การปรึกษาโดยใช้เทคโนโลยีสื่อสารเพื่อสนับสนุนการบริการในระดับปฐมภูมิ: ความร่วมมือระหว่างแพทย์และพยาบาลเวชปฏิบัติ

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บทคัดย่อ

การรักษาพยาบาลในโรงพยาบาลเพียงอย่างเดียว ไม่สามารถตอบสนองความต้องการบริการระดับปฐมภูมิที่เพิ่มมากขึ้น การวิจัยนี้มี 2 ขั้นตอน โดยตอนที่ 1 ศึกษาปัญหาของพยาบาลเวชปฏิบัติที่ใช้เทคโนโลยีการสื่อสารเพื่อขอคำปรึกษาเกี่ยวกับการรักษาโรคเบื้องต้น และตอนที่ 2 ศึกษาความต้องการพัฒนาทักษะในการบริการระดับปฐมภูมิของพยาบาลเวชปฏิบัติ ขั้นตอนแรกใช้การรวบรวมข้อมูลจากแฟ้มผู้ป่วยที่มีการใช้เทคโนโลยีการสื่อสารเพื่อขอคำปรึกษาเกี่ยวกับการรักษาโรคเบื้องต้นโดยการสุ่มอย่างง่ายจำนวน 400 แฟ้มและขั้นตอนที่ 2 ใช้เทคนิคการสนทนากลุ่มผู้เกี่ยวข้อง จำนวน 19 คน เครื่องมือวิจัย ได้แก่ แบบเก็บรวบรวมข้อมูลจากแฟ้มผู้ป่วยและแนวสนทนากลุ่ม ซึ่งผ่านความเห็นชอบจากผู้ทรงคุณวุฒิจำนวน 3 ท่าน การวิเคราะห์ข้อมูลเชิงปริมาณใช้ความถี่ ร้อยละ และการวิเคราะห์เชิงคุณภาพใช้การวิเคราะห์เชิงเนื้อหา

ผลการวิจัยพบว่า วิธีการสื่อสารที่พยาบาลเวชปฏิบัติใช้เพื่อขอคำปรึกษาเกี่ยวกับการรักษาโรคเบื้องต้นในระบบบริการปฐมภูมิมากที่สุดคือ โทรศัพท์ ขั้นตอนการรักษาโรคเบื้องต้นที่พยาบาลเวชปฏิบัติมีความจำเป็นต้องขอคำปรึกษาเป็นลำดับแรกคือ ด้านการซักประวัติและตรวจร่างกาย และหลังได้รับคำปรึกษาแล้ว พยาบาลเวชปฏิบัติดำเนินการวินิจฉัยโรคและให้การรักษามากที่สุด ผลการสนทนากลุ่ม พบว่า ความรู้และทักษะการบริการของพยาบาลเวชปฏิบัติที่ควรพัฒนาเพื่อการบริการในระดับปฐมภูมิให้มีประสิทธิภาพมากขึ้น ได้แก่ ด้านการรักษาโรคเบื้องต้น และด้านการดูแลในชุมชน

คำสำคัญ: พยาบาลเวชปฏิบัติ การปรึกษาโดยใช้เทคโนโลยีสื่อสาร การรักษาโรคเบื้องต้น การบริการระดับปฐมภูมิ

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Using teleconsultation to support primary care delivery: physician and nurse practitioner collaboration

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Abstract

Curative services from hospitals alone cannot cope with the significant increase in demand for primary health care. This research had two steps. The first step attempted to identify the problems of nurse practitioners (NPs) who use teleconsultation in primary care settings. The second step sought to clarify the education and training needs of NPs in order to improve primary health care delivery. In step one, four hundred outpatient records were randomly selected for reviewing whereas in the second step, a focus group discussion among 19 stakeholders was conducted. Research instruments included patient records review, and the focus group discussion guidelines, approved by 3 experts. Descriptive statistic applied to analyze data from the outpatient records included frequencies and percentage. In addition, a content analysis approach was used to analyze data from the focus group discussion.

The results from the outpatient records showed that the most commonly used teleconsultation by NPs at the primary care level was via telephone. The most common basic medical care obstacle that NP's consulted was taking a health history and conducting physical examinations. After teleconsultation, the NPs could mostly decide diagnosis and treatment. The education and training needs of NPs at the primary care level involved basic medical care and community care. This data imply that NPs need basic medical care and community care knowledge and skills for improving their primary care delivery.

Keywords: nurse practitioner, teleconsultation, basic medical care, primary care delivery

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Introduction

Primary healthcare typically provides the first point of contact in the health care system and as the continuing focal point for all needed health care services. Primary care practices provide patients with ready access to their own personal physician, or to an established back-up physician when the primary physician is not available.[1] Primary care encompasses patient education, health promotion and maintenance, disease prevention, counseling, diagnosis and treatment of acute and chronic illnesses in a variety of health care settings. It is delivered and managed by a physician in collaboration with other health professionals, utilizing consultation or referral as appropriate.[2]

The primary care system can be seen as the core element in the development of a national health care system. As the population ages so does the incidence of chronic, and non-communicable diseases (NCD). Curative services from hospitals alone cannot cope with the significant increase in demand for primary health care. A primary care unit (PCU) in Thailand is the smallest health unit at a sub-district level providing health services at the front line in an integrated manner. These services include health promotion, disease prevention, curative care and rehabilitation either in a health facility or in the community.[3, 4]

For primary care, in order to receive funding from the National Health Insurance Organization (NHSO), providers have to be organized as a Contracting Unit for Primary Care (CUP). A CUP is a unit that can be contracted to provide primary care. There must be a physician, nurses, NPs, public health personnel, a pharmacist, and a dentist in CUPs.[4]

In rural areas, the supply of primary care physicians relative to the population falls below recommended standards. However, the demand and reorganization of first line health services in PCUs is projected to rise every year due largely to population growth and aging.[5] Thailand Public Health policy requires general nurses to work in PCU with NPs.[6]

Thailand's Ministry of Public Health (TMOPH) and Thailand's Nursing and Midwifery Council (TNMC) recognize and value the unique contributions of NPs serving as primary care providers. Nursing care provides a valuable perspective on, and commitment to, health promotion, prevention, patient education, and community engagement. By 2012, TNMC, certified 20,000 general nurse practitioners. These NPs have been working in both primary and secondary care hospitals. Most of them are in primary care unit. The NPs in a PCU must address the needs of the community, make critical clinical judgments in treating common health problems, prevent and manage chronic illnesses/conditions as well as providing end of life care.[7, 8]

Lom Sak Hospital, CUP of Lom Sak district is taking the lead to support their 21 sub-district PCUs by supporting health care services according to TMOPH guidelines.[9] It is located the northern part of Phetchabun province in the lower northern region of Thailand. Most of this region is located in a mountainous, remote area. In the remote and rural areas, care is not organized to quality of care, mainly due to sufficient number of health providers and the need of long traveling to reach the nearest hospital.[10] There was an idea to reshape the primary care workforce, addressing physician shortages, and increase the number of patients reached by the expanding basic medical care role of

NP, and tele-health. The hospital director had the vision to shift the workplace location of professional nurses from hospitals to primary care units in sub-district areas. He also suggested providing specialized training, the program of basic medical care (BMC) for nurses to acquire NP level. Application of telehealth was used to close the gap of NP-BMC skill limitations. NPs in PCU used teleconsultation for communication with physicians and personnel located in the main CUP. After implementing this project in the year 2006, the number of teleconsultations, has increased.[9] The increase of teleconsultations between NPs and physicians could imply the limitations on the knowledge and skill of NPs working in primary care units. The content of teleconsultations between NPs and physicians, and the educational needs of NPs should be analyzed to identify room of improvement as to education or support. The findings would be beneficial for nursing education and nursing service organization especially in designing NP curriculum and training courses.

Study aims

1. To identify the problems of NPs who use teleconsultation at the primary care level.

2. To clarify the education and training needs of NPs in order to improve primary health care delivery.

Method

Design

The research design included two phases. The first phase was analysis of outpatient teleconsultation records. The second phase was a qualitative technique, focus group discussion.

Participants

The research population consisted of 2,705 outpatient teleconsultation records from Lom Sak Hospital and network, Phetchaboon Province, Thailand in the year 2013. Three hundred and fifty one was the suggested sample size indicated by using categorical data at the criteria alpha level at .05 and $p<.05$.[11] Researchers used a simple random sampling technique to obtain 400 outpatient teleconsultation records.

In the second phase, health providers who have been working in teleconsultation at Lom Sak hospital and its network were invited to participate in a focus group discussion. Participants included 15 NPs, 2 physicians, 1 pharmacist, and 1 Lom Sak district primary care unit administrator.

Research instruments

1. The outpatient record collection form consisting of two sections. The first section included age and education of the NP who delivered primary care to patients. The second section included 4 items: method of teleconsultation; patient's complaint; sufficiency of NP's level of practice to meet patient's need; and the ultimate diagnosis and treatment provided via telecommunication to patients.

2. The focus group interview guide data were collected via a focus group interview conducted base on an open-ended and non-intimidating questions, focusing on 1) method of teleconsultation used by NPs for solving patient's complaint or problem; 2) NP knowledge and skill regarding basic medical care; and 3) gaps in education and training among NPs.

Instrument validity

The research instruments were evaluated for content validity by the 3 independent experts: an APN-NP (licensed Advanced Nurse Practitioner), a nursing instructor, and public heath instructor. A consensus form of agreement used content validity index (CIV) technique.[12] The CIV of two research instruments, were 1.00.

Ethics consideration

Ethics review and clearance for this research was approved by the Ethics Committee for Research and Human Studies of Naresuan University, Thailand (COA O43/2013). The researchers provided details of the proposed study to all potential participants and obtained their written informed consent. Participants understood that they could withdraw from the study at any time without penalty. A written information sheet was provided which include the study's aim, procedure, confidentiality, voluntary consent, right to withdraw and contact information. The data collection was conducted after receiving the consent from the participants

Data collection

1. Official letter, and letter of approval granted by the ethics review board, was sent to Lom Sak Hospital asking for their cooperation in data collection. Four hundred teleconsultation outpatient records, were systematically randomly sampled.

2. The schedule of the focus group interview was formulated in accordance with the USAID Center for Development Guidelines for Information and Evaluation.[13]

Data analysis

1. The data collected were entered into the statistical package and was analyzed by using frequency and percentage.

2. The information from the focus group was analyzed by content analysis.

Results

1. Personal data of teleconsultation nurses: among the NPs were found three levels of education including of a Bachelor Degree in Nursing plus Certificate in Nursing Specialty in Nurse Practitioner (Primary Medical Care) (84.50%); Master's Degrees in Community Nurse Practitioner (15.00%); and Bachelor Degree in Nursing (0.50%). Their ages were between 41 - 60 years (54.50%); and 21 - 40 years (45.50%). The analyzed results from outpatient records is shown in Tables 1 - 4.

Table 1 shows teleconsultation methods used in primary care network of Lom Sak hospital, by NPs. The first, second and third most common of teleconsultation method used were telephone (258 records, 61.14%), skype (157 records, 37.20%), and line chat (3 records, 0.71%), chaton (3 records, 0.71%), respectively. The least common of teleconsultation method used was radio (1 records, 0.24%).

Table 1 Number and percentage of teleconsultation method used in primary care network of Lom Sak Hospital by NPs (n = 400)

Teleconsultation method	Number of outpatient record	Percent
Telephone	258	61.14
Skype	157	37.20
Line chat	3	0.71
Chat on	3	0.71
Radio	1	0.24
Total	422	100.00

Note: each patient record could have more than one choice

Table 2 shows basic medical care requirements that NP's were asked for via teleconsultation. The most common area of consultation were health history and physical examination (148 records, 23.91%), medicine prescription (93 records, 15.03%), and referral (89 records, 14.38%), respectively. The least area was health education (28 records, 4.53%).

Table 2 Number and percentage of basic medical care obstacle that NP's consulted via teleconsultation in primary care network of Lom Sak Hospital (n = 400)

Basic medical care obstacle	Number of outpatient records	Percent
Health history and physical examination	148	23.91
Medicine prescription	93	15.03
Referral	89	14.38
Diagnosis	86	13.89
Wound care	73	11.79
Laboratory	54	8.72
Emergency care	48	7.75
Health education	28	4.53
Total	619	100.00

Note: each patient record could have more than one choice

Table 3 indicates basic medical care provided post-teleconsultation with NPs. The most common of basic medical care provided post-teleconsultation with NPs were diagnosis and treatment (230 records, 36.10%), diagnosis and immediate referral (194 records, 30.46%), and diagnosis and health education (159 records, 24.96%), respectively. The least basic medical care provided was diagnosis and laboratory prescription (54 records, 8.48%).

Table 3 Number and percentage of basic medical careprovided post-teleconsultation with NPs in primary care network of Lom Sak Hospital (n = 400)

Basic medical care provided	Number of outpatient records	Percent
Diagnosis and treatment	230	36.10
Diagnosis and immediate referral	194	30.46
Diagnosis and health education	159	24.96
Diagnosis and laboratory prescription	54	8.48
Total	637	100.00

Note: each patient record could have more than one choice

2. Results from the focus group discussion:

2.1 Methods of teleconsultation most often used by NPs were telephone and skype.

2.2 NPs' ability, knowledge and skill to diagnose patient's illness was limited. They often used the CUP manual of clinical practice as a guideline. Nevertheless, if NPs had a question or could not make a diagnosis on their own they could teleconsult with a physician.

2.3 The reported education and training needs of NPs delivering primary care include two areas: basic medical care and community care. The basic medical care comprises assessment, prescribing medicine, and patient rehabilitation whereas the community care is composed of health promotion and disease prevention, and leadershiprole of NPs working in community health.

Discussion

1. Teleconsultation methods used by NPs

This finding in this current study indicated that the most frequent teleconsultation method used by NPs in primary care delivery was the telephone (61.14%). Mobile technologies including mobile phones, smartphones, ipads and smartbooks are mainly used for sending text messages (SMS), photos and video (MMS), as telephone, and world-wide-web access. Mobile technology also provides support to health care providers such as health education, diagnosis assistant, and patient management. Wireless and mobile advances facilitate communication between health care providers and consumers.[14] A literature review showed that telephone reminders to the patients to monitor and manage their blood glucose level was sufficient.[15] In Thailand, almost everyone has a mobile phone bandwidth use. Therefore the teleconsultation via telephone is the best option.

In this study, skype was the second most used telecommunication method (37.20%). Skype can be used to communicate via text, photos or video without extra charge. Yet, telehealth, an on-line video consultation requires an ability to communicate at a distance and through technology.[16] Similarly, one review reported that social networks have a significant impact on health promotion, providing millions of users with fast and easy access to important and useful medical information.[17]

2. Basic medical care delivered by NPs via teleconsultation

The most frequent basic medical care via teleconsultation was taking health history and physical Examination (23.91%). Out findings are similar to a research in Thailand which showed that NPs in walk-in-centres take patients' health histories, complete physical examinations, do laboratory investigations according to the level of the hospital, as well as assessment and diagnosis.[18] Cox et al. reported that health assessment and physical examination were the number one duty of NPs in walk-in-centresas.[19] Thailand's Nursing and Midwifery Council (TNMC) defines the nurse's role as providing comprehensive nursing assessment of the health status of clients, which is extensive data collection used for individuals, families, groups and communities in addressing anticipated changes in health conditions, as well as emergent changes in health status.[7, 20]

The second most teleconsultation on basic medical care service provided by NPs was prescribing medicine (15.03%). Thai NPs can prescribe only the medicines indicated in Drug Guidelines for Basic Medical Care.[7] Practically, they can prescribe other drugs, but these are limited to refilled prescriptions or medications identified in hospital or MOPH Guidelines.[20, 21] There are two types of nurse prescriber: 1) collaborative nurse prescriber (those prescribing in partnership with physicians) and 2) independent nurse prescriber.[22]

Lastly, the third most teleconsultation on basic medical care service delivered by NPs was referral (14.38%). One limitation of primary care units is that some patients must be referred to the hospital (main CUP) for proper medical management, also follow up and continuous care after they return home.[20]

3. Management by NPs after using teleconsultation

The most frequent type of basic medical care provided post-teleconsultation by NPs at the primary care level were diagnosis and treatment (36.10%), diagnosis and immediate referral (30.46%), and diagnosis and health education (24.96%), respectively. These results are supported by a NP role research in Thailand reporting that when the patient walks into the clinic, the NP takes patients' history, completes a physical examination, makes an initial diagnosis, and prescribes treatment.[23] To limit NPs' scope of practice, TNMC developed basic medical care guidelines to delineate the role of any NP who works independent of a physician. The NPs can provide three options of care for patients 1) emergency care group: first aid and referral; 2) diagnosis refinement group; and/or 3) initial diagnosis and prompt treatment.[7]

4. Education and training needs of NPs working in primary care level

NPs working at the primary care level need education in two areas: basic medical care and community care. In basic medical care area, NPs need knowledge and skill of health assessment, prescribing medicine, and patient rehabilitation. Nursing assessment is a comprehensive data collection used to assess the client's health status. An assessment synthesizes the biological, psychological, spiritual and social aspects of individuals, families, groups and communities.[7, 20] For prescribing medication, NPs must know about pharmacokinetics, pharmacogenetics and contain indications/side effects of the medication, and which medication they are allowed to prescribe as a collaborative or independent prescriber.[7, 22]

In term of the community care area, NPs reported the need to learn about health promotion and disease prevention, as well as leadership roles. The NP program includes goals to serve as primary care provider and address the needs of the community. These activities include community collaboration, health teaching, and policy development.[7, 8] NPs should use their community health promotion skills at the worksite in planning efforts, serving on committees, and acting as a role model for people.[24] This finding was relevant to a previous study which found that nurses working in the community (community health nurses or public health nurses) need to focus more on disease prevention and health promotion.[25]

Conclusion

The outpatient chart sample revealed NPs' limitations in assessment, diagnosis, prescribing, and treatment. These limitations are met, in-part, by using telecommunication for consultation with a physician.

The educational needs for NPs included most areas of nursing practice: basic medical care and community care should be incorporated into the course curriculum of the Master's Degree Program for Community Nurse Practitioner and incorporated into the training programs and refresher courses.

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