TGP PROJECT

IMPLEMENTING DIAGNOSIS-RELATED GROUP MECHANISM IN MALAYSIA: A GOVERNMENT HOSPITAL EXPERIENCE

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TABLE OF CONTENTS

ABSTRACT

The healthcare cost for demand has increased steadily for the past 20 years. Increasing health care cost is a major concern for the government and all countries are facing funding problems. Development of an effective management tool (case-based funding) for controlling the spending on healthcare is an urgent and important agenda. In Malaysia, the casemix research team formation was an effort on Diagnostic-Related Groups introduction in 1996. By 2021, a total of 131 Ministry of Health hospitals (89.7%) have implemented casemix system. But, until now, the ministry has not completely implemented financial reimbursement to their hospitals. Existing studies offer a predominantly Western perspective, focus on hospital reimbursement, efficiency and patients' quality of care. There is little information regarding hospital experiences adopting DRG in Malaysia. The study aims to understand the hospital experiences (innovative barriers and solution) of MOH Diagnosis-Related Group introduction in Malaysia. The study also wishes to inform researchers, healthcare professionals, and policy makers on the current state of knowledge. The study will be adopting implementing science theory, specifically the Determinant frameworks. In the conceptual framework, the variables are cognitive and behavioural barriers, attitudinal barriers, guidelines and evidence barriers, support and resource barriers, system and process barriers, and innovative solution. The case study design will be involving various category of government hospital's staff (purposely sampling technique). A number of 20 participants will be in-person, in-depth interviewed using semi-structured question until saturate. Several process of translating, transcribing, data editing will be implemented during data processing. Data will be hand coded and analyze for themes and concepts. The themes will be interpreted to answer the study objectives. The study will also give key recommendation on certain gaps and unresolved issues to the hospital management.

CHAPTER 1: INTRODUCTION

I. BACKGROUND OF THE STUDY

Malaysia, inherited from the British Empire, has implemented the federal government system where there is a vibrant allocation of authority between the federal and state governments (Crouch, 1996). The Ministry of Health regulates the health policy and budget, while the State Health Department have their jurisdiction on implementing the policy. Meaning that the resource utilisation and performance of the government hospitals and clinics are actually under the monitoring of the State Health Department (Chongsuvivatwong, 2011)

The healthcare cost for demand has increased steadily for the past 20 years (Chee, 2008). Increasing health care cost is a major concern for the government and all countries are facing funding problems (Hong, 2011). The condition will transform vastly in the future as the population ages, a better demand for healthcare delivery, and more chronic diseases are expected, despite the fact our healthcare expenses is still fairly low. The Malaysia economy at the same time is growing (Sanjaya, 1995).

Malaysia hospital budget allocation are historical based. Development of an effective management tool (case-based funding) for controlling the spending on healthcare is an urgent and important agenda (Kananatu, 2002). The Ministry of Health Malaysia obligation to act and guarantee that excellence healthcare remains affordable and acceptable to all Malaysians (Chai, 2008).

MOH Diagnosis-Related Group

Under the umbrella of Medical Development Division, Casemix System Unit was established in 2009. By definition, casemix is a management tool to classify patient's treatment for every episode of care into homogenous groups according to similar clinical characteristic and the resource consumption. This refers to the range and types of patients a hospital treats (Fetter, 1980). The Diagnosis-

Related Group or DRG is accustomed by treatment delivered, the number of cases and comorbidities type.

Casemix data is initially captured from the hospital level. Upon discharge, patient's information from the case note or electronic medical record is use for data entry purposes. This include on selected patient's demographic and encounter information, and all clinical (diagnosis and procedure) data. The information then is entered in the Clinical Module of MOH Diagnosis-Related Group application by the Medical Record Office. For every patient's episode, a Diagnosis-Related Group will be assigned by the system. Combine with hospital costing information entered in the Costing Module, the system will generate hospital executive information for every episode of care. This data then can be used by the policy maker for financial reimbursement. The MOH Diagnosis-Related Group Application Workflow can be depicted from Figure 1.

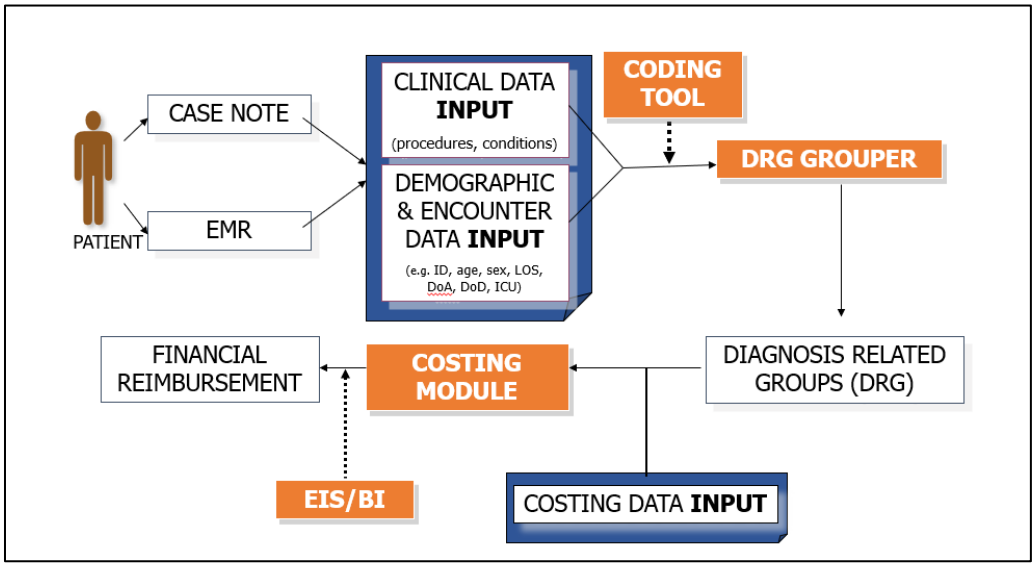

Figure 1. MOH Diagnosis-Related Group Application Workflow

Clinical information and hospital financial reimbursement is intimately related. The data entered into the system will generate a clinical group, Diagnosis-Related Group (DRG) with its average length of stay (ALOS). Every group by severity of illness of each patient has its own Price Per Case. There is a relationship between average length of stay (ALOS) and price per case, where coefficient of determination is close to 1 for more than 80% of the cases.

Ministry of Health Malaysia's casemix system functions to determine combination of hospital cases that reproduces the variety, clinical complexity and the resources needed in the hospital patient's population. It assists as an information instrument that permits policy makers comprehend the nature and complexity of health care services. The ultimate aim is to developed a fair hospital financial reimbursement, which is based by a predetermined volume for every patient visit or admission. The system measures hospital performance (Pay-for-Performance, P4P), targeting to recompence initiatives that gain efficiency in hospitals (Casemix Report, 2012).

II. STATEMENT OF THE PROBLEM

In Malaysia, the casemix research team formation involving representatives from the Ministry of Health Malaysia and three university hospitals was an effort on introduction of Diagnostic Related Groups in 1996. The pioneer hospital in the country to fully implement a casemix system was The University Kebangsaan Malaysia Medical Center (UKKMC) since 2002 (S. M. Aljunid, 2010).

Six hospitals from the Ministry of Health was selected to start working on DRG as pilot project in 2010. By 2021, a total of 131 Ministry of Health hospitals (89.7%) have implemented casemix system. But, until now, the ministry has not completely implemented financial reimbursement to their hospitals. However, clinical and costing information collection have been an ongoing process to achieve optimum data accuracy and completeness.

Existing studies offer a predominantly Western perspective, focus on hospital reimbursement, efficiency and patients' quality of care. There is little information regarding hospital experiences adopting DRG in Malaysia. Hence the purpose of this study is to reduce that gap.

The succeeding research question shall be responded:

- What sort of implementing barriers do the hospital face adopting the DRG?

- What are the solutions to overcome these barriers?

III. OBJECTIVES OF THE STUDY

GENERAL:

The study aims to understand the hospital experiences of MOH Diagnosis-Related Group introduction in Malaysia, specifically Shah Alam Hospital.

SPECIFIC:

- To determine the implementing barriers by the hospital management and its staff.
- To understand the innovative changes made by the hospital since the MOH Diagnosis-Related Group implementation.

IV. SIGNIFICANCE OF THE STUDY

The study aims to ascertain the current state of knowledge, identify the gaps and unresolved issues to be tackled by the study hospital management.

It can be used as an awareness and lesson learn by other hospital management for continuous quality improvement in implementing DRG.

The study wishes to form an empirical evidence on the experience of implementing Diagnosis-Related Group by the hospital. The study also wishes to update policy makers, healthcare professionals, academics and researchers on the present state of facts.

CHAPTER 2: THEORETICAL BACKGROUND

I. REVIEW OF RELATED LITERATURE

The literature map can be depicted from Figure 3 below.

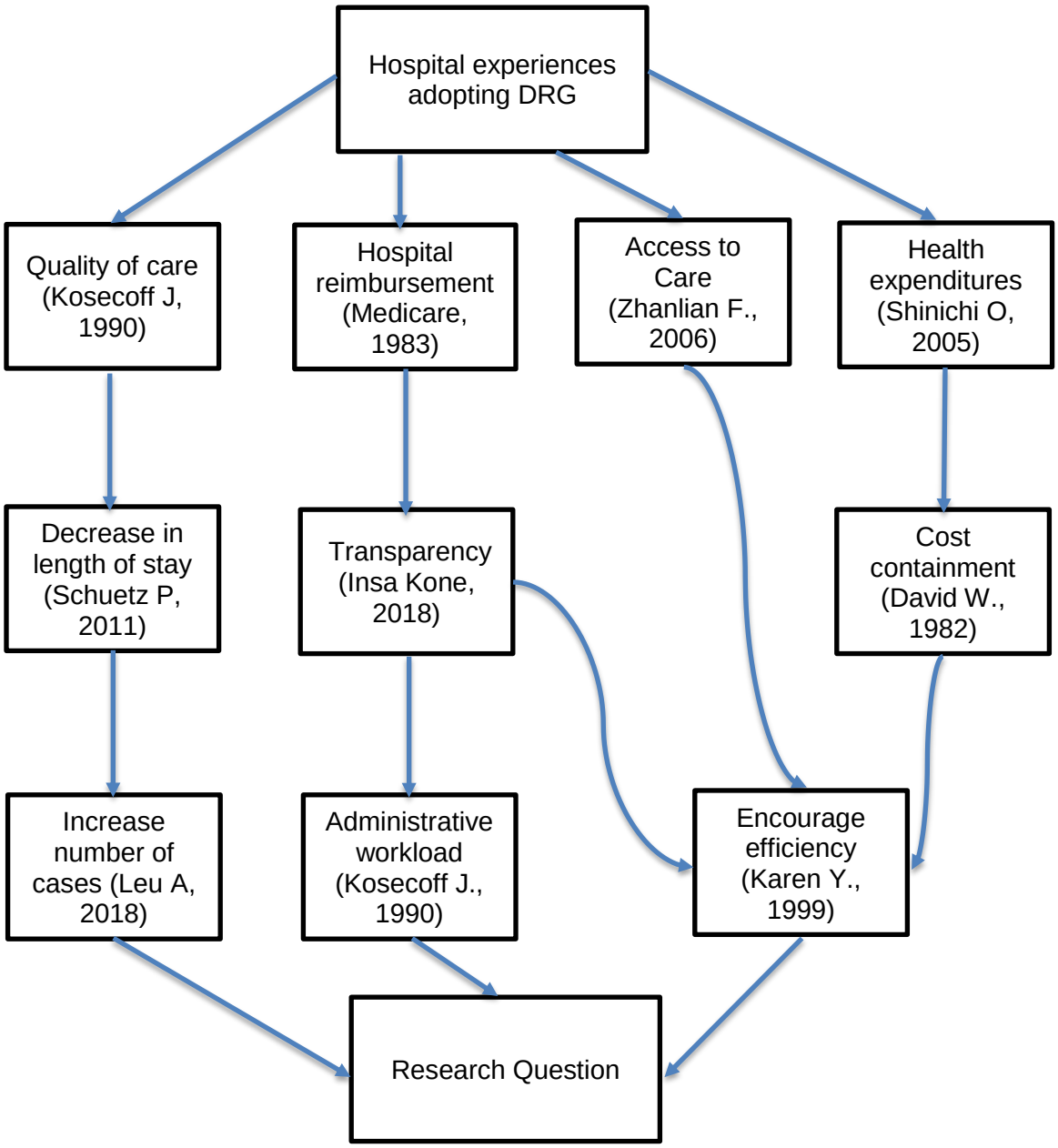

Figure 3. Literature Map

Research Question:

- What sort of implementing barriers do the hospital face adopting the DRG?
- What are the solutions to overcome these barriers?

Quality of Care

The DRG-based reimbursement system claim that the payment scheme might cause doctors to select more lucrative patients, discharge patients hastily to move the load to outpatient services and other hospital, and there is evidence growth of administrative workload (Kosecoff J, 1990).

Generally, there is no DRG outcome on patient's volume of care, readmission to the hospital, or even mortality rate (Jauss M, 2010). The utmost commonly used outcome variables were number of cases, cost and reimbursement (Leu A, 2018), and average length of stay (Schuetz P, 2011).

A researcher identifies a rise in reported severity of illness and an advanced probability of post-acute care admission under DRG in the United States (Jauss M, 2010).

Hospital Reimbursement

The DRG-based reimbursement was initially started in the United States. Subsequently, countries like Canada, Spain, the Netherland, France, Germany, Switzerland, and Australia have also applied DRG-based payment systems in 1983 (Medicare, 1983).

The reimbursement system objectives are to decrease global health expenditures, strengthen financial transparency, and reassure efficiency on health system (Insa Kone, 2018). Assessment on hospital productivity and efficiency displayed that the sign for number of beds, doctors, nurses, and non-

medical staffs is positive based on a Stochastic Frontier Analysis model in Malaysia (Aljunid, 2010).

A main aim of the DRG-based reimbursement system was to reduce hospitals' fee-for-service in terms of the financial incentive. There was evidence that the physician intended to keep patient longer than necessary (Insa Kone, 2018).

Access to Care

Patient characteristics decreased the observed variation in referrals (Susanne Salem-Schatz, 1994).

The implementation of DRG-based reimbursement system augmented patient access to care for higher acuity Medicaid populations (Zhanlian Feng, 2006). There were policies intended to encourage patient access to care for tremendously costly patients in Medicare outlier payment and 30-day readmission (M. J. Englesbe, 2009).

There were systemic variances in some characteristics of quality of care by facility type, i.e. extra access in hospital clinics for patients (Barbara S, 1994).

Health Expenditure

The Japanese DRG-based reimbursement system decreased average length of stay (ALOS), but the hospital expenditures for inpatients were not affected. However, there is an increased in outpatient expenditures (Shinichi O, 2005). The acute and chronic care integration plan exhibit losses and higher expenditures among casemix groups. It suggests a need for refinement of social health maintenance organization operations (Robert N, 1995).

Existing political pressures for cost containment seems to make the DRG-based reimbursement system unavoidable. The system able to sway hospital cost effectively. Yet, the design of a reimbursement system must mirror the important and traditional philosophies of an organization control systems. DRG-based

reimbursement system does not content on basic organization control philosophies (David W, 1982).

In Australia, one of the objectives of the DRG-based reimbursement system was to enhance the existing global budget system’s efficiency (Karen Y, 1999).

II. CONCEPTUAL FRAMEWORK

In implementation science, there is 3 principals of the uses on models, frameworks, and theories (Per Nilsen, 2015):

- Controlling the process of explaining research into practice
- Explaining the outcomes of implementation variables
- Implementation assessment

There are 5 domains in theoretical approaches exploited in implementation science (as in Figure 4). The categories are the Process models, Determinants frameworks, Classic theories, Implementation theories, and Evaluation frameworks.

The implementation science theory methods goal is to understand and explain implementation outcome variables, that can be further drill down into determinant frameworks, classic theories and implementation theories. This is constructed on origins description, development process, source of knowledge, objectives and uses in implementation science.

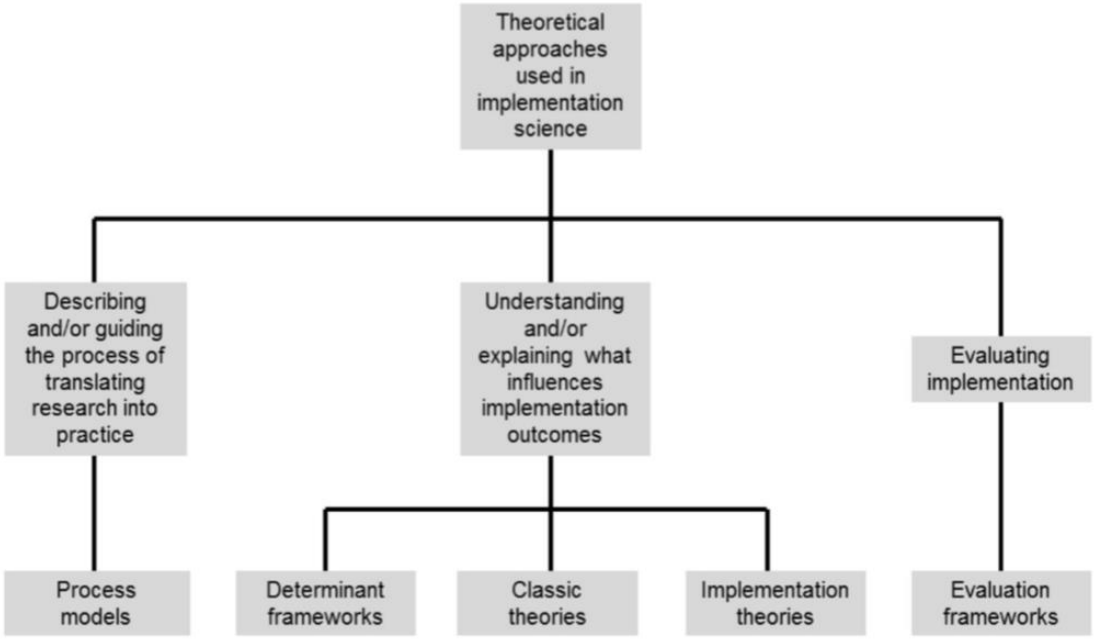

Figure 4. Theoretical approaches in implementation science (Per Nielson, 2015)

A conceptual framework is developed to understand better on hospital experiences adopting DRG in this study using the Determinants Framework. The framework can be depicted in Figure 5.

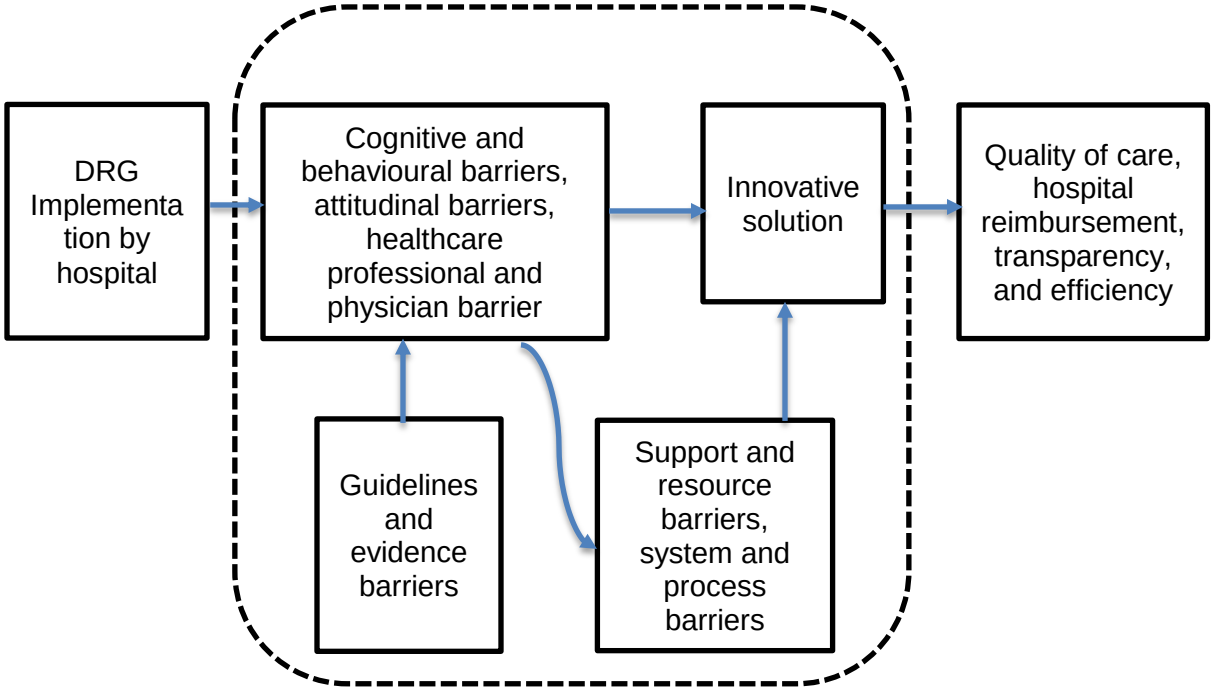

Figure 5. Conceptual Framework of Hospital Experiences Adopting DRG

Characteristic of the implementation object will explain on guidelines and evidence barriers.

Characteristic of the users/adopters will be describing on cognitive and behavioural barriers, attitudinal and rational-emotional barriers, healthcare professional and physician barriers.

Characteristic of context will be addressing the support and resource barriers, system and process barriers.

The other variable is Innovative solution.

CHAPTER 3: METHODOLOGY

I. STUDY DESIGN

This is a qualitative, case study of Shah Alam Hospital's experiences implementing diagnosis-related group in Malaysia.

II. POPULATION AND SAMPLING TECHNIQUES

The case study design will be involving various category of government hospital's staff (purposely sampling technique). A number of 20 participants will be in-person, in-depth interviewed using semi-structured question until saturate.

Shah Alam Hospital's staff is chosen as study population in view of 5 years implementation of casemix system, which was initiated in 2017. The assumption is the diagnosis-related group culture is mature enough in this setting compared to other hospital. The study hopes to interview and identify the people that will provide the richest data and information possible.

The inclusion criteria are depicted from the table 2 below.

Table 2. Category of hospital staff

No.	Category	Role	Number of participants
1.	Hospital Director	Leading the management to achieve the objective	1
2.	Hospital Deputy Director	Ensure the engagement with the entire stakeholder. Advisor to the hospital director	1

No.	Category	Role	Number of participants
3.	Administrative Department	Planning, formulating, implementing, monitor and evaluate the management aspect of the hospital	1
4.	Finance Department	Involve in completeness of costing data collection	2
5.	Head of Clinical Departments	Cooperation and supporting the Hospital activities. To adhere with standard operating procedure of the hospital in management of patient. Ensure complete and accurate documentation by doctors.	3
6.	Doctors	To comply clinical pathway according to local and international standard. Complete and accurate documentation.	3
7.	Casemix Clinical Coordinator	Coordinate casemix activity in the hospital	1
8.	Nursing Unit	Ensure the disposal of case note from ward to medical record unit.	3

No.	Category	Role	Number of participants
		Ensure complete collection of clinical form	
9.	Medical Record Unit	Involve in assigning ICD-10 codes for diagnosis and ICD-9-CM codes for procedures. Involve in hospital performance and clinical data collection Clinical data management.	3
10.	Information Technology Unit	Provide technical support on information technology	2

III. MATERIALS

Interview tool is used to facilitate implementing the study. There are several documents identified for document control. The list of documents and materials involve can be depicted from Table 3.

Interview guide is developed to guide and facilitate the interviewer during the interview session (Appendix 2)

The interview list identifies information and detail of the interviewee. It also contains the date, time and venue of the interview session (Appendix 3).

Informed Consent Form is a mandatory form to be completed by the interviewee before the question and answer session (Appendix 5).

Table 3. List of Interview documents and Materials

No	Material	Reference	Note
1.	Interview material checklist	Document 1	
2.	Interview guide	Document 2	
3.	Interviewee list	Document 3	
4.	Research approved letter	Document 4	
5.	Informed Consent Form	Document 5	
6.	Research background	Document 6	
7.	Data collection strategy	Document 7	
8.	Key interview questions	Document 8	
9.	Recording field notes	Document 9	
10.	Recorder (phone and laptop)		
11.	Transcribing notes	Document 10	
12.	Code Manual	Document 11	
13.	Data storage		

Other document will be discussed on further topics.

IV. DATA COLLECTION

The data collection is based on in-person, in-depth interview using a semi-structured question. It should give the interviewee with an open flexibility to answer the question according to the variables. The questions are neutral to facilitate free flow of information and open-ended question so that respondent can choose their answer. It is understood that the interviewer does not influence the respondent by asking leading question. Note taking should be meticulous and systematic during this session.

Data collection strategy determines whether the variables are answering for each objective. (Appendix 7). Key interview question provides interview guide for each variable (Appendix 8).

V. DATA PROCESSING

After the data collection, a few processes need to be done before analyzing the data. The data need to be translated into English language if the interview session is in Bahasa Malaysia. The data then need to be transcribed to a form after reviewing the Document 9 Recording Field Notes and listening to the recorder (Appendix 9). Both the translating and transcribing processes are to be entered using Document 9 Transcribing Note (Appendix 10). The document needs to be organized to make it easier to read all the data. The organizing data process will by assigning a keyword signifying a domain in the margins.

Process of data coding is later will help to identify topics based on the past literature and common sense. A Code Manual is developed where there are several propose potential codes and themes that might emerge in the study (Appendix 11).

The next process will be data cleaning and editing, where inspection and correction of any errors or inconsistencies in the information collected.

Data storage is use to store the data using free online data storage, Dropbox. This storage provides 5 gigabytes of space. The data is stored for 7 years after the study has been conducted.

VI. DATA ANALYSIS

During data analysis, it is best to interrelate themes and description found from the data. The meaning of themes and descriptions is then will be interpreted accordingly. It details a setting description, pursued by data analysis for themes

and issues. The interpretation includes lessons learned, identify confirmation, divergence, and comparison with theories and general literature.

The validity of the data is to determine accuracy in the findings from the researcher, participant or the readers perspective. It is done by triangulate different data source, clarify the bias, present findings that are negative or discrepant information, and prolonged field time.

The data reliability is where the research approach is constant among other and different research. The processes are to vastly document all the procedures, research protocol and database to be set up for others to follow, check transcript for accuracy, ensure consistency of code definition, and document meetings and analysis.

VII. STUDY LIMITATIONS

There are numbers of limitation that can be identified by doing the study. There is a major possibility where limited knowledge on the variables (enablers, barriers and solution). This is due to a number of old staffs implementing DRG have move out and replaced by new staffs. The researcher determines to minimize the risk by applying a purposive sampling technique. Other participant factors are the answer is not applicable answer (emotions, feelings, not facts) and where there is no response by the interviewee.

Interview session will be time consuming where the researcher needs to prolong the field time to ensure data validity. The data collection relies much on memory of the participant, where they provide indirect information filtered through the views of the interviewees. It can be easily to lose focus. The researcher will find it much harder in assessing the external realities.

On analysis, other possible limitation are where new themes that might emerge in the study. Field editing is required where it involves reviewing the

accomplished data collection forms while still on field where data are to be collected.

VIII. ETHICAL CONSIDERATIONS

The study allows flexibility to the study participant. This allow voluntary participation and for them to continue or not the interview. All information gathered will be transcribed and analysed to ensure transparency.

Document 5 Informed Consent Form is used prior to question and answer session. The interviewee should understand what the researcher's intention in the study and the information that will be reported. The interviewer should evidently convey confidentiality terms concerning on study results accessibility. The interviewee has the right to participate, review and informed consent form to be signed.

There are no power dynamics between the researcher and interviewee. The study is not involving any sensitive issue or studying any vulnerable population.

Appendix 1

Document 1. List of Interview documents and Materials

No	Material	Reference	Note
14.	Interview material checklist	Document 1	
15.	Interview guide	Document 2	
16.	Interviewee list	Document 3	
17.	Research approved letter	Document 4	
18.	Informed Consent Form	Document 5	
19.	Research background	Document 6	
20.	Data collection strategy	Document 7	
21.	Key questions	Document 8	
22.	Recording field notes	Document 9	
23.	Recorder (phone and laptop)		
24.	Transcribing notes	Document 10	
25.	Code Manual	Document 11	
26.	Data storage		

Appendix 2

Document 2. Interview Guide

No	Activity	Material
1.	Introductory	• Researched approved letter • Consent • Recorder
2.	Background characteristics	Research background
3.	Ice-breaker	
4.	Key questions	• Recording field notes • Key question • Recording field noted
5.	Ending Questions	
6.	Closure	

Appendix 3

Document 3. Interviewee List

Interviewer Name:					
Date:					
Venue:					
No	Participant name	Designation	Phone number (optional)	Email address (optional)	Interview time
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					

Document 4. Hospital Research Approved Letter

Appendix 5

Document 5. Informed Consent Form

I voluntarily agree to participate in the study of the 'Implementing Diagnosis-Related Group Mechanism in Malaysia: a government hospital experiences. I understand that this study is being conducted by Dr Fawzi Zaidan Bin Ali, the researcher, is to understand the hospital experiences on MOH Diagnosis-Related Group introduction in Malaysia, specifically Shah Alam Hospital and is also the basis of his TGP Project.

I understand that the study methods which may involve me are:

1. the researcher's recorded in-person interview and its process and/or

2. my participation in a 20-30 minutes interview.

I grant permission for the interview to be tape recorded and transcribed, and to be used only by Dr Fawzi Zaidan Bin Ali for analysis of interview data. I grant permission for the evaluation data generated from the above methods to be published in a study paper, dissertation and future publication(s).

I understand that any identifiable information in regard to my name and/or facility name may be listed *only* in the above-mentioned analysis report to the TGP Assessment Panel, that is, this information will *not* be listed in the study paper, dissertation or any future publication(s).

_____

Research Participant

_____

Date

Appendix 6

Document 6. Research Background

The healthcare cost for demand has increased steadily for the past 20 years. Increasing health care cost is a major concern for the government and all countries are facing funding problems. Development of an effective management tool (case-based funding) for controlling the spending on healthcare is an urgent and important agenda. In Malaysia, the casemix research team formation was an effort on Diagnostic-Related Groups introduction in 1996. By 2021, a total of 131 Ministry of Health hospitals (89.7%) have implemented casemix system. But, until now, the ministry has not completely implemented financial reimbursement to their hospitals. Existing studies offer a predominantly Western perspective, focus on hospital reimbursement, efficiency and patients' quality of care. There is little information regarding hospital experiences adopting DRG in Malaysia. The study aims to understand the hospital experiences (innovative barriers and solution) of MOH Diagnosis-Related Group introduction in Malaysia. The study also wishes to inform researchers, healthcare professionals, and policy makers on the current state of knowledge. The study will be adopting implementing science theory, specifically the Determinant frameworks. In the conceptual framework, the variables are cognitive and behavioural barriers, attitudinal barriers, guidelines and evidence barriers, support and resource barriers, system and process barriers, and innovative solution. The case study design will be involving various category of government hospital's staff (purposely sampling technique). A number of 20 participants will be in-person, in-depth interviewed using semi-structured question until saturate. Several process of translating, transcribing, data editing will be implemented during data processing. Data will be hand coded and analyze for themes and concepts. The themes will be interpreted to answer the study objectives. The study will also give key recommendation on certain gaps and unresolved issues to the hospital management.

Appendix 7

Document 7. Data Collection Strategy

Objective	Variable	Data collection strategy	Data collection tool
To determine the implementing barriers by the hospital management and its staff	• Guidelines and evidence barriers • Cognitive and behavioural barriers • Attitudinal and rational-emotional barriers • Healthcare professional and physician barriers • Support and resource barriers • System and process barriers	In-person interview	• Recording field notes • Recorder
To understand the innovative changes made by the hospital since the MOH Diagnosis-Related Group implementation	Innovative solution	In-person interview	• Recording field notes • Recorder

Document 8. List of Key Questions

Guideline and evidence barrier (1-1)	
No.	Key Questions
1.	In your opinion, how effective are the guidelines provided by the Ministry of Health?
2.	In relation to your previous response, what is the most important factor that attracts you to implement the program according to the guidelines?
3.	Do hospital have a standard operating procedure implementing the program?
4.	Do the hospital's staff adhere to the guideline or SOP? Why?
5.	In your opinion, what are the limitation on using the guideline?
6.	What is your opinion on the hospital needs in adopting DRG by the Ministry of Health?
7.	Do the evidence showed by the Ministry of Health on implementing DRG reflects the state of your hospital? Why?

Variable: Cognitive and behavioural barriers (1-2)	
No.	Key Questions
1.	Before the implementation of DRG, what is your perception on executing the new program?
2.	In general, what are the process of acquiring knowledge in DRG?
3.	In relation to your previous response, what is the limitation? Why?
4.	How do you act or conduct yourself towards the idea implementing the new program?

Variable: Cognitive and behavioural barriers (1-2)	
No.	Key Questions
5.	What are the staff behavioural to DRG? Why?
6.	In your opinion, what are the challenges to improve the behavior?

Variable: Attitudinal and rational-emotional barriers (1-3)	
No.	Key Questions
1.	What is your point of view regarding DRG? Why?
2.	In your opinion, what is staff's thinking or feeling about implementing DRG?
3.	What are the reasons or logic do the hospital executing such program?
4.	Do the management fulfill the emotion needs of the staffs?

Variable: Healthcare professional and physician barriers (1-4)	
No.	Key Questions
1.	In general, do you think implementing DRG increase administrative workload? Why?
2.	What is the limitation of a health provider executing the program?
3.	Is the clinical documentation important in your settings? Why?
4.	In your opinion, do the hospital performance improve since the start of DRG?
5.	In relation to your previous response, is there any effect on your daily job scope?
6.	What is the level of participation towards DRG? Why?

Variable: Support and resource barriers (1-5)	
No.	Key Questions
1.	Is there any awareness or training programs?
2.	In your opinion, is there any financial limitation implementing DRG?
3.	In general, do you think the infrastructure for the programs are sufficient in quantity and quality?
4.	What is level of support by the Ministry of Health and State Health Department?
5.	What are your thoughts on sufficiency of existing workforce?
6.	In your opinion, do the information technology assist on implementing DRG? Why?
7.	What is resource limitation?

Variable: System and process barriers (1-6)	
No.	Key Questions
1.	In your opinion, do you think the current hospital system can adopt DRG? Why?
2.	In relation to your previous response, what is the boundaries?
3.	What is your opinion on DRG-based reimbursement system?
4.	What do you think there is a need to change the hospital funding system?
5.	In general, what kind of existing hospital process interference do you experience adopting DRG?
6.	How do you identify the variation in the processes?
7.	In your opinion, why do you think there is disparity between both

Variable: System and process barriers (1-6)	
No.	Key Questions
	your work process and DRG activities?

Variable: Innovative solution (1-7)	
No.	Key Questions
1.	In your opinion, what has been done by the hospital management to improve staff's adherence towards guidelines?
2.	In your opinion, what are solution to enhance staff's cognitive and behavior?
3.	What innovative solutions do you do from a clinical perspective?
4.	In your opinion, what kind of initiatives done by the management to improve support and resource?
5.	What is the new key improvement process to ensure the successful of DRG implementation?

Appendix 9

Document 9 Recording Field Notes

Interview No	:
Participant Name	:
Category	:

Appendix 10

Document 10. Transcribing Notes

Transcript No :	
Participant Name :	
Category :	
	Code

Appendix 11

Document 11. Code Manual

Objective	Variable description	Code
To determine the implementing barriers by the hospital management and its staff	Guidelines and evidence barriers	1-1
	Cognitive and behavioural barriers	1-2
	Attitudinal and rational-emotional barriers	1-3
	Healthcare professional and physician barriers	1-4
	Support and resource barriers	1-5
	System and process barriers	1-6
	Other barriers	1-7
To understand the innovative changes made by the hospital since the MOH Diagnosis-Related Group implementation	Innovative solution	2-1
	Other solutions	2-2

REFERENCES

1. Barbara S. et al, 1994; Costs vs quality in different types of primary care settings.
2. Chai P. Y. et al, 2008; Equity in health care financing: the case in Malaysia.
3. Chee H. L., 2008; Ownership, control, and contention: challenges for future of healthcare in Malaysia.
4. David W. et al, 1982; Medical practice, case mix, and cost containment: a new role for the attending physician.
5. Eric M. et al, 2002; Implementation theory.
6. Hong T. C. et al, 2011; Financing universal coverage in Malaysia: a case study.
7. H. Crouch et al, 1996; Government and society in Malaysia.
8. Insa Kone et al, 2018; A scoping review of empirical evidence on the impacts of the DRG introduction in Germany and Switzerland.
9. Jauss M. et al, 2010; Billing based on a case-based lump sum for stroke: did this lead to discharge of patients in a worse clinical condition?
10. John W. Creswell et al, 2018; Qualitative inquiry research design: choosing among five approaches.
11. Joseph A. Maxwell, 2013; Qualitative research design: an interactive approach.
12. Karen Y. et al, 1999; Efficiency of hospitals in Victoria under casemix funding: a stochastic frontier approach.
13. Kosecoff J. et al, 2010; Prospective payment system and impairment at discharge: the ‘quicker-and-sicker’ story revisited.
14. K. Kananatu, 2002; Healthcare financing in Malaysia.
15. Leu A. et al, 2018; Experts’ perspectives on SwissDRG: second class care for vulnerable patient groups? Health Policy.
16. Medicare program, 1983; prospective payments for Medicare inpatient hospital services—HCFA. Interim final rule with comment period.
17. Ministry of Health Malaysia Casemix Report, 2012.

18. M. J. Englesbe et al, 2009; Case mix, quality and high-cost kidney transplant patients.
19. Per Nilsen, 2015; Making sense of implementation theories, models and frameworks.
20. Robert B. Fetter et al, 1980; Case mix definition by diagnosis-related groups.
21. Robert N. et al, 1995; Case mix controlled service use and expenditures in the social/health maintenance organization demonstration.
22. Sanjaya Lall, 1995; Malaysia: industrial success and the roe of the government.
23. Schuetz P. et al, 2011; quality of care delivered by fee-for-service and DRG hospitals in Switzerland in patients with community-acquired pneumonia.
24. Shinichi O. et al, 2005; Case-mix payment in Japanese medical care.
25. Signe A et al, 2013; A checklist for identifying determinants of practice: a systematic review and synthesis of frameworks and taxonomies of factors that prevent or enable improvements in healthcare professional practice.
26. Susanne S. et al, 1994; The case for case-mix adjustment in practice profiling: when good apples look bad.
27. S. M. Aljunid et al, 2010; The impact of introducing case mix on the efficiency of teaching hospitals in Malaysia
28. V. Chongsuvivatwong et al, 2011; Health and health-care systems in southeast Asia: diversity and transitions.
29. Zhanlian F. et al, 2006; The effect of state Medicaid case-mix payment on nursing home resident acuity.