EFFECTIVE NETWORK MANAGEMENT PRACTICES IN THE EYE CARE UNITS OF A PUBLIC HOSPITAL

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ABSTRACT

The provision of public health care services is increasingly dependent upon the operation of networks. These networks comprise different specialties' within the same business or businesses in different sectors like public, private and civil society organizations.

The main aim of the study was to assess the network management practices in the eye care units at a public hospital and to propose an ideal network management approach to improve the quality of network services.

The findings of this study point to much inefficiency within the health system found at different level of analysis. Attention by senior management forms the basis for further investigation. There is also a need to focus on management at other service delivery levels because it is where the greatest challenges to quality care lies.

KEY WORDS

Network management, Service delivery, Eye care units, Hospital

1. Introduction

The provision of public health care services is increasingly dependent upon the operation of networks. These networks comprise different specialties' within the same business or businesses in different sectors like public, private and civil society organizations. These network arrangements create areas of potential inefficiency and conflict that may require different management approaches from traditional management practices to operate with maximal efficiency and effectiveness. (O'Toole, 1997: 45)

2. Theory

The South African social and academic discourse points to continuing challenges despite government efforts to improve the health care system. It is reported that government is progressively increasing spending on social services such as health and education, making it 34.4% of total spending or 8.9% of GDP (Kganyago, 2009:1).

Another negative factor is the population growth and influx of people into urban areas. It is seen to create demands that are outstripping public hospital resources and impacting negatively on the quality of academic and clinical training.

According to Benatar (1988:3) this indicates that challenges of the health system are not only management related but that the social determinants of health should be taken into account in dealing with the health system. This research will consider challenges emanating from within the health system at the managerial and role player interaction levels and shall exclude the social determinants of health.

There is an increasing awareness that public institutional arrangements are relying more on networks for the successful operation of government, rather than on hierarchical management in isolation. This results in most public managers mobilizing and coordinating people and resources across organizational structures and within them. These managers however lack the means to compel compliance with such cooperative undertakings (O'Toole Jnr, 1997: 443).

Networks are defined by this author as structures of interdependence. They involve multiple organizations which include service delivery systems that rely on clusters of providers such as public agencies, firms, not-for-profits organizations and volunteers. Networks are also described as structures that involve multiple centres of authority or expertise with multiple linkages that solve problems which may not be easily resolved by a single organization (Agranoff and McGuire, 2001: 296).

Unlike other forms of collaborations such as coordinating teams and task forces, networks have an indefinite lifespan because they address problems that are long term or become redefined as the network evolves (McGuire, 2006:35-36).

Another understanding of a network is a structure of interdependence which involves multiple organizations or parts thereof where relationships of subordination are not characteristic (O'Toole, 1997:45).

According to McGuire (2006:33) is collaborative public management a new phenomenon linked to networks which entails facilitating and operating in multi-organizational arrangements to remedy problems that cannot be easily solved by single organizations.

For purposes of this study, a network will be defined as a combination of two or more agencies of the same or different organizations which individually provide different components of the same service but collectively provide a comprehensive package where none of the participants is subordinate to any other participant within the network.

The origin of networks and network management in different industries appears to emanate from manufacturing industries which took their location decisions based on the economic benefits that would accrue to them(Hanink and Cromley, 2004:401). Empirical evidence is cited which shows that localization economies arose due to efficiencies such as common labour pools, dedicated suppliers, intra-industry knowledge spillovers and specialized transport arrangements which were available to concentrations of similar producers.

2.1. Network management approaches

From extensive public management literature involving various authorities and scholars, a framework of network management approaches has been formulated. It comprises four perspectives that represent a continuum of passive to active approaches as detailed below (Herranz, 2008:2):

i. Reactive facilitation approach: This represents a passive approach on the network management spectrum. It emanates from the view that networks are loosely coupled multi-organizational units with weak ties. The role of the network manager is seen as passive and reactive which aims at facilitating network activities. Social interactions between partners are emphasized over procedural mechanisms or financial incentives. The dilemma of making and meeting performance needs, and the complex accountability relationships within the network are not emphasized.

ii. Contingent coordination approach: This is a mixture of passive and active network management approaches. Active coordination is employed only where particular benefits can be taken advantage of in appropriate situations. An opportunistic directive influence is used to guide the behaviour of the network. This approach seems well suited to networks where there is a high level of reciprocated interest.

iii. Active coordination approach: In this perspective, the network is actively managed through several mechanisms. These involve hierarchical jurisdiction based on vertical relationships and the creation of horizontal relationships. It is in this approach that the four network management activities are used fully to manage and operate the network. It is suggested that this management approach is important towards achieving optimum network performance.

iv. Directive administration approach: The network is managed through authoritative procedural mechanisms. Whilst this approach may encourage conformity, it is seen to compromise the variability and flexibility that make networks more effective tools of service delivery. This approach may be more successful in networks based on regulatory, contractual and funding requirements.

The challenges faced by public managers are identified by Herranz (2008:1) as comprising of incongruent goals, improper oversight, failed communication, fragmented coordination, inadequate data, shortages in capacity and unstable relationships. Therefore, strategic choices faced by network managers are dependent of the network characteristics. When viewed within the context of networks, the challenges facing the South African health system seem to require network consistent management intervention. The management intervention would be more effective in improving health outcomes and reducing the costs associated with rendering public services.

This research seeks to identify the characteristics of the eye care network and the prevalence of the problems that have been identified in most network operations as stated above. This framework of the management continuum of network management approaches will be used to describe the management practices in the eye care network which is the subject of this research.

2.2. Network governance structures

The governance of networks seems to be upon two dimensions where in one end there is no intermediary compared to the other end. The organizations interact with one another to govern the network resulting in high decentralization which is called shared governance. On the other hand, network governance may be brokered, where a single external organization acts as a highly centralised broker or lead organization for network maintenance and survival (Provan and Kenis, 2007:234). Between the two extremes lies a governance form where a single organization takes some key responsibilities and leaves others to other participants. Networks can be participant governed or externally governed where a unique network administrative organization (NAO) is either voluntarily formed by network members or a mandatory part of forming the network.

2.3. Network participant relationships

Relationships between the network participants have been cited as a crucial success factor and have an influence on the governance system of the network (Provan and Kenis, 2004:245). One of the key objectives of the transformation

of the health system in South Africa is the establishment of all the professions as equal partners in the primary health care team which are regarded in this study as provider networks.

Despite the professional contestations, there is a growing call between the professions for improved relations (Fineberg, 2008). Evidence of the benefits of cooperation between the partners is well documented as are the failures associated with rivalry. Less efficient utilization of professionals, inappropriate resource utilization, duplication of supplies and equipment, and limitations in treatment modalities are noted as key problems in rivalry situations (Cohen, Soden, Martin, Liss, Hodson, and Meyer, 1987:386). The identified benefits of improved patient satisfaction, maximized usage of space and equipment, purchasing of better technology and integration of treatment modalities have been documented. No newer studies were found that supported or negated this view.

It is important that these relationship dynamics are taken into account during the study in so far as they impact on network efficiency and functions. The study does not seek to formulate a position on the merits of contrasting arguments that the two professions advance. The literature points to specific benefits in networks formed by the two professions and other role players as well. The study will be limited to a description of the benefits based on available evidence within the eye care network.

3. Research Methods

This research is designed as an exploratory, cross sectional descriptive study (Ivankova, Creswell and Clark, 2007:264). . The study comprises a literature review and an empirical investigation which employs a mixed method research strategy (Azorin and Cameron, 2010:96). Research data is collected by interrogating research subjects using self administered questionnaires in a field setting as well as obtaining information through text in open-ended questions and interviews.

To collect the quantitative information, a self administered questionnaire was given to three groups of professionals that each had their own management hierarchies and defined roles in management and clinical services or both. The completed questionnaires were then submitted to the department administration offices for collection.

Qualitative data was obtained using the questionnaires where open ended questions were included. Research subjects then wrote their views unhindered and anonymously prior to submitting the questionnaires. Telephonic interviews were conducted with the management in order to confirm and test their opinions and give context to the findings of the questionnaire.

The reliability of the research instruments was tested using computerised statistical techniques. To measure the internal validity of the research tool, it was necessary to ensure that the multiple items measured under each element relate to that same concept. To ensure coherence, the relationship of the indicators to each other has to be ensured (Gliem & Gliem, 2008:82)

In this study, the population comprises the two eye care departments of ophthalmology and optometry at a public hospital which comprise the two units of analysis. The respondents are the employees of the two departments which are made up of 67 employees in the department of ophthalmology and 20 employees in the optometry department. The employees in ophthalmology comprise 48 nurses, 14 doctors and 5 administration employees. The optometry department comprises 5 fulltime optometrists, 12 part-time optometrists and 3 administrative staff members. Whilst there are only two units of analysis, there is a population of 87 respondents.

The ophthalmology department provides a 24 hour service therefore some respondents were not accessible during the day since they worked at night. This comprised about a third of staff members absent due to shift work at any given point. The optometry department provides services during the day however; respondents were not always available

because some respondents were employed on a part-time basis, resulting in about the same absence rate of one third of part-time optometrists.

The non-probability type of sampling method was used in the study. More specifically, a convenience sample was used which is defined as a sample which is readily available to the researcher by virtue of its accessibility (Bryman and Bell, 2007:197). When a sample has been selected using random sampling, the findings of such a sample can only be generalized to the population where such a sample was taken. This implies that the limits to the generalization of the findings of this study imposed by the non-probability sampling method would be similar even if a probability sampling method was employed. In this study, the population size and the sample size are coincident. In the light of the information provided, a third of the total population was unavailable due to shift work or part-time employment. Based on this fact, a total of 55 questionnaires were distributed to available research subjects which is the two thirds that were accessible.

A total of 35 completed questionnaires were received back and two largely incomplete questionnaires were also received.

4. Findings

Table 1 gives an outline of the respondents, who participated in the research project. The quantitative findings is based on the following categories of information which was assembled from the questionnaire, namely collocation practices, sharing of resources, performance monitoring, network relationships, network management practices and key success elements

Table1: Demographic data

DEPARTMENT	**NUMBER OF RESPONDENTS**	**PERCENTAGE RESPONDENTS (n = 33)**
Ophthalmology (Oph)	12	36.4%
Optometry (Opt)	12	36.4%
Nursing (Nur)	9	27.3%
YEARS IN SERVICE	**NUMBER OF RESPONDENTS**	**PERCENTAGE RESPONDENTS (n = 33)**
0 – 4 yrs	8 (Oph)	24.2%
	5 (Opt)	15.2%
	1 (Nur)	3.0%
5 – 8 yrs	1 (Oph)	3.0%
	5 (Opt)	15.2%
+ 8yrs	3 (Oph)	9.1%
	2 (Opt)	6.1%
	8(Nur)	24.2%

4.1 Network management practices

There is a significant difference in views on the management practices amongst the different years of service. Aspects which were evaluated by the respondents included network management style, management intervention, and the existence of a co-management structure. This is particularly between categories zero to four years in service and those with five to eight years in service. There is also a difference between those with zero to four years in service and the group with more than eight years of service. The results of this category are summarised as follows:

- The network is most probably managed passively.
- The network is managed authoritatively from the top.
- Management intervention most probably occurs when necessary.
- There is no known co-management structure within the network.
- Eye care services are not treated as a single unit.

From the results presented above, it is found that the presence of a network management structure is difficult to confirm from the results. If such a structure exists, then its presence or influence is hardly visible to participants within the network. It is reasonable to conclude that the management approach for the network is passive or reactive and the service is not treated as a single service. These findings are consistent with findings in other categories which showed that there was a greater tendency towards separation of the services instead of purposeful integration within the network.

4.2 Network relationships

The respondents were asked to comment on the following relationship issues namely departmental relationships, patient co-management, referral feedback annual planning and departmental independence. The chi-square test showed that there are significant associations in views between network relationships and the different departments, years in service as well as employment type.

These results are further confirmed by the t-tests which indicate that there are significant differences on the views of network relationships according to the years worked as well as amongst the different departments.

There was a significant negative correlation between years of service and relationships and a significant positive correlation between type of employment and the views on relationships. The findings can be summarised as follows:

- The relationships between the departments are weak.
- Patients are frequently referred between the two departments.
- Co-management of patients takes place between the two departments.
- Post referral feedback is easily obtained between the departments.
- Joint patient review meeting did not take place between the departments.
- Annual planning meetings were unknown or did not place between the two departments.
- The departments were mostly seen as unequal partners in delivering eye care services.
- The two departments are run independently from one another.

There are clear indications that the two departments have a strong reliance on one another's expertise in the provision of eye care services. They have exhibited characteristics of a network such as autonomy and complementary expertise. Relationships between the network partners require attention in order to make the functions and benefits of the network more pronounced.

4.3 Sharing of Resources

The following issues were evaluated by respondents, namely human resources, joint equipment utilization, equipment duplication and operational planning. It can be concluded with reasonable certainty that resource sharing, if taking place, occurs to a limited extent within the network. The advantages conferred by proximity within the collocation are not utilised. This occurs despite acceptance from the network participants that joint planning and resource sharing can reduce wastage.

In this investigation, there was a significant difference in views between ophthalmology and nursing but not between ophthalmology and optometry. The years in service and category of employment did not make a significant difference in views expressed on this matter. In terms of Pearson's correlation calculated, there was a negative relationship between the department and years in service.

The majority of ophthalmology respondents had less than four years of employment and was of the view that resource sharing was limited. This was supported by the part-time optometrists. Respondents who are employed for longer than eight years, and include mostly nursing staff, were of the opinion that resource sharing was taking place.

Other results are summarised as follows:

- There is limited or no joint planning of human resources.
- There is limited or no sharing of equipment within the network.
- There is duplication of equipment due to a lack of joint planning.
- Joint planning can reduce resource wastage.
- There is no joint operational planning.
- Network participants review their operational plans independent of one another.

4.4 Collocation practices

Collocation practices included aspects such as departmental benefits, main beneficiaries, collocation objectives and cost savings. Pearson's correlation coefficient showed weak and negative correlation (-0.1039) between years of service and views on collocation. The same weak correlation was found between the department and views on collocation. The inter-item correlation matrix showed a fair correlation between the items with a range of 0.279 to 0.701. Of significance was the agreement that resource sharing was an integral part of the collocation. This finding is not consistent with other findings on resource sharing as indicated in par.4.3. A high number of respondents were unsure about various factors within the collocation. The uncertainty was pronounced on the following factors:

- Collocation benefits for the two departments.
- Major cost savings within the collocation,
- Clarity on the objectives of the collocation

4.5 Key success elements of network management

Respondents received a list of possible network success factors to choose from. An opportunity to add other non-listed success factors was also provided in the questionnaire. The success factors were grouped according to the number of respondents who selected each factor as a percentage of the total sample that gave responses in this section.
A total of twenty respondents (60.6%) of the thirty three who completed questionnaires, completed this section. The results are given as a percentage of those who responded as well as a percentage of the total respondents. The results in this category are summarised in the table below.

Table 2: Results on Choice of Key Success Elements

Key Success Elements	Number of respondents	Percentage of respondents (n= 27)	Percentage of total respondents (n = 33)
Sharing of resources such as equipment, and personnel	22	81.5%	66.7%
Performance monitoring of the network	16	72.7%	48.3%
Relationships between the departments	27	100.0%	81.8%
Management structure of the eye care network	18	66.7%	54.5%
Budgeting and operational planning	21	77.8%	63.6%
Other	4	14.8%	12.1%

Most of the respondents selected some or all of the key success factors. Some respondents did not provide reasons to support their selections. Other respondents gave some views in writing which were not necessarily supporting the selections but substantiated on other aspects dealt with in the questionnaire.

Only four respondents added other key success factors to the list provided. These were listed as follows. All the suggested factors fall within other key success factors that have been suggested above.

- Joint patient review meetings
- Joint feedback sessions on network functions
- A proper referral system and protocols
- Consultations (Could imply feedback sessions or joint meetings)

The above results indicate that some respondents thought that the network can improve its overall performance by concentrating on certain key factors. The most important key success factors indicated by respondents were(i) relationships between departments(100%), (ii) sharing of resources(81,5%),and (iii) budgeting and operational planning(77,8%). It can be assumed that these factors are currently areas of underperformance which if attended to could result in increased network efficiency.

Whilst no explanations were given for the choices in most cases, the consistency in the choice of success factors between the different categories of employment showed that a lot can be done to improve the eye care services at this public hospital.

4.5 Qualitative results

In this study, the qualitative data used for analysis comprised written responses to open ended questions in a questionnaire and transcripts of a group interview. Whilst the group interview was not part of the original research design, it was necessitated by the unavailability of the research subjects for interviews due to workloads and varying schedules.

The telephonic interview group comprised of two clinical managers and two acting heads of departments from each of the eye care departments at the public hospital. It was difficult to coordinate the schedules of the participants and thus a participant from the nursing category was not available at time for the interview. A conference call was employed for this purpose.

The analysis of the qualitative data in this study uses a method recommended by the authors Anfara Jnr, Brown & Mangione (2002:28). This method links research questions to open ended questions and interview questions in order to meet the public disclosure requirement. This disclosure is necessary to confirm refutability and freedom from bias which is necessitated by the difficulty of replicability in qualitative research. The validity of findings in qualitative research can be verified through procedures suggested by Creswell and Miller (2000). These criteria are listed as (i) Prolonged engagement and persistent observation, (ii) triangulation, (iii) peer review or debriefing, (iv) negative case analysis, (v) clarifying researcher bias, (vi) member checks, (vii) thick description and (viii) external audits. Creswell and Miller (2000) recommend that any two of the eight procedures must be used in any given study to validate the qualitative research findings.

The main findings from the qualitative data are summarised in the following paragraphs.

The respondents agreed that there was no leadership from corporate level. This lack of leadership affected strategic planning for the entire service outside of the Eye Care Network. The impact of this lack of strategic and management planning is evident at the network level by poor budget allocations, lack of planning the service in terms of an optimal referral system and appropriate use of nurses, optometrists and ophthalmologists.

There is also a lack of equipment which prevents the full complement of services from being provided. The human resources available in one department is used inappropriately by seeing routine cases instead of complex cases. This delays the appropriately referred patients from getting services.

The collocation benefits are mainly structural. There is no meaningful management process to ensure maximal benefit realization from the collocation or eye care network. The network is managed passively or reactively if problems arise. Planning within the network is absent or very limited despite consensus that the network requires a multidisciplinary approach. This lack of planning results in improper human resource utilization. There is also poor internal process management, duplication of equipment and administrative personnel which results in increased costs.

It is evident that there are also power dynamics at play. These reflect the sentiments at a national level where it appears there are deliberate decisions to keep the two services apart despite evidence to the contrary in terms of service requirements. Poor relationships at officer level as well poor operational and general planning are evident in a referral system that does not work optimally despite the proximity advantage. The necessity of a common management structure is appreciated by some. Other respondents believe that it should be limited to certain functions. There fear of amalgamating the services seems to threaten identities of the participants and amalgamation is therefore viewed suspiciously. Roles need to be redefined within and outside the network. This will prevent unnecessary referral of patients who should be managed at their points of entry. The referral system would therefore require the appropriate use of human resources.

5 Managerial Implications

The introduction of directive management is recommended as a management approach which will activate the network, convene the stakeholders, analyze current operations, determine the communication expectations of the partners, assemble the network by creating internal management and reporting structures, devise strategies for the network and reactivate the network.

The advantage of this approach is that is allows the network to assume its managerial responsibilities within the context of the network. It also allows for the assumption of the leadership duties that are crucial for the success of the network.

The network must be arranged structurally through a clearly recognizable network management structure. This management structure can then be nurtured by a defined relationship with the hospital management. Deliberate support systems and integration of the currently independent units should receive approval from the highest level. Network objectives and performance measures can be set as well as objectives for the management of the feeder systems of the network.

This approach will have the advantage of addressing the much cited referral system during the research. The resource requirements including skills, management and referral criteria can also be addressed. This will reduce the overflow of patients into the network with its negative impacts.

It is incumbent upon the hospital management team to have a clear corporate strategy .Such a strategy would then be converted into a network or business unit strategy and then translated into network operations.

The first network management principle involves network framing which refers to the task of establishing the operating rules of the network, influencing the prevailing norms and values, and altering the perceptions of the network participants. This framing process will impact on processes such as planning, the human resource requirements and responsibilities. Procurement for the network can be needs based with an appraisal of current strengths within the network prior to making procurement and human resource decisions. This framing process will

ensure that performance standards are available within the network to monitoring and evaluation.. Performance constraints can then be resolved by the network management structure to achieve maximum efficiency.

Mobilizing the network is the second principle which engenders a view amongst the network participants of a single whole. Such a single unit would have to set specific common objectives to create internal support and cooperation within the network. This responsibility enforces the network management to provide leadership in other areas of management such as diversity, cultural, personal and interpersonal spheres. This role should be aligned to the overall national objective of improving the quality of health care services.

The last principle is synthesizing the network to harmonize differences. This creates unified strategic objectives by reducing complexity within the network. Areas of uncertainty should also receive attention because of the evident lack of clarity in many areas of the study. This is a leadership challenge which must be met if the network is to operate at a higher level of efficiency.

Some problems in the present network originate from the provincial eye care system but play out within the eye care network. According to the respondents, it is important to evaluate these tributaries which feed into the public hospital's eye care services. Such an evaluation could ensure that the neglected objectives of tertiary services such as clinical and public health research also receive greater attention. There are tasks which can be shifted to different categories of employees. This would ensure that problems are resolved at the lowest level possible within the provincial eye care services instead of escalating all problems to the eye care network.

Funding objectives can also be determined by such a provincial evaluation. This would address the concern of network participants around budget processes which they cannot influence.

6. Conclusion

The findings of this confined study are very important when considered in the context of the broader health system in South Africa. Whilst the findings cannot be generalised to the entire health system, the national discourse on the health system appears to find some explanation in areas of this study.

The scarcity of human resources has reopened discussion about the possible revision of responsibilities of all categories of health workers. In this study, the use of eye care personnel comprising doctors, nurses and optometrists, was questioned. It also resurfaced in discussions around referral systems and management of patients at the lowest levels of care possible. This discussion is reminiscent of discussions on the national platform about the appropriate and effective utilization of scarce health care human resources.

Biography

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