured by 12 items (Q37–Q38). *Clinical integration* was measured using the typology of a quality system consisting of five elements (i.e. structural assets, allocation of responsibilities, protocols, information transfer and monitoring/feedback cycles). The items Q50–Q65 measured clinical integration as defined above. The questionnaires were analysed using the SPSS 12.01 software and descriptive statistics were generated.

Table 2. Questionnaire

Dimension	Item	Item description	Response scale
General information	Q9	Title	Open ended
	Q10	Start-date	Month-year
	Q11	End-date (if applicable)	Month-year
	Q12	Initiator	Open-ended
	Q13a	Description aim of the initiative in own words	Open-ended
	Q13b	Aims	21 categories
	Q14	Inhibiting legislation	Yes-No
	Q15	Type of funding	Incidental funding-Structural funding- Budget neutral
	Q16	Financier	Academic Medical Centre-Ministry-Province-Municipality-Care insurer-Industry-Other
	Q17	Financial budget	Amount in euros
	Q18	Available budget sufficient	Yes-No
	Q19	Structural arrangement	Yes-No
	Q24	Participating Academic Medical Centre departments and institutions	Open ended
	Q25	Interests of collaborating partners	Resolving problems-academic workplaces-financial-future legislation-increasing market share-increasing prestige-increasing power-broadening services-deepening services-innovation-safety-other
Community-based care	Q66a	Community orientation circumscribed by zip code	Yes-No
	Q66b	What zip code area	Zip codes areas
	Q67	Community information available	Yes-No
	Q68	Type of community information available	Size target population-Age/Sex-Morbidity-Demands/preferences-Other
	Q69	Community information used	Yes-No
	Q70	Patients involved	Yes-No
	Q71	Type of instrument to involve patients	Satisfaction questionnaire-Client councils-Patient associations-Dutch consumer organisation-other
Functional integration	Q26	Extent of formalisation	Informal agreements-letter of intent-contract-merger-holding-joint venture
	Q27	Formation of new organisation	Yes-No
	Q28	Type of new organisation	Association-Foundation-Cooperative-Private company-Operating company
	Q29	New jobs	Yes-No
	Q30	What jobs newly created	Project leader-nurse practitioner-quality of care official-nurse specialist-other
	Q31	Project team	Yes-No
	Q32	Project team members	Open ended
	Q33	Supportive functions centralised	Research & Development-HRM-Administration-Finance-Public Relations-Information Technology-

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Table 2. (Continued)

Dimension	Item	Item description	Response scale
			Other-None
	Q34	Supportive functions centralised in new organisation	Research & Development-HRM-Administration-Finance-Public Relations-Information Technology-Other-None
	Q35	Reasons for centralising supportive functions	Cost reduction-exchanging expertise-creating economies of scale-efficiency-creating synergy-other
	Q36	Staff detached	Yes-No
Physician integration	Q37	Participation of professionals	Yes-No
	Q38	Type of professionals involved and employing institution	All salaried-Mostly salaried-Salaried & -Mostly
	Q39	Practice organization of all professionals involved	Single-Dual-Group-Primary care centre-Care institution
	Q40	Mandating among professionals	Every professional represents himself-Representative with limited mandate-Representative with modest mandate-Representative with full mandate-Manager
	Q41	Managerial responsibilities of professionals	Yes-No
	Q42	Additional medical education for professionals	Yes-No
	Q43	Exemption for management tasks	Yes-No
	Q44	Self-coordination of the collaboration	Y-A-A-N
	Q45	Substitution of professional work	Y-A-A-N
	Q46	Exchange of professional expertise	Y-A-A-N
	Q47	Existence of formal hierarchy	Y-A-A-N
	Q48	Occurrence of 'turf battles'	Y-A-A-N
Clinical integration	Q50	Staffing appropriate	Y-A-A-N
	Q51	Timely availability of resources	Y-A-A-N
	Q52	Information technology in working processes	Y-A-A-N
	Q53	Use of one multidisciplinary guideline	Y-A-A-N
	Q54	Integrated care protocol	Y-A-A-N
	Q55	Multiple patient records	Y-A-A-N
	Q56	Systematic monitoring	Y-A-A-N
	Q57	Monitoring data used for feedback	Y-A-A-N
	Q58	Availability organisational chart	Yes-No
	Q59	Tasks & responsibilities described	Yes-No
	Q60	Coordinator initiative work floor	Physician-Team leader-Paramedic-Other
	Q61	Coordinator budget holder	Yes-No
	Q62	Types of formalised takeovers	Multidisciplinary meetings-Team meetings-takeover-Other-None

Table 2. (Continued)

Dimension	Item	Item description	Response scale
	Q63	Consultation of outpatient professionals	Yes-No
	Q64	Medical information transfer	Referral letter-Phone-Fax-Email- Electronic Patient Record-Other-None
	Q65	Nursing care information transfer	Referral letter-Phone-Fax-Email- Electronic Patient Record-Other-None

Legend: *Y-A-A-N: Yes affirmative, Actually yes, Actually not, No certainly not.

The analyses of the documents and notes focused on labelling and grouping the cases using common types of integrated care such as intermediate care [26], shared care [27], disease management [27], transitional care [28], hospital-at-home [29], and professional/organisational networks [30]. Furthermore, analyses were guided by the results of the questionnaire in order to corroborate these.

Results

Identified collaborative initiatives of the Academic Medical Centre

In total 27 collaborative initiatives were identified. Most of them concern collaborations in the primary processes of patient care (n=23). The others focus at collaboration at the local health policy and/or management level. For example, the Zizo (case 26) is an organisational network within which representatives of local care providers in Amsterdam Southeast are participating. Its core activities encompass the initiation, development, facilitation and implementation of collaborative initiatives for the elderly and chronically ill in Amsterdam Southeast [g]. This is illustrated by its involvement with the cases 1, 6, 19, 21 and 24.

The 27 cases largely differ in type of collaboration, purpose, scope and targeted patient group, which is shown in Table 3. This heterogeneity is further illustrated by the differences in “maturity” of the initiatives. Structural funding for 2/3 of the cases is uncertain, as they are financed on incidental basis (n=8) or without additional funding at all (n=10). This is substantiated by the reported problems of inhibiting legislation (n=15). Respondents commented that these problems mostly have to do with getting or maintaining funding. For example, the respondent, who executed the outpatient consultations for rehabilitation, said that she had difficulty to get her consults paid. Conversely, the majority of initiatives already exists for a couple of years and have no end date (n=23) suggesting that initiatives will be continued in the future. The care insurers (n=12), the regional AWBZ executive body

(n=7) as well as the Academic Medical Centre itself (n=11) are the major financiers.

Departments of the division of internal medicine are involved in 1/3 of the initiatives. Still, all 9 divisions of the Academic Medical Centre are involved in at least one of the 27 collaborative initiatives. External partners who participated most often in the initiatives are the nursing home Gaasperdam (n=10), Amsterdam Home Care (n=10) and the general practitioners (n=10). Almost all initiatives (n=24) involved at least three or more collaborative partners and were developed after 1996 (n=17).

Community-based care

The extent of community-based care in the initiatives is moderate. More than half of the initiatives (n=15) are targeted to a circumscribed zip code area. However, additional information from the respondents and documents learned that the targeted zip code areas differed and not coincided with the area circumscribed in the academic population strategy, except the GP-desk (case 15). Half of the geographically targeted initiatives have also community information available (n=7). Ultimately, 4 out of these 7 initiatives also involve the community or service users (see Figure 1).

These 4 initiatives are the stroke service, the emergency psycho-geriatric care unit, the diabetes mellitus protocol, and the physical therapy for premature babies at home initiative. From the notes and/or documents, it can be notified that the former two initiatives only cover the urbanised zip code areas of the ‘academic population’ (i.e. Amsterdam Southeast) [a][n], while the latter two have a citywide orientation partly overlapping with the ‘academic population’ area [f]. Furthermore, they seem to have been initiated primarily because of signalled problems in care delivery. Although these initiatives address major community health needs, we could not reconstruct decision-making processes within which community needs and expressed preferences are taken as the starting point. This is illustrated by the community information used. Overall, information available in the

Table 3. Characteristics of included collaborative initiatives (n=27)

Nr.	Title initiative	Type	Goal	Description	Scope	Status
1.	Stroke Service	Disease management	Establishing a complete, ensured and standardised supply of diagnosis, treatment, care, nursing and rehabilitation for stroke patients.	The complete care journey that stroke patients residing in Amsterdam Southeast follow has been formalized and agreed upon by all care providers involved in stroke care.	166 patients were admitted to the stroke unit in 2004.	Since 1996 the project is operational. In April 1998 the stroke service has become a structural arrangement financed by the regional care insurer.
2.	Diabetes Mellitus Protocol	Disease management	Screening for DM type 2 and making structural agreements between general practitioners and medical specialists concerning the treatment of these patients.	The protocol prescribes how GPs should treat DM type 2 patients in primary care and under what circumstances referrals to secondary care should be made. IT supports the protocol.	There are ±3000 known diabetic patients in Amsterdam Southeast	The protocol has been implemented in 1999 and has become a success. There is no end date.
3.	DIANET	Disease management	Integrating the care for ambulatory patients with kidney replacing treatments.	DIANET provides centralised dialysis care services of the Academic Medical Centre and Dianet at one place and manages the organisation from an overall perspective.	Total number of 10,203 dialyses in 2003	In January 1999 the initiative was piloted. Since January 2001 the new Dianet organisation is operational.
4.	Discharge Planning Department	Transitional care	Improving the transfer of patients in need of home care to their home situations.	Two liaison nurses of the Academic Medical Centre and one detached by the home care agency Amsterdam staff the department located in the Academic Medical Centre. All discharge processes of Academic Medical Centre inpatients to the home situation are supported and facilitated by the department.	The department is involved with the discharge of ±2000 patients per year.	Since January 1998 the discharge planning department is operational and structurally financed by the Academic Medical Centre-budget.
5.	Out-of-office mediators	Transitional care	Mediating appropriate care for out-of-hours patients without an indication for admission to the Academic Medical Centre.	The residential homes and the home care agency in the adjacent community have respite care beds available for patients who do not need to be admitted to the Academic	±36 patients per year	The initiative started in 2001, but will be terminated. It is too expensive.

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Table 3. (Continued)

Nr.	Title initiative	Type	Goal	Description	Scope	Status
				Medical Centre but cannot go home. During out-of-office times Academic Medical Centre coordinators mediate transitional care for patients seen at the emergency room.		
6.	Ulcer cruris protocol	Outpatient consults	Improving the ulcer cruris care in nursing homes and residential homes.	Consultation of the head nurse policlinic dermatology by ulcer cruris patients in nursing homes and residential homes based on a protocol.	±75 consultations per year	The protocol has been developed in 1989. Since then the protocol has been evaluated and updated four times. There is no structural funding for the arrangement.
7.	Rehabilitation consults	Outpatient consults	Treating rehabilitation problems in nursing home in order to prevent admissions to the Academic Medical Centre.	Consultation of one rehabilitation specialist working in the Academic Medical Centre on the request of the nursing home Gaasperdam. The specialist is available for one afternoon a month.	Consults are held one afternoon per month	The consultations have informally emerged without financial support of the care insurer.
8.	Offering Pharmacy Services in nursing home Gaasperdam	Outpatient consults	Appropriate and safe provision of pharmaceuticals to the nursing home patients.	The Academic Medical Centre pharmacy department is the supplier of pharmaceuticals in the nursing home.	±170 people are residing in the nursing home	The contract with the nursing home has been terminated in 2004.
9.	Pain management at home	Hospital-at-home	Optimising the pain management for terminal cancer patients in the home situation.	Terminal cancer patients of the Academic Medical Centre are discharged to their homes with pain management technology. The Academic Medical Centre anaesthesiologists and the home care agency collaborate and provide the service.	±20 patients per year	The initiative is operational
10.	Intensive home care for children	Hospital-at-home	Substituting clinical paediatric care for intensive home care by	The paediatrics department of the Academic Medical Centre trains and supports	±50 children per year	Since early 2000 the collaboration is operational and financed by the regional

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Table 3. (Continued)

Nr.	Title initiative	Type	Goal	Description	Scope	Status
			specialized community nurses.	a community nurse team of the home care agency of Amsterdam.		care insurer.
11.	Chronic heart failure protocol	Hospital-at-home	Preventing hospital admissions of decompensated chronic heart failure patients.	Patients receive LASIX medication at home with support from community nurses and under supervision of the policlinic heart failure in the Academic Medical Centre.	± 15 patients per year	The collaborative was piloted in 1999. Since then the protocol is operational.
12.	Prevention of exacerbating COPD patients	Hospital-at-home	Increasing the knowledge of the mechanisms underlying COPD in order to improve its prevention.	COPD-patients receive shared care given by GPs and Academic Medical Centre specialists in order to prevent exacerbations.	Too limited number of patients to implement the arrangement	The arrangement has been stopped, as the number of eligible COPD-patients was too small.
13.	Physiotherapy for premature babies at home (STIPP)	Hospital-at-home	Evaluating the effect of physical therapy of premature babies at home	Physiotherapists of the rehabilitation department Academic Medical Centre provide therapy for premature babies at home. This initiative is supported by the municipal health service, Amsterdam home care, and other Amsterdam hospitals.	± 180 babies per year	The physical therapy for premature babies at home is now piloted until March 2008.
14.	High risk pregnancies monitoring at home	Hospital-at-home	Improving the efficiency and patient centeredness of the care delivered to high risk pregnant women.	Clinical midwives of the Academic Medical Centre monitor high risk pregnant women at home that were initially admitted to the Academic Medical Centre, the OLVG hospital and the Sint Lucas hospital.	± 110 pregnant women are monitored per year	The initiative was started in 1992 as there was an interest in more efficient use of hospital beds. However, this interest seems to fade away due to contextual changes.
15.	General Practitioner Desk	Shared care	Developing shared care protocols between GPs and medical specialists in combination with continuing medical education (CME) of	The GP-department of the Academic Medical Centre supports the network; in which 135 GPs residing in the academic population area participate.	17 protocols have been developed and implemented in practice	Since end 1997 the GP-network is operational and financed by the participating GPs themselves.

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Table 3. (Continued)

Nr.	Title initiative	Type	Goal	Description	Scope	Status
			general practitioners.			
16.	Pharmacy Service Desk	Shared Care	Improving the communication concerning pharmaceutical treatments of clinical patients between primary and secondary care.	IT is used to transfer information on individual pharmaceutical treatment from outpatient pharmacists to the Academic Medical Centre and vice versa.	Involved with 11,100 admissions and 6515 discharges in 2004	The desk was started in 2001 and has no end date.
17.	Thrombosis protocol	Shared care	Optimising the diagnosis of thrombosis in general practice and the secondary treatment in the Academic Medical Centre.	The general practitioners and the department of cardiovascular medicine work according to a shared protocol standardising the treatment of thrombosis.	In GP practice 3 thrombosis patients per 1000 per year	The initiative was started in 1982 and has become a structural arrangement.
18.	Laboratory Requests by GPs	Shared Care	Lab tests for adults and children on the request and under supervision of GPs; executed by the lab of the Academic Medical Centre.	The Academic Medical Centre provides primary care diagnostic services to the GPs.	± 150 requests per day	The laboratory provides the service to GPs since 1993.
19.	Fall Prevention Elders 65+	Shared Care	Monitoring the care trajectories of acute care elderly patients older than 65 years old.	The Academic Medical Centre departments geriatrics, traumatology and orthopaedics, the nursing home Gaasperdam, and the VUMC develop a hip fracture service.	± 130 new patients per year	The initiative was piloted in 2002 and will finish in 2005. The continuation of the initiative was unknown at time of the interview.
20.	Transfer unit Henriëtte Roland Holsthuis	Intermediate care	Reducing the number of bed-blockers in the Academic Medical Centre.	In a residential home are 20 transfer beds available for Academic Medical Centre inpatients whose medical treatments are completed, but still in need of low intensity care.	± 150 patients are admitted to the transfer unit per year	In October 1999 the transfer unit was started. The unit is now structurally financed by the regional care insurer.
21.	Emergency Psycho Geriatric Care	Intermediate care	Retaining nursing home beds for	The nursing home Gaasperdam retains four beds for acute	55 patients in 2004	Since January 2004 the unit is operational and

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Table 3. (Continued)

Nr.	Title initiative	Type	Goal	Description	Scope	Status
	Unit		temporal and emergency admissions of psycho-geriatric patients.	psycho-geriatric patients residing in the community.		funded through the Exceptional Medical Expenses Act (AWBZ)
22.	Orthopaedic rehabilitation	Intermediate care	Reducing the length of stay of orthopaedic patients in the Academic Medical Centre by offering rehabilitative care directly after surgery.	In two nursing homes and two residential homes intermediate care beds for orthopaedic Academic Medical Centre patients are available.	143 patients in 2003	Since the end 1980s the initiative has gradually expanded by consecutively realising intermediate care beds in each institution.
23.	Academic Medical Centre / de Meeren	Organised delivery system	Ensuring the viability of academic psychiatry, achieving economies of scale, and improving the efficiency of ambulatory mental health care.	The collaborative initiative has resulted in the foundation of an academic sector for psychiatry in which patient care, education and research are integrated. The sector currently exists of three top clinical care programmes for specific mental disorders.	Ensuring regular psychiatric care for a community of $\pm 200,000$ residents	In 1998 the Frederik van Eeden Association merged with the Regional Ambulatory Mental Health Care Organisation (RIAGG Zuidoost) and started to collaborate with the psychiatric division of the Academic Medical Centre. In 2000, Academic Medical Centre/ de Meren merged with the RIAGG in Amsterdam East.
24.	Professional Knowledge Centre Elderly Care	Professional network	Developing a regional knowledge centre that aims at developing integrated care arrangements and care coordination for the frail elderly in the community.	Leading elderly care professionals working in the Amsterdam Southeast area participate in the network and regularly meet with each other to develop and monitor collaborative arrangements in elderly care.	$\pm 7,000$ elderly (65+) are residing in Amsterdam Southeast	Since November 2002 the professional knowledge centre is operational.
25.	COPD Heideheuveld	Organisational network	Exchanging expertise in order to improve the quality and structure of clinical rehabilitative care for chronic lung patients.	Alliance between the Academic Medical Centre, and the KBCZ (Asthma Heideheuveld, Salem Veluwe and Davos).	2 institutions collaborate	In January 2003 the contract was signed.

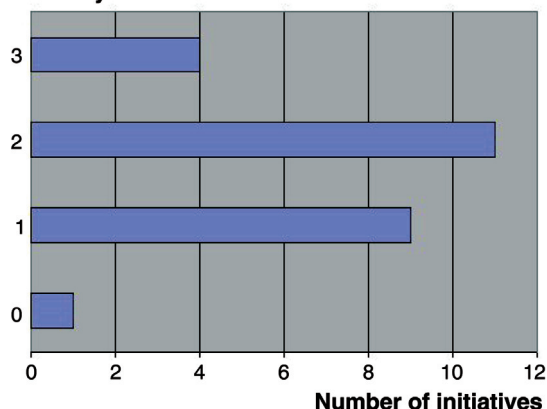
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Nr.	Title initiative	Type	Goal	Description	Scope	Status
26.	Association of Care Providers Amsterdam Southeast (ZIZO)	Organisational network	Creating a seamless continuum of care for the frail elderly and chronically ill residing in South-eastern Amsterdam region.	Regularly representatives of the participating institutions discuss and explore collaborative arrangements. The association employs three case managers who support, coordinate and facilitate integrated care arrangements at the operational level.	10 care provider organisations located in Amsterdam Southeast participate in the network	The association was founded in 1973 and survived until now. The participating institutions fund the association themselves.
27.	Alliance of Healthcare Institutions in the Amsterdam Region (SIGRA)	Organisational network	Contributing to coherence, quality and efficiency of health care delivery in Amsterdam/Diemen.	The collaboration is organised into an association and foundation. The former is a collaboration of care institutions in Amsterdam, the members. The latter is a bureau supporting the activities of the collaborative.	50 care provider organisations in Amsterdam are participating in the network	In 1982 the SIGRA has been founded. Recently, the association and its bureau have been strategically reoriented and downsized.

initiatives is most on age/sex (n=13), the size of the target population (n=11) and morbidity (n=11). Residents and patients are involved in more than half of the initiatives (n=15), most often through patient surveys (n=10) and patient associations (n=9).

Community-based care



N=25; not stated = 2

Figure 1. Extent of community-based care in the initiatives: positive sum scores on facets community orientation (zip code), community information available and community involvement.

Integrated care

The levels of integration differ for each dimension. First, the extent of functional integration is relatively low. Only eight of the initiatives are formalised on the basis of a legal contract and one initiative implied a merger. The other initiatives are based on a signed letter-of-intent (n=4) or on informal agreements (n=14). In 16 of the initiatives at least one support functions is centralised; most often administrative work (n=9) and information technology (n=7). However, in 6 out of these 16 initiatives 3 or more support functions are centralised.

Second, the extent of professional integration is quite high. In the Academic Medical Centre all professionals are salaried, medical specialists work in a closed hospital model, and all departments are headed up by physicians. Moreover, professionals working for institutions in the adjacent community mostly are employed by an institution, except the general practitioners. In addition, the other facets of physician's integration show that the organisation of professional work fairly merits participation in the collaborative initiatives. In 18 of the initiatives professionals fulfil

managerial responsibilities. However, only in eight initiatives professionals are exempted for management tasks. Furthermore, expertise is exchanged in 18 of the initiatives, and additional medical education is given in 12 of the initiatives. Last, the clear lines of professional authority are less in place. This is illustrated by the full mandate that professionals have in 10 of the initiatives and the existence of a formal hierarchy in 11 of the initiatives.

Third, clinical integration achieved varies on the five key facets measured. In none of the initiatives all preconditions (i.e. staffing, resources, information technology) are fully fulfilled. However, in 11 of the initiatives all preconditions are more or less achieved. Only four of the initiatives have a clear allocation of responsibilities explicated both in an organisational chart and in a job description; 10 of the initiatives have one of these. In 18 of the initiatives integrated guidelines and protocols are available. The use of integrated patient records was reported for six initiatives. Last, in 17 initiatives data are systematically collected and used to manage the collaboration. Overall, only the DIANET initiative is fully clinically integrated having all elements in place. The other initiatives scored modestly on the overall sum score of the five elements.

Validity

The study has its limitations. The face-to-face interviews were conducted by one researcher only. Furthermore, we developed a questionnaire ourselves instead of using a validated one. From the field notes made, however, we learned that the internal validity might be hampered by three factors: (1) Some of the respondents were insufficiently knowledgeable to appropriately answer all questions. Especially the respondents replacing their heads expressed their uncertainty and/or could not always respond to the questions. (2) Due to the heterogeneity of the initiatives, the applicability of the broadly operationalised questionnaire was not always that good. (3) The questionnaire has been filled out by respondents working in the Academic Medical Centre only. Thus, the data were not enriched by representatives of the external partners, who might have responded differently.

The external validity of the study is optimal for the Academic Medical Centre, as all initiatives could be included in the study that were systematically identified and verified by the Academic Medical Centre experts most knowledgeable of them. Yet, the transportability of the results to other settings is unknown,

as we did not collect data on similar initiatives elsewhere.

Discussion

Due to the narrowed strategic focus of university hospitals, the three academic core functions (i.e. patient care, medical education, scientific research) are challenged [1, 2]. In response, university hospitals adapted successful, but quite defensive, strategies such as merging with teaching hospitals and downsizing the organisation [6–8]. However, some have responded more proactively by linking up with their adjacent communities. Such a 'community-based integrated care' approach is proactive for several reasons [12]. The resulting relationships with local care providers enable university hospitals to safeguard and control patient flows and to build academic workplaces for research and education outside the hospital. Overall, it intrinsically makes university hospitals more responsive and accountable to the (local) community.

The Academic Medical Centre has adapted such a proactive approach in 1996, called the academic population policy [20, 21]. In this study we identified 27 heterogeneous initiatives, which have mostly been developed since 1996. The descriptive data learn that half of these initiatives are targeted to the adjacent community of the Academic Medical Centre, but only four of them are initiated on the basis of community information and involve the community and/or patients. Furthermore, the extent of integration differed per dimension. Functional integration within the initiatives has been relatively low, clinical integration mixed, and professional integration quite advanced. Several notions can be made.

First, the academic population policy stimulates Academic Medical Centre departments to link up with external care providers. Although we do not have comparative data, the impression is that 27 initiatives is quite a lot. In The Netherlands only the academic institutions in Groningen and Maastricht have formally adapted a community orientation [19]. Moreover, Dutch general hospitals are involved in six integrated care arrangements on average with a maximum of 20 initiatives [31]. Unfortunately, the international picture is unclear, as evaluations on university hospitals elsewhere often take another angle; they generally evaluate the whole strategy or one specific collaborative initiative only. Such a picture, however, would be enlightening which brings us to the second notion.

There seems to be a link between the described Academic Medical Centre initiatives and the health needs of the South-eastern Amsterdam community.

Arrangements are in place for the major chronically ill patient groups (e.g. stroke, diabetes mellitus type 2, COPD, heart failure) and the frail elderly in the area [32]. Still, there is no support that the AMC is initiating collaborative initiatives from a 'community-based integrated care' vision. The initiatives are not community-based in the sense that they do not target the same communities (i.e. zip code areas), are not initiated on the basis of community health considerations, and are not systematically involving the community and/or service users. This contradiction might be explained by the 'redistribution dilemma' [33]. The *academic population* policy requires an increase in routine care delivered by clinical departments, which is at the expense of their academic activities and interests, and thus encounters opposition. By loosely applying the academic population policy, clinical departments control the proportion of routine care delivered as part of their overall activities employed. This brings us to the question whether integrated care is reflected in the initiatives. The collaborative initiatives of the AMC are 'integrated' even though their levels of integration achieved are mixed. There are rival interpretations of this result. One is that the initiatives need to be further developed, thereby focusing on the facets of integration that lag currently behind—i.e. formalising the agreements, enhancing the level of clinical integration by focusing on all five facets. However, it can be questioned whether this should be the policy advice to the Academic Medical Centre managers. Most initiatives have no end date suggesting that the desired level of integration may have been achieved. Foremost, the majority of the initiatives has a limited

scope and do not aim at full integration on all levels. So, expecting full integration for most of the initiatives is probably an unrealistic objective that will never be achieved, nor strived for. This notion has also been made in the literature [34, 35].

Elaborating more on this notion suggest that the academic population strategy of the Academic Medical Centre and a community-based integrated care approach of (university) hospitals more generally, can better be described on the overall hospital level. All 27 Academic Medical Centre initiatives together form a web of integrated care services that are congruent to each other as they cover specific care trajectories (e.g. stroke service, diabetes mellitus type 2) or centralises specific functions (e.g. coordination, R&D, discharge planning). Describing this web from a community-based integrated care perspective might be more informative as it theoretically provides insights in the overall weaknesses and strengths in meeting community health needs and demands. A 'community-based integrated care' approach can only be fertile when the whole Academic Medical Centre is committed in vision and in practice.

Reviewers

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