Hospital-Based Research in Improving Health Care Services

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The Application of Research

- The service provider
- The administrator manager & for planner
- The consumer
- The professional

The Application of Research

- The service provider
  - How many people using the health care?
  - Why do some people use the service while other do not?
  - How effective is the service?
  - How can the service be improved?
  - Which type of people use or do not use the service?
  - How satisfied or dissatisfied are the consumers of the service?
  - What are the problems with the service>

The Application of Research

- The administrator manager & for planner
  - What are the needs of the community?
  - What types of service are needed by the community?
  - How many service providers are needed?
  - What are the training need for the staff?
  - How may cases can a staff handle in a day?
  - How can the effectiveness of the each worker be evaluated?
  - How can the service be made more popular?

The Application of Research

- The consumer
  - Am I getting value for the money?
  - How good are the service providers?
  - What are the long-term effects if the product I’m using? Where is the evidence?

The Application of Research

- The professional
  - Which is the most effective intervention for a particular problem?
  - What is the relationship between X and Y?
  - How valid is a particular theory in the present conditions?
  - What is the best way of measuring attitudes?
  - What is the process through which people decide to adopt a program?

Type of Research

- Application
  - Pure research
  - Applied research
- Objectives
  - Descriptive research
  - Explanatory research
  - Correlational reserach
  - Exploratory research
- Type of information sought
  - Quantitative research
  - Qualitative research

HOSPITAL

http://www.who.int/topics/hospitals/en/

- Important role in the health care system.
- Organized medical and other professional staff, and inpatient facilities, and deliver medical, nursing and related services.
- 24 hours per day, 7 days per week.

HOSPITAL

http://www.who.int/topics/hospitals/en/

- Offer a varying range of acute, convalescent and terminal care using diagnostic and curative services in response to acute and chronic conditions arising from diseases as well as injuries and genetic anomalies.
- In doing so they generate essential information for research, education and management

HOSPITAL http://www.wpro.who.int/topics/hospitals/en/

- Traditionally oriented on individual care
- Forging closer links with other parts of the health sector and communities → to optimize the use of resources for the promotion and protection of individual and collective health status.
- Some form of “gate-keeping” or referral system to control access to the relatively expensive services offered by hospitals. For such systems to work well, primary care services need to function effectively and be responsive to their local communities.

Quantitative Research

- Source of data
  - Primary data
    - Develop a research project
  - Secondary data
    - Medical record
      - Research based record
      - Electronic vs Paper record
    - Human resource record
    - Utility of reources

Medical Record

- Using information about the care
  - enables those involved in providing care and health services to improve the quality of care and health services for all
  - get a complete picture of what is happening across health and social care and to plan services according to what works best.

- The type of information shared, and how it is shared, is controlled by law and strict confidentiality rules.

http://www.nhs.uk/NHSEngland/thenhs/records/healthrecords/Pages/care-data.aspx

Medical Record

- Sharing information about the care
  - helps to understand the health needs of everyone and the quality of the treatment and care provided and reduce inequalities in the care provided.
  - enable the public to ensure that any unacceptable standards of care are identified as quickly as possible.

Medical Record

- Information will help to:
  - find more effective ways of preventing, treating and managing illnesses
  - make sure that any changes or improvements to services reflect the needs of the local patients
  - understand who is most at risk of particular diseases and conditions, so those who can plan care can provide preventative services
  - improve your understanding of the outcomes of care, giving you greater confidence in health and social care services

Medical Record

- Information will help to:
  - be at risk of a condition or would benefit from a particular treatment
  - make sure that the hospital receive the correct payments for the services they provide
  - improve the public's understanding of the outcomes of care, giving them confidence in health and care services
  - guide decisions about how to manage hospital resources so that they can best support the treatment and management of illness for all patients

Ann Clin Lab Sci. 2014 Winter;44(1):32-7.

Temporal Changes in Serum Albumin and Total Protein in Patients with Hospital-acquired Clostridium difficile Infection.

Kumarappa VS[1], Patel H, Shah A, Baddoura W, Debari VA.

Author information

Abstract

Studies have demonstrated low serum levels of total protein (TP) and albumin (ALB) in patients with Clostridium difficile infection (CDI), especially with refractory and recurrent disease. However, it is not known whether low TP and/or ALB levels are a risk factor for CDI or merely a result of diarrheal loss. The aim of this study is to determine if low TP and/or ALB level is an antecedent or sequela of CDI, which would be useful in risk stratification of hospitalized or nursing home patients. A retrospective cohort study was conducted in a 700-bed tertiary care teaching hospital. Records of all hospitalized patients with CDI from 2006-2011 were analyzed. The inclusion criteria for the final cohort (n=46) were: subjects not diagnosed with HIV; onset of CDI at least one week after hospitalization; serial values of TP and ALB available on three occasions (at onset of CDI, seven days prior, and post-onset of CDI). Seven days prior to the onset of CDI, 40/46 (87%) subjects had low ALB levels with a mean of 2.6±0.7 g/dL and 37/46 (80.4%) had low TP with a mean of 5.8±1.0 g/dL. At the onset of CDI, 45/46 (97.8%) subjects had low ALB (group: 2.1±0.6 g/dL) and 41/46 (89.1%) had low TP (group: 5.1±1.0). Seven days post-onset of CDI, 45/46 subjects continued to have decreased ALB (group: 2.0±0.6) and 39/46 (84.8%) had low TP (group: 5.2±1.2). The pre-onset data for ALB and TP were significantly different than the comparable data at onset and seven days post-onset ($p<0.0001$ for both ALB and TP). No significant difference was observed between onset and seven days post-onset. Most patients are hypoproteinemic prior to the onset of hospital-acquired CDI. Although some subjects lost protein after the onset of CDI, this was not statistically significant. This study suggests that antecedent low levels of ALB and TP may be a risk factor for the acquisition of CDI.

KEYWORDS: Clostridium difficile, Serum albumin, biomarkers, hospital epidemiology, total protein

Hospital Acquired Infection

Hospital Survey on Patient Safety

Instructions

This survey asks for your opinions about patient safety issues, medical error, and event reporting in your hospital and will take about 10 to 15 minutes to complete.

If you do not wish to answer a question, or if a question does not apply to you, you may leave your answer blank.

- *An **"event"** is defined as any type of error, mistake, incident, accident, or deviation, regardless of whether or not it results in patient harm.*
- ***"Patient safety"** is defined as the avoidance and prevention of patient injuries or adverse events resulting from the processes of health care delivery.*

SECTION A: Your Work Area/Unit

In this survey, think of your "unit" as the work area, department, or clinical area of the hospital where you spend *most* of your work time or provide *most* of your clinical services.

What is your primary work area or unit in this hospital? Select ONE answer.

- ☐ a. Many different hospital units/No specific unit
- ☐ b. Medicine (non-surgical)
- ☐ c. Surgery
- ☐ d. Obstetrics
- ☐ e. Pediatrics
- ☐ f. Emergency department
- ☐ g. Intensive care unit (any type)
- ☐ h. Psychiatry/mental health
- ☐ i. Rehabilitation
- ☐ j. Pharmacy
- ☐ k. Laboratory
- ☐ l. Radiology
- ☐ m. Anesthesiology
- ☐ n. Other, please specify: _____

http://www.ahrq.gov/professionals/quality-patient-safety/patientsafetyculture/hospital/resources/hospscanform.pdf

Curr Opin Anaesthesiol. 2014 Apr 8. [Epub ahead of print]

Quality and safety in pediatric anesthesia: how can guidelines, checklists, and initiatives improve the outcome?

Hagerman NS[1], Varughese AM, Kurth CD.

Author information

Abstract

PURPOSE OF REVIEW: Cognitive aids are tangible or intangible instruments that guide users in decision-making and in the completion of a complex series of tasks. Common examples include mnemonics, checklists, and algorithms. Cognitive aids constitute very effective approaches to achieve well tolerated, high quality healthcare because they promote highly reliable processes that reduce the likelihood of failure. This review describes recent advances in quality improvement for pediatric anesthesiology with emphasis on application of cognitive aids to impact patient safety and outcomes.

RECENT FINDINGS: Quality improvement encourages the examination of systems to create stable processes and ultimately high-value care. Quality improvement initiatives in pediatric anesthesiology have been shown to improve outcomes and the delivery of efficient and effective care at many institutions. The use of checklists, in particular, improves adherence to evidence-based care in crisis situations, decreases catheter-associated bloodstream infections, reduces blood product utilization, and improves communication during the patient handoff process. Use of this simple tool has been associated with decreased morbidity, fewer medical errors, improved provider satisfaction, and decreased mortality in nonanesthesia disciplines as well.

SUMMARY: Successful quality improvement initiatives utilize cognitive aids such as checklists and have been shown to optimize pediatric patient experience and anesthesia outcomes and reduce perioperative complications.

Case Management

Curr Opin Crit Care. 2014 Apr 8. [Epub ahead of print]

The impact of oxygen and carbon dioxide management on outcome after cardiac arrest.

Eastwood GM[1], Young PJ, Bellomo R.

Author information

Abstract

PURPOSE OF REVIEW: To describe the impact of oxygen and carbon dioxide management on patient outcomes following cardiac arrest.

RECENT FINDINGS: Although there are no data that suggest that supplemental oxygen administration during cardiopulmonary resuscitation is harmful, there is concern that 100% oxygen during the postresuscitation phase may be undesirable. The evidence to avoid hyperoxia is limited to animal studies and retrospective clinical studies that examine the association between exposure and outcome. There is a correlation between end-tidal carbon dioxide values during cardiopulmonary resuscitation and resuscitation outcome, yet this correlation is likely to reflect low or absent cardiac output and be a biomarker of illness severity rather than a mediator of injury. Additionally, very limited high-level human data exist on the relationship between arterial carbon dioxide tension and outcome following cardiac arrest. Retrospective studies have identified hypocapnia in the intensive care unit as being independently associated with worse neurological and mortality outcomes in cardiac arrest patients. Although there appears to be sufficient evidence to recommend avoiding hypocapnia after resuscitation, observational data suggest that hypercapnia may be independently associated with a greater likelihood of discharge home amongst cardiac arrest survivors.

SUMMARY: Current data for oxygen and carbon dioxide management following resuscitation suggest that hyperoxia and hypocapnia may be injurious and should be avoided, and that mild hypercapnia may increase the likelihood of discharge home amongst survivors. Such data should be viewed as hypothesis generating. Randomized controlled trials have commenced to clarify the safety, feasibility and efficacy of targeting different oxygen and carbon dioxide tensions following cardiac arrest.

Case Management

J Asthma. 2014 Apr 3. [Epub ahead of print]

Quality Improvement Methods Improve Inhaled Corticosteroid Prescribing in the Emergency Department.

Andrews AL[1], Russell WS, Titus MO, Braden J, Word C, Cochran C, Adams S, Roberts JR.

Author information

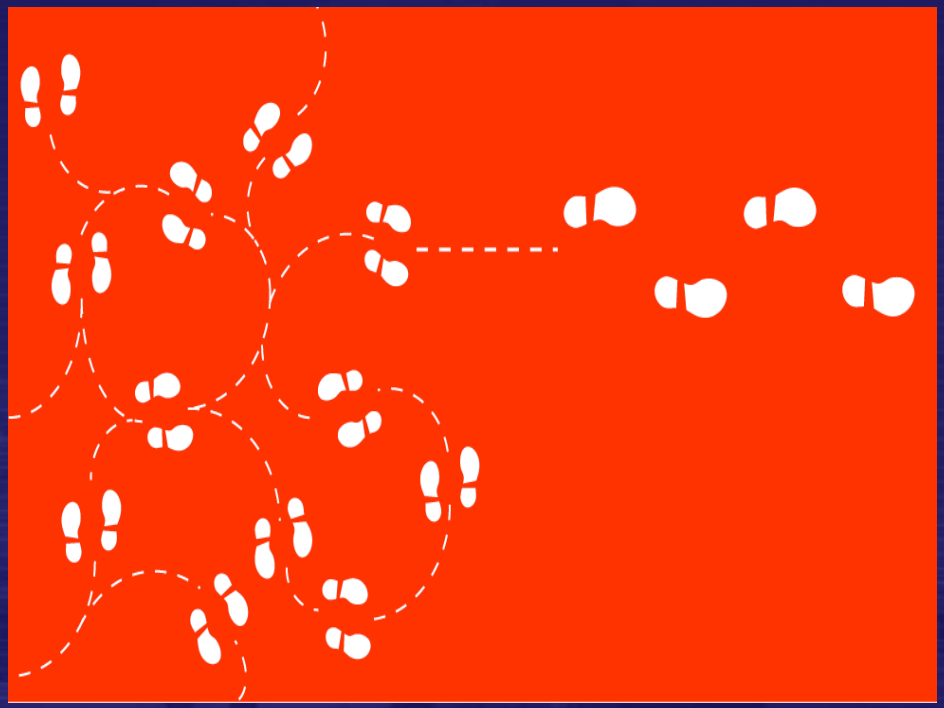
Abstract

Abstract Objective: Inhaled corticosteroids (ICS) are underutilized among persistent asthmatics. Because of low outpatient follow-up rates after Emergency Department (ED) visits, children are unlikely to be prescribed ICS by their primary care physician after an acute exacerbation. ED physicians have the opportunity to contribute to the delivery of preventive care in the acute care setting. Our objective was to evaluate if quality improvement (QI) methods could improve the rate of ICS initiation at ED discharge. Methods: Within the Pediatric ED (PED) at a tertiary children's hospital, QI methods were used to encourage ICS prescribing at the time of ED discharge. Interventions focused on education at both the attending physician and resident level, process improvements designed to streamline prescribing, and directed provider feedback. This involved multiple plan-do-study-act cycles. Medical records of eligible patients were reviewed monthly to determine ICS prescribing rates. The effect of our interventions on prescribing rate was tracked over time using a run chart. Results: Following our interventions, the ICS initiation rate for children seen in and discharged home from the ED with an acute asthma exacerbation increased from a baseline median rate of 11.25% to a median rate of 79% representing a significant, non-random improvement. The ICS initiation rate has been sustained for 8 months over our goal rate of 75%. Conclusions: This study demonstrates that QI methods can be used to increase inhaled corticosteroid initiation rate at the time of ED discharge and, thus, improve the delivery of preventive asthma care in the acute care setting.

Emergency Management

Predicting Mileage for Nurses: A Step in the Right Direction

http://www.hermanmiller.com/research/topics/all-topics/predicting-mileage-for-nurses.html

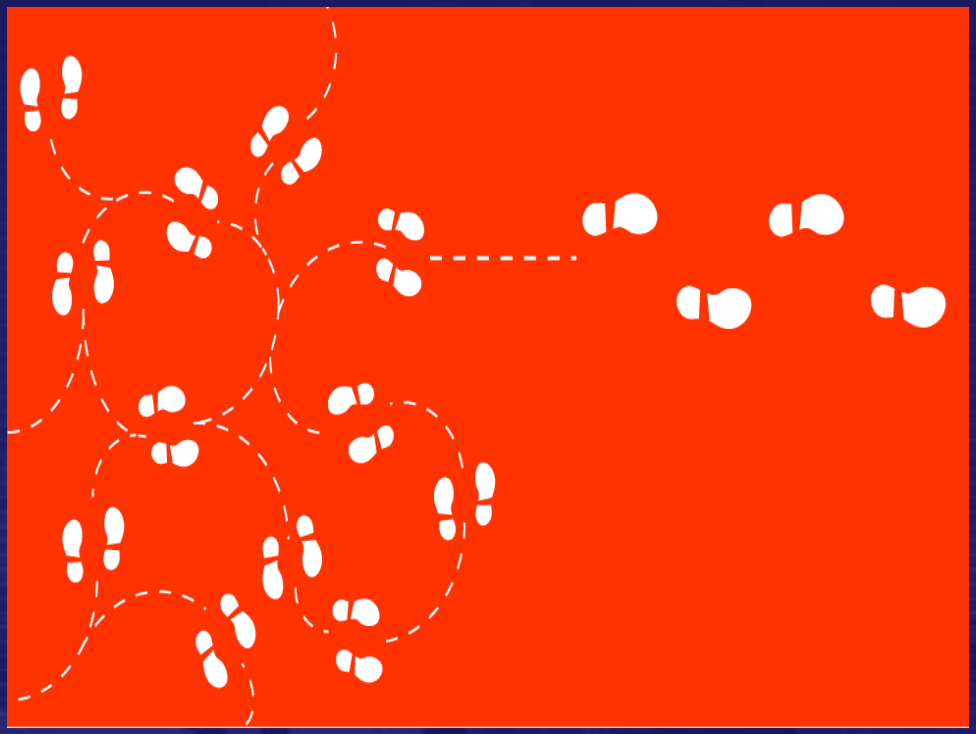


- Nurses walk a lot—an estimated four miles per 12-hour shift—and they'd rather spend that time caring for patients.

Human Resources

Predicting Mileage for Nurses: A Step in the Right Direction

http://www.hermanmiller.com/research/topics/all-topics/predicting-mileage-for-nurses.html

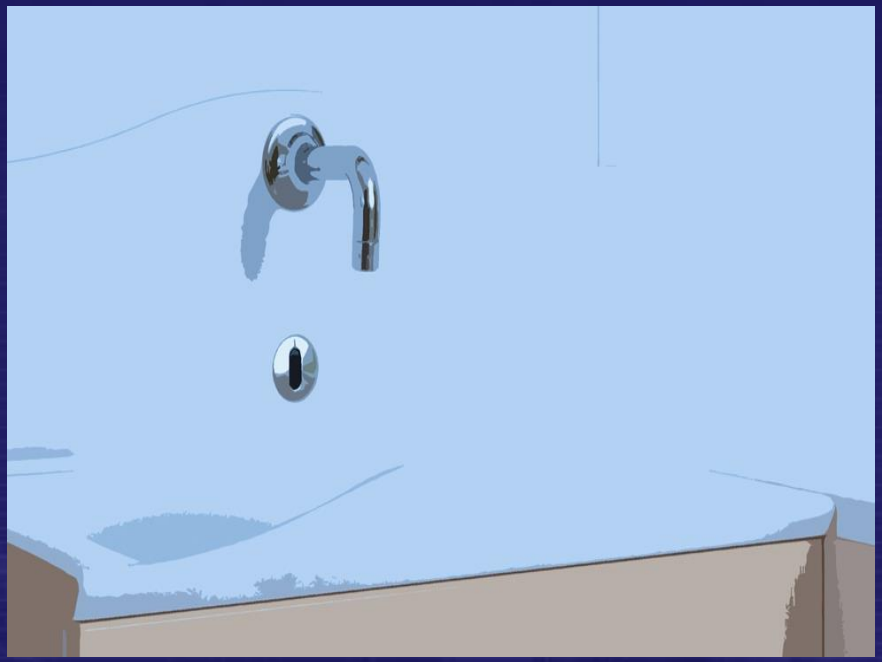


- a realistic prediction of how far a nurse working at a specific hospital will walk → design professionals and healthcare leaders understand
  - the relationship between physical design and operations processes
  - provides insight into the impact that relationship has on nurses and, ultimately, patient care.

Human Resources

The Sink's Role in Infection Control

http://www.hermanmiller.com/research/topics/all-topics/the-sinks-role-in-infection-control.html

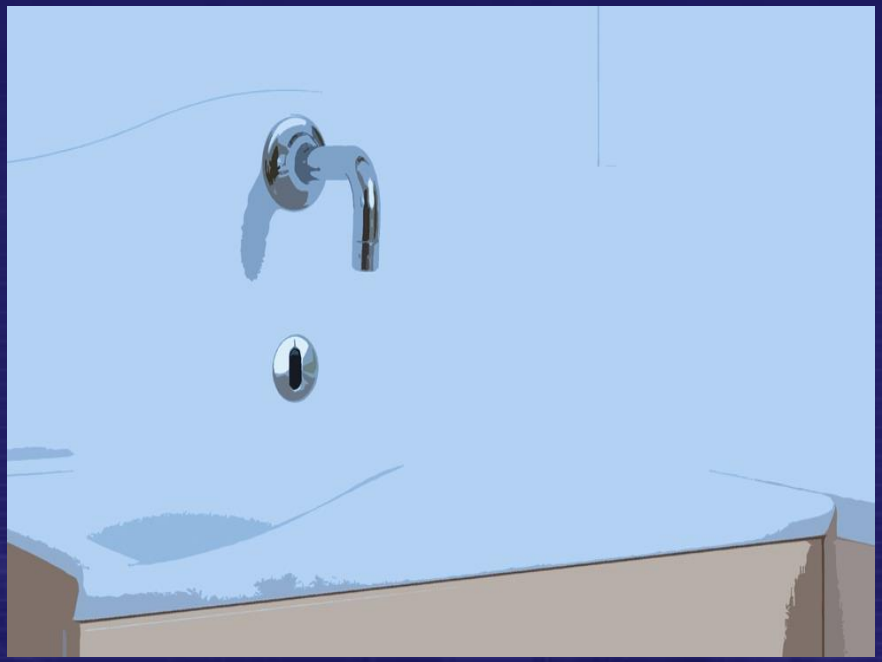


- People go to hospitals to get better, yet about 13% of high-risk adult patients got something else—a healthcare-acquired infection.
- Basic hygiene, including regular hand washing and use of hand sanitizers, can significantly reduce those infections.

Facility Resources

The Sink's Role in Infection Control

http://www.hermanmiller.com/research/topics/all-topics/the-sinks-role-in-infection-control.html



- The design of the sink can be an aid in preventing infection. The more surfaces a caretaker touches, the more chances there are for germs to spread.
- Sinks with sensors (when temperature control isn’t critical), foot pedals, or wrist blade handles might be good choices, depending on the other design criteria for the room.

Qualitative Research

- Capture the client perspective of healthcare, and to enable professionals and providers to understand how clients perceive health services

- Necessary in primary healthcare when researchers want to ask questions about why patients and healthcare professionals behave in a particular way and to focus on participants' feelings, meanings and experiences

www.gla.ac.uk/media/media_52976_en.pdf

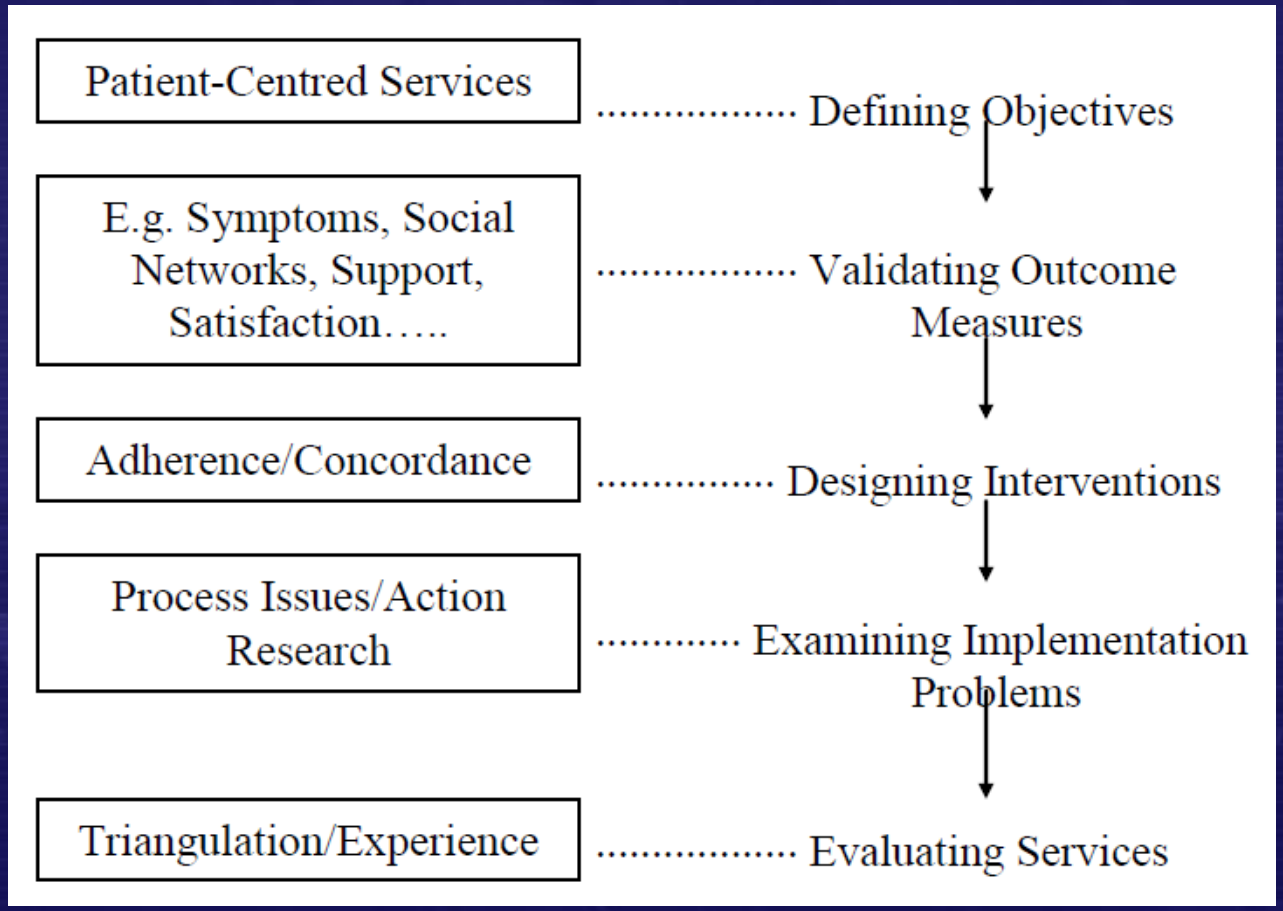
Qualitative Research

- Exp: explore patient concordance by measuring how many patients are not concordant with a given treatment or prescribed medication.
  - does not help improve concordance,
  - but simply highlights the extent of a problem

- Qualitative research aims
  - to explore why it is happening and
  - this may generate ideas to help solve the problem.

www.gla.ac.uk/media/media_52976_en.pdf

The Qualitative Studies Role in the Design and Implementation of Evidence Based Health Care



www.gla.ac.uk/media/media_52976_en.pdf

Int J Nurs Pract. 2014 Apr;20(2):221-5. doi: 10.1111/ijn.12129. Epub 2013 Aug 15.

Attitudes on intimate touch during nursing care in China.

Lu N[1], Gao X, Zhang S.

Author information

Abstract

Although intimate touch is essential to nursing practice, few studies have investigated patients' wishes and how nurses should perform in preserving patient privacy in China. A maximum-variation sample of 18 adults was selected, and semistructured interviews were conducted in two focus groups. Interviews were recorded and transcribed, and thematic analysis was performed. Five themes emerged from the interviews. These findings suggest that nurses should pay more attention to the patient's attitudes, needs and wishes.

Patient's Perspective

Br J Nurs. 2006 Nov 23-Dec 13;15(21):1172-5.

Caring for female patients: The experiences of male nurses.

Keogh B[1], Gleeson M.

Author information

Abstract

This article presents the results of two small qualitative studies, which examined the experiences of six male registered psychiatric nurses (RPN) and five male registered general nurses (RGN) when caring for patients of the opposite sex. Semi-structured interviews were used to collect the data. The focus of the interviews was an attempt to describe the male nurses' experiences of caring for women with a particular emphasis on interventions that involved physical touch. Themes were generated from both studies and the common themes are presented here. Male nurses in this study were often apprehensive about using physical touch and they used coping strategies in response to their fears of being accused of using touch inappropriately. Several factors also influenced the male nurses when using physical touch as an intervention. These findings suggest that learning about caring for female patients needs to be included in the undergraduate curriculum and that further research on the experience of men as nurses is required.

Provider's Perspective