Original Article

Development and Monitoring the Information of Quality of Health Care Indicators for Patients with Cleft Lip/ Palate in Srinagarind Hospital: Pre-post operation

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Background: Srinagarind Hospital has 100 to 150 cases of cleft lip and palate each year. The patients with cleft lip and palate have problems with feeding, swallowing difficulties and delayed development. When they go to hospital to receive surgery, the pain, limited activity and food are very different from normal life. During pre and post operative care, nurses using a nursing process took care of the patients. The outcome of care and result of real time outcomes indicator can help nurses to maintain the quality of care.

Objective: To develop a key performance indicators using information technology.

Materials and Methods: The present study is an action research divided into 3 phases. Phase 1: Situation analysis: In this phase the author interviews and observes nurses' activities followed by discussion about the key performance indicators of patients with cleft lip and palate. Phase 2: reviews key performance indicators from literature and previous study. Conferences with the medical programmer for setting the program. Phase 3: implementation and evaluation.

Results: There were 6 key performance indicators developed, composed of 1) patients receiving information; 2) wound infection; 3) pain management; 4) satisfaction; 5) Length of hospital stay; 6) percentage following the CPG. 81 percent of nurses were satisfied with information technology program.

Conclusion: Key performance has covered every part of quality of care pre-post operation. KPI were feasible and implemented, but need to develop the real time result, including software improvements.

Keywords: Health care indicators, Quality, Cleft Lip/Palate, Information technology

Cleft lip and cleft palate are the most common craniofacial anomalies, affecting approximately 2.49 of every 1,000 children born in North East of Thailand[1]. Srinagarind Hospital has 100 to 150 cases of cleft lip each year[2]. Patients with cleft lip and palate often have feeding, swallowing difficulties and delayed development, speech articulation problems, shyness, teasing, social isolation and loneliness[3,4]. The process for cleft lip and palate care requires continuity of care involving a multidisciplinary team including surgeon, nurse, speech therapist, orthodontist, psychiatrist, social worker. Holistic and interdisciplinary care is very important to patients and family[5]. Nurses working continuously and closely with the patients/families have 4 specialties as nurse coordinator: breast feeding nurses, pre-post operative nurses and operating room nurse.

During pre and post operative care pre-post operative nurses require knowledge, experience and ability to take excellent care of their patients and families to prevent illness, duplicate rehabilitation and promote quality of life, and respond well to patients needs[6]. It can prevent complications and help their decision process, decrease parents stress and encourage better

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co-operation. The Key Performance Index [KPI] is specific and measurable elements of health to assess quality of care. KPIs are measures of performance, based on standards determined through evidence-based academic literature or through the consensus of experts when evidence is unavailable[7].

The Nursing Division of Srinagarind Hospital has 5 nursing departments involved with patients with cleft lip and cleft palate including OBGYN, Out Patient, Surgical and Orthopedics, Pediatric and Operating Room Department. Some departments have the indicators of cleft lip and cleft palate, but it takes a long time to know about the outcome indicators (3, 6M or a year). Each department does not know other department outcome indicators. Ideally, nurses should know all indicators of the care process from birth until finishing treatment. So the authors desire the nursing team to be able to access all specialty outcome indicators and the results of real time outcomes indicator.

Nursing care patients with cleft lip and cleft palate

Nursing care is the process where nurses use their nursing ability to adjust the balance between self-care ability and self-care demand, starting by searching the problem or needs then developing patient ability for self-care. Nursing care is a dynamic depending on patients needs[6]. To develop nursing care needs integrated quality management and risk management together[8]. Nursing care is specific nursing care to each health problem. Holistic care: integrated physical, mental, emotional, social and spiritual care together. All of nursing activity focused on the science of caring and family centre to solve health problem and management system for nursing quality by using nursing processes, nursing conferences, nursing rounds, nursing modalities, and nursing documentation[9].

Nursing care integrates 4 dimensions of service thus treatment, health promotion, prevention of illness and rehabilitation as well as concern about holistic care[6]. Nurses provide nursing care to all people to solve health problems, so need to have knowledge, ability to prevent illness, duplicate rehabilitation and promote quality of life[10,11].

Nursing care of patients with cleft lip and cleft palate pre-post operation

The role of nurses for taking care of patients with cleft lip and cleft palate are as follows[10,11]:

1) Giving information. Nurses provide the information about hospital rules, nursing activity, patients daily activity, physical hygiene, feeding. Parents will receive information about how to feed their children and burping after feeding, position while feeding, mouth care, nose care, time to NPO, condition after operation, wound dressing and pain management.

2) Nursing care

Airway: To prevent airway obstruction patients put in upright position on left or right side. Then observe vital signs.

Wound management: The postoperative management of patients after surgery focuses on protection of the operative site. The wound will have stitches with swelling, bruising, blood around the stitches and in the mouth. No sucking is allowed in patients with palatoplasty, which requires mouth care after. The wound has to be dressed using a cotton bud and have NSS applied to clean the suture line and apply antibiotic ointment at least 1 time a day, clean nasal stent (some cases). Parents need to avoid contacting their wound with the sheets and not use a straw or pacifier because it can damage the surgical site.

Pain management: After surgery patients will have pain, so pain score is observed every 4 hours and if the score is more than 4, patients are given pain killer then pain re-assessment. also tell mother about holding and rocking the patients. Hammock is provided to patients if needed.

Feeding: Patients with lip repair can have breastfeeding, bottle-feedings, or cup feedings after surgery. Then next day can have soft diet. Patients with palatoplasty are not allowed sucking, so spoon, syringe or cup should be used for feeding[12].

Activity after surgery: patients can walk or play after surgery, but should not run or engage in rough play (i.e., wrestling, climbing) or play with "mouth toys" for two weeks after surgery.

Discharge planning: the discharge planning starts when patients are admitted into the ward. Nurse and health care professionals use Clinical Practice Guideline for patients with cleft lip and cleft palate. Teaching the parents feeding techniques, how to prevent aspiration, wound care and sign of infection. Nurses confirm the pain killer dosage, time, and route, appointment time and date[12].

Key performance index

"Key Performance Indicators [KPI]" are measures of performance that measure how good they are performing against targets or expectations. KPI also measure performance by comparing results against standards or other similar organizations. This helps

organizations to improve the service they provide by identifying where performance is at the desired level and also to identify where improvements are required"[13].

Using KPI can lead to improvements in the quality of care. KPI can be generic or specific KPI and can measure performance that is relevant to all service-users or they can measure aspects of a service that are relevant to a specific service user population: KPI can be classified according to the type of care for which the measurement process was developed, such as preventive, acute or chronic care. Also KPI can be classified according to the function of care, which can be screening, diagnosis, treatment and follow-up. Benefits of KPIS are to improve the quality and safety of healthcare delivery. KPI facilitates benchmarking within an organization to highlight improvements in quality. These processes help to identify there opportunities for improvement or the improvements have already occurred. KPI promote accountability to service users by facilitating comparisons with other organizations and to stated objectives or targets of an organization and can lead to healthcare providers' avoidance of providing treatment to service users with complicated high-risk conditions[13].

KPI consideration[13]:

KPI should have Validity Reliability, Explicit evidence base, Acceptability, Feasibility, Sensitivity, Specificity, Relevance and Balance.

Valid measures what it is supposed to measure and captures an important aspect of quality that can be influenced by the healthcare facility. KPI should have links to processes and outcomes through scientific evidence. KPI makes sense logically and clinically or from previous usage.

Reliability The KPI should provide a consistent measure in the same population and settings irrespective of who performs the measurement.

Explicit evidence base KPI should be based on scientific evidence, the consensus of expert opinions among health professionals or on clinical guidelines.

Acceptability the data collected should be acceptable to those being assessed and to those carrying out the assessment.

Feasibility the feasibility analysis should determine what data sources are currently available and if they are relevant to the needs of the current project. There should be cost benefit analysis done to determine if it is cost-effective to collect.

Sensitivity should be capable of detecting

changes in the quality of care and these changes must be reflected in the resulting values.

KPI should fulfill the hospital and department mission. Response to patients/family's needs/ expectation and should be performance indicators.

Information technology [IT] is the application of computers to store, retrieve, transmit and manipulate data[14]. IT includes several layers of physical equipment (hardware), virtualization and management or automation tools, operating systems and applications (software) used to perform essential functions. User devices, peripherals and software, such as laptops, smart phones or even recording equipment, can be included in the IT domain. IT can also refer to the architectures, methodologies and regulations governing the use and storage of data[15].

Objective

To develop a key performance index system using information technology.

Materials and Methods

The present study is one part of development and monitoring of health care indicators information for patients with cleft lip/palate in Srinagarind Hospital. The sample population was 12 nurses working in 3C ward Srinagarind Hospital. This is an action research divided into 3 phases.

Phase 1 Situation analysis: In this phase the authors observed nurse's activity and purpose of the action, interview 12 nurses using semi-structure questionnaire and discussion about what they need to know about quality of care, which indicator should be appropriate for patients with cleft lip and cleft palate and then read and review the responses to the participants. Review the previous key performance indicators on a percentage of patients/family receiving information, percentage of wound infection, percentage of patients' satisfaction of nursing care, length of hospital stay and percentage of patients lost to follow-up. This phase period was from October to December 2013.

Phase 2: review KPI from literature and previous studies; the authors found 4 sources with relevance to KPI of patients with cleft lip and palate pre-post operation show below.

World Health Organization: the indicator of patients are timing, satisfaction, dental health, feeding, growth, speech results.

Damiano et al 2009: Indicators of patients are satisfaction, information, facial appearance and speech

outcome[16]

Timothy Jones et al, 2013: the main outcomes currently used for primary cleft surgery, speech, nasolabial appearance, dental, secondary alveolar bone grafting, orthodontic and patient satisfaction[17].

Thai Nursing Council: indicators of patients are Satisfaction, Infection, length of hospital stay, pain management and receiving information.

From phase 1 and 2 the concise and appropriate KPI are:
1) patients receiving information
2) wound infection
3) pain management
4) patients satisfaction
5) Length of hospital stay
6) percentage following the CPG.

The author revised collecting form to collect data and meet the medical programmer for program setting. The study period was from January to March 2014.

Phase 3 implementation and evaluation: during this phase, the new collecting form provided to patients/family for answering Authors is calculated and the data after that logged into pages and put the percentages of data in webpage (Figure 1).

Results

Eighty-one percent of nurses were satisfied with the information technology program. Each department can access data of each specialty by one click every month. However, the process was not ideal, so the program was further developed to include an extra section of data entry and then will calculate automatically and have real time result (Figure 2). After finish data entry, can see result instantly (Figure 3).

This phase of the data collection was obtained from April to July 2014.

Conclusion

Key performance indicators have covered every part of quality of care pre-post operation and were feasible and could be implemented, but need remains to develop real-time results. This process helped to record the data, analyze the percentages automatically, which data can be distributed to nursing teams.

Ethical consideration

This study is a part of development and monitoring of health care indicators information for patients with cleft lip/palate in Srinagarind Hospital. It was approved by Khon Kaen University Ethics Committees for Human Research.

What is already known on this topic?

Using information Technology to collect data is easier and quicker, also can provide data to many people at the same time.

What this study adds?

The key performance indicator using information technology helped to record the data,

Figure 1. Collecting form and the web page after calculate the percentage.

Figure 2. Questionnaire in webpage.

Figure 3. Show result after key in.

analyze the percentages automatically, and distribute data to nursing teams within a very short time.

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การพัฒนาและติดตามตัวชี้วัดโดยใช้ระบบสารสนเทศในการดูแลผู้ป่วยปากแหว่งเพดานโหว่ โรงพยาบาลศรีนครินทร์: ก่อนและหลังผ่าตัด

ดาราวรรณ อักษรวรรณ, ลลิดา เพชรไฝ, พลากร สุรกุลประภา

ภูมิหลัง: โรงพยาบาลศรีนครินทร์มีผู้ป่วยปากแหว่งเพดานโหว่เข้ารับการรักษา 100 ถึง 150 รายต่อปี ผู้ป่วยมีปัญหาในเรื่องการให้อาหาร การกลืน และพัฒนาการช้ากว่าเด็กทั่วไป เข้ารับการผ่าตัดในโรงพยาบาล ผู้ป่วยต้องเผชิญกับความปวด การกำจัดกิจกรรมและอาหารที่ต่างจากปกติ การพยาบาลผู้ป่วย ก่อนและหลังผ่าตัดนั้น พยาบาลให้การพยาบาลผู้ป่วยโดยการใช้กระบวนการพยาบาล ซึ่งผลลัพธ์การพยาบาลที่สามารถทราบผลลัพธ์การดูแลที่รวดเร็ว ทันเวลาจะทำให้พยาบาลสามารถพัฒนา และตอบสนองความต้องการของผู้ป่วยได้ดียิ่งขึ้น

วัตถุประสงค์: เพื่อพัฒนาตัวชี้วัดการดูแลผู้ป่วยโดยใช้ระบบสารสนเทศ

วัสดุและวิธีการ: เป็นการศึกษา Action Research แบ่งออกเป็น 3 ระยะ ระยะที่ 1 ศึกษาสถานการณ์ในปัจจุบัน ในระยะนี้ผู้นิพนธ์ได้สัมภาษณ์และสังเกตการณ์ปฏิบัติการพยาบาลและอภิปรายเกี่ยวกับตัวชี้วัดของผู้ป่วยปากแหว่งเพดานโหว่ระยะที่ 2 ทบทวนตัวชี้วัดโดยศึกษาจากเอกสารและการศึกษา หลังจากนั้นอภิปรายวางแผนกับโปรแกรมเมอร์เพื่อสร้างโปรแกรม ระยะที่ 3 นำตัวชี้วัดและโปรแกรมที่ได้ไปปฏิบัติและประเมินผล

ผลการศึกษา: ตัวชี้วัดที่ได้มี 6 ตัวชี้วัด คือ การได้รับข้อมูลของผู้ป่วย การติดเชื้อของแผล การจัดการความปวด ความพึงพอใจ ระยะเวลานอนโรงพยาบาล และการปฏิบัติตามแนวปฏิบัติของบุคลากร พยาบาลมีความพึงพอใจในโปรแกรม ร้อยละ 81

สรุป: ตัวชี้วัดที่ได้ครอบคลุมถึงคุณภาพการดูแลผู้ป่วยและมีความเป็นไปได้ในการนำไปใช้เพื่อเก็บข้อมูล แต่ยังต้องพัฒนาในเรื่องของผลลัพธ์ ตามเวลาจริงรวมทั้งการพัฒนาโปรแกรม