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# **Development of a coordinating model for home care of stroke patients by family and community care teams using the appreciation influence control technique**

**Uten Sutin**

Department Community Medicine Family Medicine, Thammasat University, Pathum Thani Province, Thailand

**Srimuang Paluangrit**

Department Community Medicine Family Medicine, Thammasat University, Pathum Thani Province, Thailand

**Supika Dangkrajang**

Department Community Medicine Family Medicine, Thammasat University, Pathum Thani Province, Thailand

**Wandee Sutthinarakorn**

Department Of Technology For Education, Kasetsart University, Bangkok, Thailand

**Vanida Prasert**

Faculty Of Public Health And Allied Health Sciences, Praboromarajchanok Institute, Bangkok, Thailand

**Apichet Jumneansuk**

Valaya Alongkorn Rajabhat University Under The Royal Patronage, Pathum Thani, Thailand

**Abstract**--Background: Stroke patients and their caregivers face huge challenges from patients' health problems when they leave the hospital to rehabilitate at home. Objective: To develop a model for coordinating the participation of family and community care teams to support stroke patients at home. Methods: We conducted a qualitative study applying the Appreciation Influence Control technique. Purposive sampling was employed to select 120 key informants comprised of 50 family medicine members, 10 community leaders, 30 stroke patients, and 30 patient caregivers. Data collection consisted of interviews and focus group discussions. Patients and caregivers were

followed up at 1, 3, and 6 months after discharge from the hospital. Data were analyzed by content analysis. Results: The coordinating model of the health care team provided standard guidelines for home care of stroke patients, improved the referral system from hospital to home, trained public health volunteers and caregivers about caring stroke patients at home, and organized community leaders to support patient equipment and rehabilitation facilities. The collaboration between the health care team and community leaders, as well as with patients and caregivers, improved the quality of life for stroke survivors. In addition, this model encourages the health care team, community, and patients and their families to develop a health care system for stroke patients and to address their rehabilitation when they return home.

**Keywords**---Post stroke, home visits, family and community care teams.

## **Introduction**

Stroke is a major public health problem that was the second leading cause of death around the world in (year??). The annual number of strokes and deaths has increased substantially from past to present (Stinear CM, Lang CE,2020). Stroke patients confront physical, mental, and social problems after being discharged into their homes. In addition, they may experience many complications after their stroke such as falls and fractures, bedsores, infection, aspiration pneumonia, depression, and anxiety (Le Danseur M,2020) Patients who were discharged from the hospital to their home should receive rehabilitation by a professional health care team to reduce stroke recurrence and disability (Kushner DS,2020). Thus, optimal care requires a multidisciplinary approach involving family medicine doctors, nurses, public health staff, and community leaders. In addition, caregivers fill the important role of providing support and encouragement for post stroke patients. In particular, caregivers assist stroke survivors in performing the activities of daily living, which are essential to improve their functional status (Aadal L, Angel S,2018). Unfortunately, patients and caregivers often lack knowledge about guidelines for stroke care (Writing Group M,2016). Community-based stroke multidisciplinary teams can potentially provide better health services for stroke patients and improve the experience of stroke patient survivors (Gillen RW, Fusco-Gessick B,2021).

Thailand is a country located in Southeast Asia with an approximate current population of 70 million people. Stroke is a major health burden in the country. The incidence of strokes in Thailand has been increasing annually. There were approximately 250,000 new stroke cases in 2021, which accounted for more than 50,000 deaths that year (Gregg C Fonarow,2021). Currently, the demand for home rehabilitation for stroke patients is increasing. However, availability of home rehabilitation is limited because of the lack of standards and guidelines for taking care of stroke patients at home. Other obstacles are the lack of professional teams to provide home rehabilitation and not enough equipment (Shimatani K, Hiraki T, 2021).

Appreciation Influence Control (AIC) is a technique used to build participation among stakeholders. There are three main steps. First, "Appreciate" means health care providers appreciate the realities and possibilities of the situation by taking a step back to gain perspectives on the stakeholders and their situation. Secondly, "Influence" means the logical and strategic options for action are explored, as well as the subjective feelings and values that influence the selection of strategies. Finally, "Action" means the stakeholders take responsibility for choosing a course of action freely, based on information brought to light through workshops, meetings, and activities (Thompson MP, Zhao X, 2017; Amin A, Deitelzweig S, 2019). A previous study utilized the AIC technique to study community partnership, context-based intervention, and diabetes control in Thailand. The results revealed that the community partnership created appropriate strategies and interventions to combat diabetes mellitus (Pinto SM, 2019). Another study found that there was a lack of suitable and standard processes in the primary health care system to provide rehabilitation for stroke patients at home in Thailand (Sujimoto K, Mizuno K, 2019). Therefore, our study examines the use of the coordinating model for the participation of family and community care teams in caring for stroke patients at home. We applied AIC strategies to encourage the participation of community members and the health professional care team to improve stroke care service at home.

## **Methods**

### *Study design, setting and participants*

We conducted a qualitative descriptive study by applying AIC as a technique to encourage participation among the team of family doctor team and the community staff. The study was conducted in the Bothong district of the Chonburi Province, which is located in the eastern part of Thailand. The district has a population of 10,152 people. It is a rural community with a high incidence rate of strokes (224.70 per 100,000 population) (Panupong Tantirat, Repeepong Suphanchaimat, 2020). Eligible participants included different types of stakeholders: 1) 50 family medicine members (doctors, nurses, pharmacists, physical therapists, public health academics, mental health professionals, nutritionists, health volunteers), 2) 10 community leaders, 3) 30 stroke patients, and 4) 30 caregivers who took care of stroke patients. The study was approved by the Human Research Ethics Committee of Thammasat University (Project No:COA 236/2020). All participants were fully informed and provided signed consent before participating in our study.

### *Data collection and analysis*

The development phase of the coordinating model for the participation of the family doctor team and the community leaders consisted of 3 activities. First, 50 family medicine members and 10 community leaders were trained about cerebrovascular disease, stroke symptoms, and factors of home rehabilitation, including the specific role of caregivers for stroke patients at home. Secondly, participants practiced caring for stroke patients after discharge from the hospital to home.

Finally, all participants met for a discussion to develop stroke care policy for the family care team and the community leaders through the AIC process. Using the AIC process, the participants' discussion followed the following steps: Appreciation (A): Created a vision and developed strategies to care for stroke patients at home to increase efficiency and to reduce complications and disability. Influence (I): Determined home care activities, guidelines for stroke patients, and the role of health care team to care for stroke patients at home. Control (C): Promoted a good attitude to increase compliance in delivering and receiving stroke services at home by using persuasive strategies. In addition, the health care team focused on controlling the severity of symptoms among stroke patients and improving the patients' quality of life at home. Data was collected through brainstorming, group discussion, and interviews. The group discussion was conducted among health care team members and community leaders to plan the strategies and policy for caring stroke patients at home. In addition, the health care team also brainstormed to create the guidelines for care of stroke patient at home.

Stroke patients and caregivers were interviewed by using a questionnaire that consisted of four dimensions including the 1) quality of life, 2) physical needs, 3) psychological needs and social needs, and 4) environmental needs. Patients and their caregivers were followed up at 1, 3, and 6 months after hospital discharge to improve the efficacy of stroke care service at home by coordinating the participation of family care team and community leaders. All participants' interviews and group discussions were recorded on audio tapes. Each participant interview and group discussion generally lasted about 1-1.5 hours. Data was analyzed using content analysis and a predefined 3-step identification list to categorize the data. We also created relationships between different concepts and grouped data into language structures.

## **Results**

Through participation in this study, participants developed a coordinating model for the participation of family and community care teams in caring for stroke patients at home by applying AIC techniques. The results of the process following AIC techniques were:

For Appreciation: The family care team and the community leaders discussed the current problems regarding caring for stroke patients at home. The guidelines for caring for stroke patients were not clear. The health care team had a high workload. Public health volunteers lacked the knowledge and skills for taking care stroke patients. In addition, community leaders did not have roles to support the care for stroke patients. Therefore, the health care team and community leaders created a new coordinating model for caring for stroke patients at home. All participants collaborated by focusing on the specialty and role of each health care provider. They also received specific training about taking care stroke patients at home. Caregivers and family members of stroke patients were important people to support the long-term stroke rehabilitation and could improve stroke survivors' capability. In the long term, successful rehabilitation of stroke patients decreases the burden of stroke survivors for their family and society. The cooperation

between health care team, community leaders, patients, and caregivers can create the effective stroke rehabilitation program at home.

**For Influence:** The health care team and community leaders developed the guidelines and referral system for caring stroke patients at home based on problems and needs of patients. Health care providers focused on treatment, prevention of complications, and rehabilitation. Community leaders provided support for the referral system and rehabilitation equipment in the community. In addition, public health volunteers monitored the symptoms and problems of stroke patients. Volunteers also supported caregivers with knowledge and environmental management at home.

**For the last step, Control:** The stakeholders, including the medical team, community leaders, public health volunteers, caregivers, patients, implemented the proper guidelines for caring stroke patients at home including activities for stroke rehabilitation as shown in Table 1.

The outcomes following the development of a coordinating model for the participation of family members and community care teams in caring for stroke patients at home were followed up at 1, 3, and 6 months after hospital discharge. The outcomes monitored improvements in the efficacy of stroke care services at home by applying AIC techniques.

Stakeholders provided rich insights during a discussion that resulted in the creation of the coordinating model for care of stroke patients at home. Here are relevant participant quotes from focus group discussion following the AIC techniques that shaped the development of the coordinating model:

“The coordinating model for the participation of family and community care teams in caring for stroke patients at home should be continuously monitored. The community should have a stroke care center to increase the access of emergency stroke care. Moreover, the referral system from hospital to home should coordinate with community leaders to support resources and equipment for stroke patients.” (Doctor)

“The roles of the pharmacists in the health care team were to continuously monitor the adverse drug reactions and to provide the medicine information to patients. In addition, public health volunteers received the training about medicine information such as medicine for stroke, storage, compliance assessment, and drug allergies to take care (of patients) at home.” (Pharmacist)

“Some stroke patients had problems preventing them from coming to visits at the hospital. So the health care team should continuously follow up the symptoms and their severity for stroke patients at home. Furthermore, pharmacists should support medicine for patients at home.” (Nurse 1)

“Stroke patients had the nutritional problems because they consumed oil and salty food. Their caregivers or relatives made those foods at home every day. The attitude and behavior about food consumption of the patients and their caregivers had not changed. They were concerned about the taste of food to increase consumption by patients. The public health volunteers can follow up by collecting information about patients’ food consumption and reporting it to the health care team to address this problem.” (Nurse 2)

“The environment in home such as toilets and bed should be managed and supported by health volunteers, especially for the severely disabled stroke patients. The role of community leaders can be to support the patients in getting necessary equipment such as cars and walkers.” (Community leader 1)

“The community and municipality can support the patient with the equipment to renovate the stroke patients’ house. Our team can also design the proper environment in the home.” (Community leader 2)

“Caregivers were worried about patients falling at night when they went to the bathroom. Some poor stroke patients lacked suitable beds.” (Caregiver)

“In the past, we were not confident in caring for stroke patients. But now we are a part of the health care team. We were trained about physical therapy from the physiotherapist, medicine information by the pharmacist, and the nutritional consumption by the nutritionist. Those trainings improved our knowledge and skills for caring stroke patients at home.” (Public health volunteer)

“After the stroke patients participated in our program, within three months, their physical and emotional state improved. The health care team continuously followed up at 6 months. Patients received physical therapy at home that can improve their ability to walk.” (Physiotherapist)

“Patients and caregivers had developed anxiety and stress related with the severity of stroke. The health care team can support them by providing the mental health information and mental assessment. In addition, public health volunteers were trained by mental health professionals to increase knowledge for caring the mental health of stroke patients and caregivers at home.” (Mental health professionals)

“Anxiety and stress are common mental illnesses in stroke patients and caregivers that seriously affect patient recovery from stroke and their quality of life. Therefore, health care team should support patients and caregivers in the rehabilitation process to reduce depression by adjusting their daily routine to the new normal of their family. In addition, public health volunteers can play a significant role in improving stroke care. They should assess the basic stress or anxiety of stroke patients and caregiver in community to help stroke survivors.” (Mental health professionals)

“There are many public health volunteers that are key factors to improve and maintain health status of stroke patients in community. The compliance in taking medicine is important to monitor among stroke patients. The pharmacist has a role of providing the medication information to support public health volunteers they can easily access and which they can follow up with patients at home. Patients will be checked for compliance. Adverse drug events can be then reported to health care team.” (Pharmacist)

“After stroke patients were discharged to their home, some of them have problems in which they have difficulty swallowing and pain while swallowing. Swallowing problems are more common in people who are very ill, people who have had a

stroke, and people who have Parkinson's disease or dementia. Some food and ingredients such as fried food, salt, and oil can also affect swallowing. Nutritionists can provide dietary advice and design proper food for caregivers to prepare for stroke patients at home." (Nutritionists)

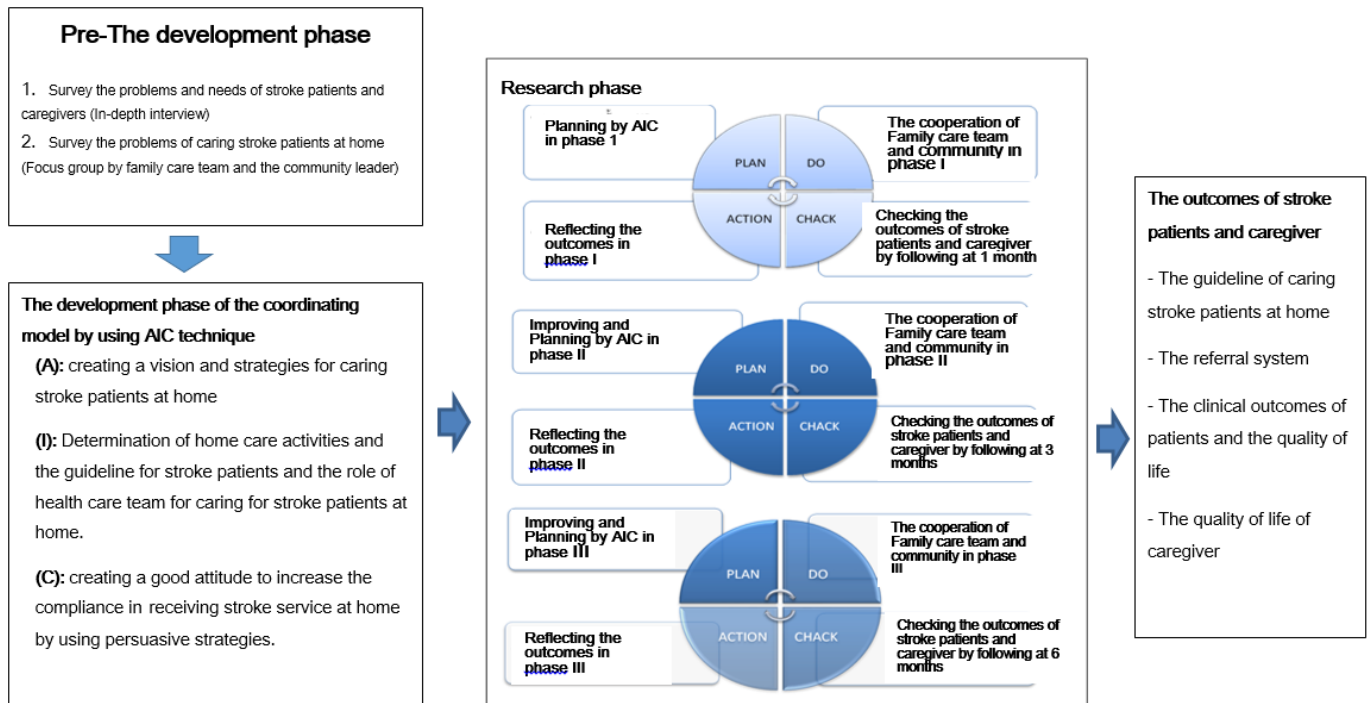


Fig. 1 a coordinating model for the participation of family and community care teams in caring for stroke patients at home basing on Appreciation Influence Control technique.

## Discussion

Our study's findings highlighted the challenges and best features of a coordinating model for the participation of family and community care teams in caring for stroke patients at home basing on Appreciation Influence Control technique (AIC). An important product from our study was the creation of a standard referral system and guidelines for health care provider to care stroke patients at home after discharging them from hospital. We also identified the importance of training and health education for public health volunteers and patient caregivers, supporting equipment and rehabilitation facilities, as well as creating a supportive home and community environment. Applying the AIC technique created better participation between health care team and community leaders to support stroke patients and their caregivers.

Previous evidence showed that stroke patients and their caregivers did not received adequate support during the discharge process from health care professionals at home.<sup>13</sup> Many stroke patients have traumatic experiences after a stroke and psychological impairment such as depression and anxiety (Gebi Elmi

Nurhayati, 2019).A prior study focused on the community partnership model to control diabetes mellitus (DM) by using AIC. The results revealed that the partnership between the local health care officer, health volunteers, and community people designed a context-based program to reduce the risk of DM in community. The model focused on providing health education, several activities, and policy for long-term care of diabetes. In addition, the community participation and health care team can increase the successful delivery of care in community (Nouh AM,2017)

The multidisciplinary team provided specialized, medically based stroke services in which the primary care team provides care services within the community where the survivor lives, works, and socializes (Menon RG,2021). The caregiver is an important person who cares for the patient at home. Most of them had several problems that related with health knowledge and anxiety for caring patients. Thus, the health care team provided additional stroke education and information to caregivers including the stress management to improve their quality of life (Intamas, U., Rawiworrakul,2021; Usanun Intamas, Sutham,2020). Public health volunteers and community leaders were key individuals providing community resources and supportive environment for the stroke care system (Selves C, Stoquart G, 2020). Local authorities, health care team, public health volunteers, and people in the community can cooperate to planning, action, monitoring and assessment to improve stroke service for patients (Caro CC, Costa JD,2018); (Lem K, McGilton KS, 2021)

### **Strengths and limitations of the study**

We conducted a qualitative study regarding the challenges of the recovery during rehabilitation of stroke patients at home. We investigated how they could be addressed through the cooperation of the health care team, community leader, and patient caregivers. The participation of these different stakeholders and care teams reflected the strengthening of the community capacity to care for survivors of stroke at home. This study followed up stroke patients and their caregivers at 1, 3, and 6 months after discharge from hospital. So the study outcomes provided strong evidence that our model was effective. However, a limitation is that our study participants represented stroke survivors and health care team from only one district in a single province in Thailand. Thus, these results are not generalizable to other areas of Thailand.

Article Information

**Conflicts of Interest:** Do you have any? Please list “None or no conflicts” if you don’t have any conflicts of interest.

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