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## Measuring of Hypothesis and Questionnaire Framework by Effect of Relational Coordination Issues in Health Care System

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**ABSTRACT:** Relational Coordination (RC), the management of interdependencies among tasks is believed to be critical for organizational performance. This paper aims to improve quality of care provided in Indian hospitals by analyzing relational coordination, especially in selected hospitals for better quality of care. The case study approach is used to consider the relational coordination parameter. Relational coordination is a mutually reinforcing process of interaction between communication and relationships carried out for the purpose of task integration. A hospital with highly structured and more inter departments is to be selected so that it can be benefited by this project. Parameters of Relational coordination selected from the detailed literature review includes such as shared goals ,shared knowledge ,mutual respect and communication ties such as frequent communication, timely communication ,accurate communication and problem solving communication.

KEY WORDS: Relational Coordination, HealthCare and patient perceived

### I. INTRODUCTION

Relational Coordination is a powerful new framework, based on extensive research, that describes how groups of individuals, workgroups or organizations manage their interdependent tasks to work together effectively under conditions of uncertainty, rapidly changing circumstances and time pressure. Relational coordination is a research model proposed by Gittell in 2002. Coordination that occurs through frequent, high quality communication supported by relationships of shared goals, shared knowledge and mutual respect enables organizations to better achieve their desired outcomes (Gittell, 2006). Specifically, relational coordination is a mutually reinforcing process of interaction between communication and relationships carried out for the purpose of task integration. The author used the model to assess organizational coordination in four airlines in the United States, although it has also been applied to other sectors, such as the health sector. The core of relational coordination is based on the iterative nature between both relationships and communication in the workplace. The quality of the relationships maintained by the different groups of employees between themselves is based on three variables shared goals, shared knowledge, shared respect. The quality of their communication is also based on three variables frequency of communication, timing of communication, and problem-solving orientation of the communication. Theory of relational coordination, coordination that occurs through frequent, high quality communication supported by relationships of shared goals, shared knowledge and mutual respect enables organizations to better achieve their desired outcomes (Gittel, 2006).

### A. RELATIONAL COORDINATION

Relational coordination is a mutually reinforcing process of interaction between communication and relationships carried out for the purpose of task integration. More simply, relational coordination is coordinating work through relationships of shared goals, shared knowledge and mutual respect, supported by frequent, timely, accurate, problem-solving communication. Together, these communication and relational dynamics provide the basis for coordinated collective action under conditions of task interdependence, uncertainty, and time constraints.



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In recent years, effective supply chain management has emerged as a significant competitive advantage for companies and various engineering industries. Our area of research in SCM are identified as, relational coordination in Indian health care service. Through the literature survey, we found the gap in relational coordination in Indian health care service. In this relational coordination issues solved by implementing some relational coordination, variables in supply chain activities, which may result in improvement of some performance measures. So that our research is to enhance relational coordination in healthcare service using questionnaires' survey in some selected hospitals. The dimensions of relational coordination were discovered through inductive field research, and have been validated through several subsequent studies.

**Table. I**Items for Measuring Relational Coordination

Frequent Communication	How frequently do you communicate with people in each of these groupsabout [focal work process or client population]?	
Timely Communication	Do people in these groups communicate with you in a timely way about [focal work process or client population]?	
Accurate Communication	Do people in these groups communicate with you accurately about [focalwork process or client population]?	
Problem Solving Communication	When a problem occurs with [focal work process or client population], do the people in these groups work with you to solve the problem?	
Shared Goals	How much do people in these groups share your goals regarding [focal work process or client population]?	
hared Knowledge  How much do people in each of these groups know about the work you do with [focal work process or client population]?		
Mutual Respect	How much do people in these groups respect the work you do with [focal work process or client population]?	

### **B. DIMENSIONS OF RELATIONAL COORDINATION**

The theory of relational coordination is unique in identifying specific dimensions of relationships that are integral to the coordination of work, in particular going beyond sharedknowledge to include shared goals and mutual respect, while focusing on the development of these relationships between roles rather than between unique individuals.



Figure 1. Reinforcing process



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a)Frequent Communication: Organization design and group theorists have explored the characteristics of communication that is carried out for the purpose of coordinating work processes (e.g. Van de Ven, Delbecq and Koenig, 1976; Katz and Tushman, 1979; Argote, 1982; Ancona and Caldwell, 1992). In much of this work, the frequency of communication between participants has played a central role. But the role of communication is not merely informational. Frequent communication helps to build relationships through the familiarity that grows from repeated interaction. Indeed, in network theory strong ties are defined primarily and sometimes solely in terms of frequency (Granovetter, 1973).

b)Timely communication: Communication can be frequent and still be of poor quality. For one thing, it can lack timeliness. In coordinating highly interdependent work, timing can be critical. Delayed communication may result in errors or delays, with negative implications for organizational outcomes. Research supports the importance of timely communication for successful task performance (e.g. Orlikowski and Yates, 1991; Waller, 1999), though timely communication has not been widely recognized as essential to the coordination of highly interdependent work

- c) Accurate communication: The effective coordination of work depends not only on frequent and timely communication, but also on accurate communication. If updates are received frequently and in a timely way, but the information is inaccurate, the consequences for error or delay are apparent. O.Reilly and Roberts (1977) argued and showed that accurate communication plays an important role in task group effectiveness. The accuracy of communication can also be conceptualized in terms of its trustworthiness, as in the knowledge seeking literature, and specifically in recent work by Levin and Cross (2004).
- d) Problem solving communication: Task interdependencies often result in problems that require joint problem solving. Hence, effective coordination requires that participants engage in problem solving communication. However the more common response to interdependence is conflict (Pondy, 1967; Gladstein, 1984) as well as blaming and the avoidance of blame (Donnellon, 1994). The resort to blaming rather than problem solving reduces opportunities to solve problems, with negative consequences for performance (Deming, 1984). Others have recognized the role that problem solving plays in the coordination of highly interdependent work (e.g. Stevenson and Gilly, 1993; Rubinstein, 2000).
- e) Shared goals: Effective coordination depends upon participants having a high level of shared goals for the work process in which they are engaged. With a set of shared goals for the work process, participants have a powerful bond and can more easily come to compatible conclusions about how to respond as new information becomes available. However, shared goals are often lacking among those from different functional areas who are involved in the same work process. In their classic work on organizations, March and Simon (1958) described the Negative outcomes that occur when participants pursue their own functional goals without reference to the super ordinate goals of the work process in which they are engaged.
- f) Shared knowledge: Furthermore, effective coordination depends upon participants having a high degree of shared knowledge regarding each other's tasks. When participants know how their tasks fit together with the tasks of others in the same work process, they have a context for knowing who will be impacted by any given change and therefore for knowing who needs to know what, and with what urgency. But shared knowledge is often lacking. Consistent with sociological theories, Dougherty (1992) showed that participants from different functional Backgrounds often reside in different thought worlds. Due to differences in their training, socialization and expertise. She showed that these thought worlds create obstacles to effective communication and therefore undermine the effective coordination of work processes.
- g) Mutual respect: Finally, effective coordination depends upon participants having respect for other participants in the same work process. Disrespect is one of the potential sources of division among those who play different roles in a given work process. Occupational identity serves as a source of pride, as well as a source of invidious comparison. Members of distinct occupational communities often have different status and may bolster their own status by actively cultivating disrespect for the work performed by others (Van Maanen and Barley, 1984).



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#### II. LITERATURE REVIEW

Ingrid HageEnhaug (2000), "patient participation requires a change of attitude in health care". A patient experiences a combination of helplessness, lack of technical competence and emotional disturbance that make him or her peculiarly difficult. What happens is that he or she hands over the power to somebody else. There is no longer a balance of power between those giving and receiving health care and there is no real partnership between patients and health professionals in the traditional system of care [1]. Jody Hoffer Gittell, Kathleen M Fairfield, Robert Jackson, William head (2000) "Impact of Relational Coordination on Quality of Care, Postoperative pain and Functioning, and Length of Stay A Nine-Hospital Study of Surgical Patients" .The objectives of this study were to introduce the concept of relational coordination and to determine its impact on the quality of care Relational coordination comprises frequent, timely, accurate communication, as well as problem-solving, shared goals, shared knowledge, and mutual respect among health care providers .It Measures Quality of care, postoperative pain and functioning, and length of acute hospital stay [2]. Maureen chorlebois, cormax, David, leonara, lorruine, bonnie, Flavian pinto (2001)."Leader ship in health care service, primary care physicians' communication preference". Health care organizations faced with the ever-increasing challenge of balancing utilization, technology and client need within our health care delivery systems. Healthcare providers need to ensure that timely, effective and efficient care delivery processes and operating systems are in place. Therefore, health care providers need to be able to access and utilize appropriate and accurate patient health information across the whole continuum of care. According to the CEO of the Ontario health services restructuring commission, the lack of access to health information means that physicians and other health care providers cannot provide effective and efficient coordinated care [3]. Jody Hoffer Gittel (2002) "Coordinating Mechanisms in Care Provider Groups: Relational Coordination as a Mediator and Input Uncertainty as a Moderator of

Performance Effects" It proposed to integrate organization design theory with the theory of relational coordination. It proposes that boundary spanners and team meetings improve performance throughtheir effects on relational coordination, while work routines improve performance by reducing the needfor relational coordination [4] Anders Melin and Jan-A keGranath(2004)," Patient focused healthcare: an important concept for provision and management of space and services to the healthcare sector". How will the relationship between patients, the service level and the geographic conditions in healthcare develop in the future. The task will be of great impact for location of new properties and the use of existing healthcare buildings. In order to improve healthcare space requirements, it is important to understand the expression "horizontal integrated care". Defining terms will enhance the communication between providers, companies and individuals. The research also looks into the phenomenon of "local hospital". The first step is to analyze these terms and describe the definitions from collected material obtained by a Questionnaire, interviews and searches on the Web. The main issue is to give the conception a broad validity. This study gives a definition that can be shared by most parties in healthcare today and will enhance the communication in healthcare issues [5]. Vikki

Ann Entwistle, Oliver Quick(2006)," Trust in the context of patient safety problems". An increased awareness of the scale of harm associated with "errors" in health care delivery, a new emphasis within health service policy and management activities on issues relating to patient safety, and significant changes to health care that are being wrought in order to reduce iatrogenic harm raise a number of issues in relation to trust. They challenge some previous assumptions, both popular and academic, about the nature and implications of patients' trust in health care providers.

They also raise questions about the less often considered issues of health care providers' trust in patients [6] . R. Nat Natarajan(2006)," Transferring best practices to healthcare: opportunities and challenges" In this paper, the various approaches for improving quality, safety, and productivity are considered. How these approaches are being used in healthcare is analyzed. The obstacles to their successful implementation in healthcare are discussed. There are some characteristics of the healthcare industry that distinguish it from other industries. Although the managerial processes in the healthcare industry are similar to those of other industries, the prevalent norms, culture, practices, and the regulatory framework can promote or hinder efforts to improve performance. These characteristics influence the extent to which the best practices in other industries are relevant and transferable to the healthcare sector [7]. Jody Hoffer Gittell Dana Beth Weinberg, Cori Kautz



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(2007) "Modularity and the coordination of complex work" .Modularity is a way of organizing work into relatively self-contained clusters of tasks that are integrated by system-level integrators, enabling other participants to focus their efforts on coordinating work within their own module .In this paper we offer competing hypothesis from existing theories, then integrate multiple theoretical perspectives to develop new hypotheses regarding modularity and its adaptation under conditions of increasing complexity. We explore these hypotheses empirically in a professional service context to discover whether organizational participants respond to higher levels of client complexity by increasing or decreasing the modularity of their coordination with each other, and to determine the impact of their response on client outcomes [8]. Jody Hoffer

Gittell(2008),"Relationships and Resilience: Care Provider Responses to Pressures From Managed Care". Organizations in the health care industry and beyond face pressures to lower their costs while maintaining quality, resulting in high levels of stress for their workers. In a nine hospital study, this article explores the role that relationships play in enabling resilient responses to external pressures and the organizational practices that enable workers to respond in a resilient way when organizational change is required. The article argues that relational coordination—communicating and relating for the purpose of task integration—is a resilient response to external threats that require a coordinated collective response across multiple functions or roles. Findings suggest that workers engage in higher levels of relational coordination when they perceive this type of threat but that the presence of a particular type of high performance work system—a relational work system—greatly strengthens this resilient response [9]. Jody Hoffer Gittell, Dana Weinberg, Susan Pfefferle (2008) "Impact of relational coordination on job satisfaction and quality outcomes: a study of nursing homes". This paper develops a relational perspective on the coordination of work. Existing theory suggests that relational forms of coordination should improve performance in settings that are highly interdependent, uncertain and time-constrained. Going beyond previous work, we argue that relational coordination should also improve job satisfaction by helping employees to accomplish their work more effectively and by serving as a source of positive connection at work. Using a cross-sectional sample of nursing aides and residents in 15 nursing homes, we investigate the impact of relational coordination on quality outcomes and job satisfaction [10]. Abraham carameli, Jodyhoffergittel (2008) "High-quality relationships, psychological safety, and learning from failures in work organizations" In this paper, we draw on the concept of high-quality relationships to explore the relational underpinnings of learning from failures in organizations. We focus on relational coordination as a specific manifestation of high-quality relationships and examine how the relational dimensions of relational coordination— shared goals, shared knowledge, and mutual respect—foster psychological safety and thus enable organizational members to engage in learning fromfailures. The results of two separate studies support our mediation model where psychological safety mediates the link between high-quality relationships and learning from failures in organizations [11].Rob Seidner ,Joddy Hoffer Gittell

Julian Wimbust (2010) "A relational model of how high performance work system works" This paper we explore a causal mechanism through which high-performance work systems contribute to performance outcomes. It proposes that high-performance work systems can improve organizational performance by strengthening relationships among employees who perform distinct functions. Relational coordination mediates the association between these highperformance work practices and outcomes, suggesting a relational pathway through which high-performance work systems work [12]. The evaluation concluded that the creation of flexible and efficient task focused relational workspaces that are systemically managed and adequately resourced could help to improve the quality of care coordination, particularly in dispersed networks [13]. Donna S. Havens ,Joseph Vasey ,Jody Hoffer Gittel(2010) "Relational coordination among nurses and other providers: impact on the quality of patient care". In all analyses, relational coordination between nurses and other providers was significantly related to overall quality .As relational coordination increased, nurses reported decreases in adverse events such as hospital acquired infections and medication error Enhancing relational coordination between nurses and other providers is central to improving the quality of patient care. It provides a useful new research-based framework for managers to use to improve provider relationships, communication and the quality of care [14]. Bert Meijboom, Saskia Schmidt-Bakx, GertWestert (2011)," Supply chain management practices forimproving patient-oriented care". to discuss organizational problems that occur in situations that are complex because the treatment of patients requires input from multiple health care providers, and to argue conceptually how to resolve these problems by using SCM practices. Communication, patient safety, waiting times, and integration. Although problems also occur within organizational boundaries, the steps from one provider to the next



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generally represent the weakest spots in a system of health care providers. By applying insights from SCM, these problems can be tackled. Problems with communication and integration might well benefit from the nomination of care coordinators. Information gathering and processing, i.e. both the availability of medical records of individual patients and information on provider performance, has to be improved. Breaking down functional barriers between care "silos", within health care providers as well as inter-organizationally, is a necessary condition for enhanced patient-centered integration. Policy should also stimulate the provision of more coordinated services, for example, through integral cost prices for separate diseases [15]. Jody HofferGittell(2011)," Measured relational coordination among pilots, flight attendants, gate agents, ticket agents, baggage agents, ramp agents, freight agents, mechanics, cabin cleaners, fuelers, caterers and operations agents Measured quality and efficiency performance, adjusting for product differences[16]. Jacqueline M.

Hartgerink, Jane M. Cramm, Ton J.E.M. Bakker (2012) "The importance of relational coordination for integrated care delivery to older patients in the hospital". This study investigated relational coordination among professionals providing healthcare to hospitalized older patients and assessed its impact on integrated care delivery. The effect of relational coordination in integrated care delivery to hospitalized older patients remains unknown. Data were collected using questionnaires distributed to hospital profession. Relational coordination was lower among professionals in the same discipline, and higher between nurses and others than between medical specialists and others. Finally, the effectiveness of integrated care delivery for older patients depends on the ability of professionals in different disciplines to coordinate in the holistic provision of care [17].

### PROBLEM DESCRIPTION

In recent years, effective supply chain management has emerged as a significant competitive advantage for companies and various engineering industries. Our area of research in SCM are identified as, relational coordination in Indian health care service. Through the literature survey, we found the gap in relational coordination in Indian health care service. In this relational coordination issues solved by implementing some relational coordination, variables in supply chain activities, which may result in improvement of some performance measures. So that our research is to enhance relational coordination in healthcare service using questionnaires' survey in some selected hospitals.

### HYPOTHESIS FRAMING

H1a: Strength of Cross functional team work positively predicts quality outcomes

**H1b**: Association between Cross functional team work and quality outcomes is fully mediated by relational coordination among employers

**H1c**: Strength of Cross functional team work positively predicts efficiency outcomes

**H1d**: Association between Cross functional team work and efficiency outcomes is fully mediated by relational coordination among employers

H2a: Strength of Cross functional rewards positively predicts quality outcomes

**H2b**: Association between Cross functional rewards and quality outcomes is fully mediated by relational coordination among employers

**H2c**: Strength of Cross functional rewards positively predicts efficiency outcomes

**H2d**: Association between Cross functional rewards and efficiency outcomes is fully mediated by relational coordination among employers



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**H3a**: Strength of Cross functional conflict resolution positively predicts quality outcomes **H3b**: Association between Cross functional conflict resolution and quality outcomes is fully mediated by relational coordination among employers

**H3c**: Strength of Cross functional conflict resolution positively predicts efficiency outcomes **H3d**: Association between Cross functional conflict resloution and efficiency outcomes is fully mediated by relational coordination among employers

H4a: Strength of Cross functional team meetings positively predicts quality outcomes

**H4b**: Association between Cross functional team meetings and quality outcomes is fully mediated by relational coordination among employers

**H4c**: Strength of Cross functional team meetings positively predicts efficiency outcomes **H4d**: Association between Cross functional team meetings and efficiency outcomes is fully mediated by relational coordination among employers.

H5a: Strength of Cross functional performance measurement positively predicts quality outcomes

**H5b**: Association between Cross functional performance measurement and quality outcomes is fully mediated by relational coordination among employers

**H5c**: Strength of Cross functional performance measurement positively predicts efficiency outcomes

**H5d**: Association between Cross functional performance measurement and efficiency outcomes is fully mediated by relational coordination among employers

### V. QUESTIONNAIRE DESIGN PROCESS

The questionnaire design process starts with the formulation of survey objectives and information requirements and continues with the following steps: 1. Knowledge of the respondents 2. Reviewing previous questionnaires 3. Draft the questionnaire 4. Validate the questionnaire 5.

Review & revise questionnaire 6. Finalise questionnaire. Validating a Questionanire (Cronbach's alpha) Cronbach's (alpha) is a coefficient of internal consistency. It is commonly used as an estimate of the reliability of a psychometric test for a sample of examinees. It was first named alpha by Lee Cronbach in 1951, as he had intended to continue with further coefficients. The measure can be viewed as an extension of the Kuder–Richardson Formula .It is given by,

$$lpha = rac{K}{K-1} \left(1 - rac{\sum_{i=1}^K \sigma_{Y_i}^2}{\sigma_X^2}
ight)$$

K-No of questions the variance of the observed total test scores, the variance of component i for the current sample of persons. Cronbach's alpha is the most common measure of internal consistency ("reliability"). It is most commonly used when we have multiple Likert questions in a survey/questionnaire that form a scale, and we wish to determine if the scale is reliable. The acceptable alpha values are,

Alpha Value	Internal Consistency
a ≥ 0.9	Excellent
0.7 ≤ a < 0.9	Good
0.6 ≤ α < 0.7	Acceptable
0.5 ≤ α < 0.6	Poor



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## **Cross Functional team work**

- 1. How far team work criterion supports health care?
- 2. To what extent you think the information available in previous health records supports health care team to do their jobs well?
- 3. To what extent team experience will be helpful to fix problems if something is so serious.
- 4. How far does the work you carried out as a team member influences quality outcomes?
- 5. From your experience how likely you think the workload distribution in a team is fair enough to the individual team member

#### **Cross Functional Team rewards**

- 6. How often do you get reward for your work based on individual performance?
- 7. How often do you get reward for your work based on
- 8. The rewards match my work and satisfaction
- 9. There may be situation from your experience you might have realized that rewards varies depending upon team's performance
- 10.Do you believe the person who suggested the new idea gets rewarded in your organization?

### **Cross functional Team Meetings**

- 11. How often have you participated in the cross functional team meetings conducted by the management?
- 12. The cross functional team meetings conducted are effective and helps to achieve our objectives
- 13. How often have you participated in the cross functional team meetings conducted by other providers?
- 14. The team meetings are conducted as per plan and in a planned duration 15. Have you got knowledge enhancement in the cross functional team meetings?

### **Cross Functional Conflict Resolution Process**

- 16. When problem arose, I have access to formal Conflict resolution process?
- 17. Team Members help each other during care of the patients
- 18. There exists a conflict between care providers inside or outside the department
- 19. Cross functional conflict do occur in our organization because of vague communication from top level management to bottom level management.
- 20. To what extent do you think cross functional conflict will affect the service provided by the care providers?



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#### **Cross Functional Performance Measurement**

- 21. What kind of relationship cross functional approach has with patient's length of stay?
- 22. To what extent problem solving approach improves patient's length of stay
- 23. How far does the cross functional team meeting carried out influences patient's length of stay?
- 24. How far does the cross functional rewards to the providers influences patient's length of stay?
- 25. How far does the cross functional conflict resolution influences patient's length of stay?
- 26. How far does the cross functional team work among provider's influences patient's length of stay?
- 27. What kind of relationship cross functional approach has with service quality?
- 28. To what extent problem solving approach improves service quality?
- 29. How far does the cross functional team meeting
- 30. How far does the cross functional rewards to the
- 31. How far does the cross functional conflict resolution influences service quality?
- 32. How far does the cross functional team work among providers influences service quality?

### **Relational Coordination**

- 33. How frequently do you communicate with care providers within your department about the patients?
- 34. How frequently do you communicate with care providers outside your department about the patients?
- 35. Do the care providers within your department communicate with you in a timely way about the patients?
- 36. Do the care providers outside your department communicate with you in a timely way about the patients?
- 37. Do the care providers within your department communicate with you accurately about the patients?
- 38. Do the care providers outside your department communicate with you accurately about the patients?
- 39. When problems arose regarding the care of the patients, do the care providers within your department work with you to solve the problem?
- 40. When problems arose regarding the care of the patients, do the care providers outside your department work with you to solve the problem?
- 41. How much do these care providers within your department respect your role in caring for the patients?
- 42. How much do these care providers outside your department respect your role in caring for the patients?
- 43. How much do these care providers within your department share your goals for the care of the patients?



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- 44. How much do these care providers outside your
- 45. How much do the care providers within your department know about your role in caring for the patients?
- 46. How much do the care providers outside your department know about your role in caring for the patients?

### VI. CONCLUSION AND FUTURE WORK

This special issue presents a collection of papers that explore the coordination of supply chain management in health services. Clearly, much research work needs to be done. We have framed hypothesis for relational coordination model. The questionnaire also framed and the survey work is in progress for selected hospital around our region. All authors in this special issue emphasize the fact that supply chain management in a health care setting is characterized by some unique features, which make it difficult to transfer knowledge from the industrial sector to a health care sector in a direct way. At the same time however, it can be concluded that existing concepts, models and supply chain practices can be extended to supply chain management in health services and existing research underpins the assumption that the health sector can benefit from the lessons learned in the industrial sector. First of all, it seems to be important to further explore the role of coordination parameter can play in supporting the management and control of supply chain practices. Additionally, more research seems to be necessary to address the enablers and barriers when implementing information technology in a health service context. In the various coordination parameters used to conduct the questionnaires in the various hospitals. The complexity of the questions as well as the multidimensional scope of the problems requires knowledge from different disciplines. Hopefully, this special issue is going to be a small step towards gaining a more thorough understanding of supply chain management in health care services. Our future work is survey will be finished by using SPSS software our results will be validated

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