How to build a seamless referral system:

A case study of Tha Chang Community hospital, Sing Buri, Thailand

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Abstract

Excessive workload, care givers shortage, increasing health expenses due to long term care providing for bed ridden patients, yet poor clinical outcome, has created burden for both health care providers and patients' families' members.

This was a qualitative research. Tool was in-depth interview. Twelve participants were purposively selected from four groups, including Tha Chang Community Hospital, Community Health Center, as well as community health volunteers and the patients' family members. Data were analyzed by using content analysis. Then the results were triangulated between sectors.

Criteria of effectiveness of Tha Chang referral program were patients' clinical outcome, reduction of readmission, frequency of communication errors (transmission of medical data and patient's information), and time delay of care after discharge. Key success factor was the Smart Discharge strategy using Bed Side Conference process. Key persons significantly influencing the Tha Chang Seamless referral program were the family care givers, accompanied by coaching, supporting and empowering from the Buddy Dream Team. The seamless referral system can be built upon staff, information, drug, transportation, referral form, know-how technics, and care.

Key words: seamless, referral system, home ward, care giver

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การสร้างระบบส่งต่อที่ไร้รอยต่อ : กรณีศึกษาโรงพยาบาลท่าช้าง จังหวัดสิงห์บุรี

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บทคัดย่อ

ภาระงานที่เพิ่มมากขึ้น การขาดแคลนผู้ดูแล และค่าใช้จ่ายด้านสุขภาพที่สูงขึ้นเรื่อยๆของการให้บริการดูแลผู้ป่วยติดเตียง ที่ยังไม่สามารถทำให้ผลการรักษาดีขึ้นได้ กลายเป็นภาระที่หนักอึ้งของทั้งผู้ให้บริการสาธารณสุขและสมาชิกในครอบครัวของผู้ป่วย

การศึกษานี้เป็นวิจัยเชิงคุณภาพ เครื่องมือคือการสัมภาษณ์เชิงลึก กลุ่มเป้าหมาย 12 คนถูกเลือกอย่างเจาะจง จาก 4 กลุ่ม คือ เจ้าหน้าที่ของโรงพยาบาลท่าช้าง โรงพยาบาลส่งเสริมสุขภาพตำบล อสม. และครอบครัวของผู้ป่วย ใช้วิธีการวิเคราะห์เนื้อหา จากข้อมูลที่ได้ จากนั้นผลการศึกษาจาก 4 กลุ่ม จะถูกนำมาทำสามเส้าข้อมูล

ประสิทธิผลของโปรแกรมการส่งต่อของท่าช้าง ประกอบด้วย ผลลัพธ์ทางคลินิกของผู้ป่วย การลดลงของการเข้าโรงพยาบาลซ้ำ การลดลงของความผิดพลาดในการสื่อสาร และ การลดลงของความล่าช้าของการดูแลผู้ป่วยหลังออกจากโรงพยาบาล ปัจจัยแห่งความสำเร็จในระบบการสร้างต่อที่ไร้รอยต่อของอำเภอท่าช้างคือ กลยุทธ์ “การออกจากโรงพยาบาลอย่างมีคุณภาพ” ที่ใช้ “กระบวนการประชุมข้างเตียงผู้ป่วย” บุคคลที่เป็นกลไกหลักแห่งความสำเร็จของระบบส่งต่อที่ไร้รอยต่อของอำเภอท่าช้างคือ “ผู้ดูแลผู้ป่วยที่บ้าน” ผนวกกับเทคนิคการสอนงาน การช่วยเหลือสนับสนุน และ การเสริมจาก “ทีมงานคู่หู” การสร้างระบบส่งต่อที่ไร้รอยต่อนั้นต้องประกอบไปด้วยการไร้รอยต่อของ เจ้าหน้าที่ ข้อมูล ยาและเวชภัณฑ์ การเดินทาง แบบลงข้อมูลการส่งต่อ ทักษะการดูแลรักษาผู้ป่วย และ บริการดูแลรักษาผู้ป่วย

คำสำคัญ: ไร้รอยต่อ ระบบส่งต่อ บ้านเป็นหอผู้ป่วย ผู้ดูแลผู้ป่วย

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Introduction

One of the key points of the success of Thai Health Service System is the seamless referral system, since it has been divided into 4 levels of care according to the severity and the complexity of the medical treatment. These four levels are primary care (community health centers at sub-district level), secondary care (community hospitals at district level), tertiary care (general hospitals at provincial level), and excellent center (medical school's hospitals, some large hospitals at provincial level)[1]. With no linkage between these 4 levels, the affected persons will be the patients and their families[2], since many patients are discharged from the hospital with demand of special care requiring urgent follow-up from health care providers[3]. Most of the time, when the patient is referred back home, the information and the know-how technics of the patient care is not properly transferred to the family. Particularly in rural areas, there is evidence that the culture of referral reflects an urban-centric approach, and there is also a medical hierarchy within the referral system[4]. Therefore, it is assumed that a properly designed referral mechanism that minimize barriers would increase treatment compliance, care attachment, and clinical outcome.

In order to bridge the gap of quality care service between secondary care and primary care, there has been a collaboration between Tha Chang community hospital and four sub-district community health centers to build the "Buddy Dream Team", seven years ago. The family care givers (FCG: a patient's family member who has been appointed to look after the patient at home, after discharging from hospital) have been trained to look after the patient after being discharged from hospital. This is a part of the Smart Discharge strategy implementation. The Bedside Conference has been initiated to build continuous patient care at low cost between formal health facilities and the patient home. The responsible FCG of each patient, a community health volunteer, a community health center staff, an IPD nurse, a nutritionist, a physiotherapist, a psychiatric nurse, and a family doctor have to participate in the Bedside Conference. They form the Buddy Dream Team for the implementation of homeward program. But the effectiveness, key success factors, and lessons learned for further improvement has not yet been evaluated.

Objectives

1. To identify the effectiveness of Tha Chang's referral program, and

2. To extract tacit knowledge gained from 7 years of work relating to seamless referral system.

Method

This study was a qualitative research. The tool was in-depth face to face interviews, between November and December 2018. All key informants involving in Tha Chang referral program were purposively selected from four groups, including Tha Chang community hospital, community health centers, community health volunteers and the patients' family members. There were 12 participants altogether, including three family care team members from Tha Chang community hospital (a doctor, a pharmacist, and an In-Patient Department (IPD) nurse), three staffs working in the community health center, two community health volunteers who had been trained as care givers (CGs), and four FCGs. The original context of Tha Chang district as well as Tha Chang hospital has been explored by documentary search. Content analysis was adopted to analyze the data. Each researcher analyzed the data independently. Then a panel meeting between the research team was organized for discussing the results. After that the results from each sector were triangulated.

Results

The context of Tha Chang district

The area of Tha Chang district is 34.97 square kilometers. There are 4 sub-districts: Pikuntong, Wihan Khao, Pho Prachak, and Thonsamore sub-districts formed together as the District Health System (DHS). It was then divided into 23 villages. The population in 2018 was 12,819 people with 9,189 people under the Universal Health Coverage benefit scheme.

Tha Chang community hospital is a 30-bed hospital with additional seven extra beds, 3 diagnosis rooms and an emergency room providing 4-bed emergency service. Daily Out-Patient Department (OPD) cases were 160 patients, and IPD cases were 17 patients. The IPD bed occupancy rate was 57.00%. Between 2014 and 2017, the top five diseases among OPD patients were hypertension, diabetes mellitus, acute pharyngitis, dizziness, and dyspepsia. The top five diseases among IPD patients were diarrhea, bronchitis, dizziness, heart failure, and chronic obstructive pulmonary disease (COPD). Top five causes of death were cancer, septicemia, pneumonia, heart failure, and non-ST elevation myocardial infarction (NSTEMI). There were 101 health professional workers in Tha Chang hospital. Details of Tha Chang hospital's health workforce are demonstrated in Table 1

Table 1: Details of health professional staff in Tha Chang hospital

Profession	Amount	Ratio/ pop
Family doctor	1	1 : 12,819
General doctor	3	1 : 4,273
Dentist	2	1 : 6,409
Pharmacist	3	1 : 4,273
Nurse	42	1 : 306
Public Health	3	1 : 4,273
Supportive staff	46	1 : 279
Total	**101**	

History of seamless referral system construction and development in Tha Chang district

In 2011, the Clinical Practice Guideline (CPG) of Tha Chang hospital had been developed by inter-professional census based on medical academic evidence. There were 3 groups of CPG, including emergency, general diseases categorized by their symptoms, and non-communicable diseases (NCDs). The family care team from Tha Chang hospital and four community health centers, community health volunteers, and FCGs worked together as a team. They called themselves the "Buddy Dream Team" who could bridge the gap of quality care service between secondary care and primary care. At the same time, every sub-district community health center had to prepare at least one referral vehicle. Most of the referral vehicles had been supported by the municipality. Moreover, the hospital and the municipality co-operated to construct the Physical Equipment Unit within the Continuity of Care Center (COC) providing physical and medical equipment rental service for every discharged patients in needed.

In addition, there was a re-organization of the drug system with a pharmacist and a pharmacy technician being responsible. Drug accounts A, B, C, and D were regulated. Account A could be dispensed by any health staff in the community health center. Account B could be dispensed by nurse practitioner in the community health center, whereas account C could be dispensed by doctors only. Account D was a list of drugs for special cases, or some requests from the specialist, and it could be dispensed by doctors only. There is also a drug system supervision by the appointed hospital pharmacist at each community hospital on the day of mobile NCDs clinic.

Most importantly, the formal referral form had been revised to suit Tha Chang's context, based on the concept of "referral form for everyone". This means that the referral form should not only filled by the doctors, but also other relating health professionals. In addition, it should be easy to understand for everyone involving in patient care.

Smart Discharge: the key success factor

In addition to aforementioned practice, the Smart Discharge strategy had been designed, in order to address three problems: 1) the delay of necessary care for patients after discharge, 2) un-prepared family members who have to look after patients with attached medical tools after discharge, and 3) miscommunication between health staffs in hospital, health staffs in community health center, patients and their relatives.

The bed side conference process

Before discharging any patients from the hospital, the referral system had to start with the notification of the Buddy Dream Team in Tha Chang community hospital, who contacted the family to identify the FCG. At the same time, the Physical Equipment Center (PEC), under the supervision of Tha Chang municipality, would be contacted to prepare necessary equipment for each individual patient. The staff of PEC would send all necessary equipment to the patient's home, and also assist the patient's family members to prepare home environment according to the recommendation of the Buddy Dream Team. Then, the patient would be referred to Tha Chang community hospital for the "Bed Side Conference which was designed to be a case specific conference at the bed of each bed-ridden patient. The participants were a patient's relatives, especially the selected FCG, an appointed doctor, an appointed IPD nurse, a psychiatric nurse, a physical therapist, pharmacist, an appointed community health center's staff, and an appointed CG. In some special cases, there would be also nutritionists, and/or social workers. Then the patient was discharged and referred to their properly prepared home. The FCG, who had already prepared necessary knowledge and given tasks, would be the one providing patient care. The FCG would not be alone, there was regular support and supervision from the appoint CG 2 times a week. In addition, there would be home visits from the Buddy Dream Team once a month. The purposes of Smart Discharge process were 1) the effective coordination of the health team, 2) the availability of necessary orthotics, 3) the existing of timely data, and 4) the reduction of conflict within the health team.

The productivity of Smart Discharge within Tha Chang referral program

In 2015 there were 9 cases (0.47% of the total) Smart Discharged patients, in 2016 32 cases (1.82%) and in 2017 17 cases (0.89%). The details of care needed are provided in Table 2, and the details of diseases of these Smart Discharged patients are shown in Figure 2.

Most of the Smart Discharged patients had a special need of NG feeding care, and urinary catheter care.

Table 2: Care needed among Smart Discharged patients in 2016-2017

Year	Dressing	NG feed	Urinary catheter	T tube	O_2
2016	6	21	7	1	-
2017	1	15	5	4	2

The majority of undergone Smart Discharged patients were stroke and urinary tract infection (UTI) in 2016, whereas chronic kidney disease (CKD) and pneumonia were the major diseases among the Smart Discharged patients in 2017.

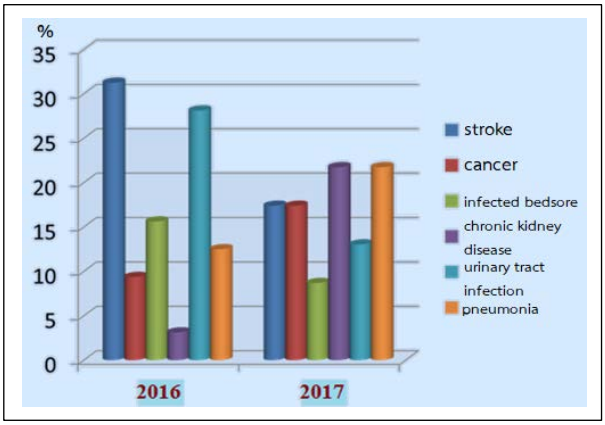

Figure 2: Disease characteristics of Smart Discharged patients in 2016-2017

The effectiveness of Tha Chang referral program

The effectiveness of Tha Chang referral program were 1) the clinical outcome of the patients, 2) the reduction of readmission, 3) the reduction of transmission error, and 4) the reduction of time delay of care after discharge. The clinical outcome of the Smart Discharged patients is shown in Figure 3.

The clinical condition of almost half of the patients improved, though most of them were anticipated in end state condition.

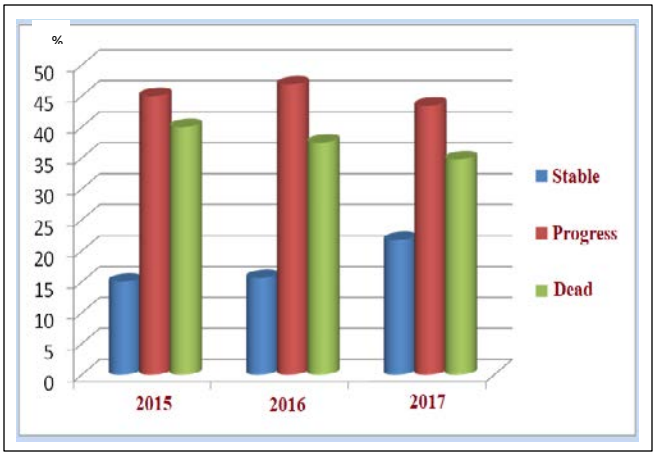

Figure 3: Clinical outcome of the Smart Discharged patients

Moreover, there were other benefits according to the objectives of Smart Discharged process which is detailed in Table 3.

The most significant benefits according to the Smart Discharge process's objective were the reduction of time delay for care after discharge,

and the reduction of transmission error. However, the reduction of readmission rate was less than 20.00%.

Table 3: Benefits according to the Smart Discharged process's objectives

Objective	2015	2016	2017
Readmission rate	86%	86.16%	82.35%
Transmission error	7%	0%	0%
Time delay	0%	0%	0%

Discussion

1. The effectiveness of Tha Chang referral program

The reduction of readmission rate was the result from 1) clarified role of health profession, 2) both CG / FCG and the Buddy Dream Team implementing the same care plan, 3) integration of family assets and academic competency according to the care plan.

The reduction of transmission error was the result of medication reconciliation. Since Kennelty et al. (2015)[9] found that discharge communication and relationship between health service providers and patients were significant barriers of medication reconciliation process among recently discharged patients, the Smart Discharge strategy could reduce these gaps.

The reduction of time delay of care after Smart Discharged was the consequence of 1) shorter communication process, by reducing multi-stepped paper work, and 2) suitable time frame of care plan developed within the Smart Discharge process.

Key success factor of Tha Chang Seamless referral program was the Smart Discharge strategy using Bed Side Conference process. The key person significantly influencing the Tha Chang Seamless referral program was the FCG, accompanied by Buddy Dream Team who coached, supported and empowered them.

2. The tacit knowledge gained from 7 years of work relating to seamless referral system

The lesson learnt from building the successful Tha Chang seamless referral system is that it has to be built upon the seamless of staff, information, drug, transportation, referral form, technical know-how, and service. The details of each tactic are as follows.

Seamless acting staff

This means multi-profession, multi-organization, and multi-level of care team members, as we could see in the Buddy Dream Team.

Seamless information

This is the flow of patients' data within District Health System (DHS), from hospital to community health center and the patients' home, in order to design and revise the care plan

properly. Also the application of technology such as Line, Skype, and Facebook is a mean of effective communication.

Seamless drug distribution

This is the availability of quality drug and supplies, although the patients had to stay at home. In addition, the flexible regulation of dispensing authority was the sign of seamless drug. Bed Side Conference could be considered as an effective interventions to reduce medicine discontinuity at transitions during and after discharge[5,9].

Seamless transportation

In the case of rural poor people, the availability of referred vehicle is a significant factor of seamless referral system. The seamless of transportation means the support from other organizations such as the municipality, or the EMS foundations.

Seamless referral form

The general format of patient referral form was very difficult to fill, and it was provided for the doctor only. The effective referral form should be easy to fill by any health professions. Most of all, it should be easy to understand by non-health-professions.

Seamless technical know-how

This means the family member has been trained and empowered to be the FCG through Bed Side Conference. According to Tha Chang seamless referral model, this on the job training – competency building strategy was accompanied with coaching and supporting from the Buddy Dream Team. Importantly, the FCG is the key body within Tha Chang succeeded seamless referral model. Involving family members in bed-ridden patients care is not a new concept, but recent developments in this partnership model have helped to shape the depth and breadth of family involvement in quality of care improvement. Families were more than stakeholders in either bed-ridden patient care or palliative care, and they could serve as active partners in referral system design and improvement. The opportunity to enhance and improve partnerships with families was imperative to nurture a culture that ensures the best possible clinical outcomes[6]. Moreover, the CPG in emergency situations was also the factor affecting the seamless technical know-how[7].

Seamless service

Patient medical care at home is possible; it reduces the barriers of medical care service accessibility. Recent studies have shown that home-based medical services could reduce costs and improve outcomes. There are two types of home-based medical care services, home-based primary care and home-based palliative care according to its historical context and specialty background[8].

3. Difficulties

This is the agreement of only one district. Many institutions, especially tertiary level hospitals, do not follow the described procedure. As a consequence, many bed ridden patients are referred back home directly, without the preparation of family care giver, equipment, and home environment. The Buddy Dream Team has to work hard to improve these patients' quality of life.

Recommendation

Seamless referral system contributed to patients' safety, and improved clinical outcome even more than it was expected after patients discharge from hospitals. The lesson learnt from our study is that a seamless referral system is not only a logistic convenience, but also a combination of the homeward program, DHS management and the Smart Discharge which is based on the empowerment concept. The involvement of a family member as a FCG who can provide 24 hours care for the patient is crucial for the strategy to work. Importantly, at district level, the system requires the collaboration of all respective partners within the community, including a community hospital, community health centers, a municipality, community health volunteers, patients, patients' family members, and their neighbors.

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