

PREVENTION OF INFECTIOUS DISEASES: The Public Health Nurse in All of Us

presented by The Institute for Health Care Education and Capitol Region
Alliance for Research and Research Utilization.

Friday, October 10, 2003

7:15 a.m.-2:30 p.m.



**HARTFORD
HOSPITAL**

Education and Resource Center
560 Hudson Street
Hartford, CT



7TH Annual Research/Research Utilization Conference

PREVENTION OF INFECTIOUS DISEASES: The Public Health Nurse in All of Us

CONFERENCE GOALS

PREVENTION OF INFECTIOUS DISEASES: The Public Health Nurse in All of Us

CONFERENCE GOALS

- **Provide a venue for dissemination of research findings to health care professionals.**
- **Through presentation of research efforts, illustrate ways in which utilization of research findings are improving clinical practice.**
- **Provide opportunities (through skill building/roundtable sessions) to enhance one's knowledge and the development of skill sets necessary for research utilization and research conduct.**

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CONFERENCE SCHEDULE

7TH Annual Research/Research Utilization Conference

PREVENTION OF INFECTIOUS DISEASES: The Public Health Nurse in All of Us

- 7:15 A.M. REGISTRATION** *ERC Lobby*
Coffee & Danish Breakfast *Heublein Hall*
- 8:00 A.M. WELCOME**
Joan MacRae, RNC, MS
Co-Chairperson, Planning Committee
- 8:05 A.M. OPENING REMARKS & INTRODUCTION OF KEYNOTE SPEAKER**
Laura Caramanica, RN, Ph.D.
Vice President Nursing, Hartford Hospital
- 8:15 A.M. KEYNOTE: HOW CLEAN SHOULD WE BE?**
Elaine Larson, RN, Ph.D., FAAN, CIC
- 9:15 A.M. COFFEE BREAK** *Heublein Hall*
POSTER EXHIBITS VIEWING *Formal Lounge*
FLORENCE NIGHTINGALE EXHIBIT* *Room 123*
BOOK EXHIBIT *ERC Lobby*
- 9:45 A.M. SKILL BUILDING PRESENTATIONS**
- PRESENTATION A** *Room 217*
CRITIQUING QUANTITATIVE RESEARCH: HOW TO KNOW WHAT YOU ARE COUNTING, COUNTS.
Sheryl Horowitz, BA, Ph.D.
Research Analyst, Hartford Hospital
- PRESENTATION B** *Robinson Library*
SEARCHING THE RESEARCH LITERATURE.
Arlene Freed, MLS, AHRP
Ellen MacNaughton, MLS
Health Sciences Library, Hartford Hospital
- CONCURRENT ABSTRACT PRESENTATIONS**
- PRESENTATION A** *Room 218*
SURVEILLANCE OF HEMODIALYSIS-ASSOCIATED PRIMARY BLOODSTREAM INFECTIONS: THE EXPERIENCE OF TEN HOSPITAL CENTERS.
Susan Malo-Schlegel, RN, MPH, CIC
Epidemiology Clinician, Hartford Hospital
- MRSA AND BARRIER PRECAUTIONS IN A CRITICAL CARE UNIT.**
Diane Baranowsky, RN, BS, MS, CIC
Nurse Epidemiologist, Stamford Hospital
- PRESENTATION B** *Room 221*
CULTURAL CARING IN NURSING PRACTICE:
A META-SYNTHESIS OF QUALITATIVE RESEARCH.
Maren Coffman, RN, MSN
Assistant Professor of Nursing, St. Joseph College
- FAMILY DECISION MAKING AT THE END OF LIFE**
Gary Bouley, RN, MS, CS
Yale New Haven Hospital
- PRESENTATION C** *Heublein Hall*
THE ROLE OF LEARNING COMMUNITIES.
Sherry Bassi, RN, Ed.D., CS
Assistant Professor, University of Connecticut
Carol Polifroni, RN, Ed.D., CNAA
Assistant Professor, University of Connecticut
- 11:00 A.M. SKILL BUILDING PRESENTATIONS**
- PRESENTATION C** *Room 217*
QUALITATIVE RESEARCH: BEYOND THE STATS.
Maria Tackett, RN, MSN, CCRN, CEN
Nurse Director, Hartford Hospital
- PRESENTATION D** *Robinson Library*
SEARCHING THE RESEARCH LITERATURE.
Arlene Freed, MLS, AHRP
Ellen MacNaughton, MLS
Health Sciences Library, Hartford Hospital
- CONCURRENT ABSTRACT PRESENTATIONS**
- PRESENTATION D** *Room 218*
USE OF HYDROTHERAPY FOR PAIN RELIEF DURING LABOR.
Denise Bourassa, RN, BS
Staff Nurse, Labor and Delivery, Hartford Hospital
- FACTORS EFFECTING LEARNING DURING HEALTH EDUCATION SESSIONS**
Marjorie Wiczorek, RN, MS candidate
Deborah Hoover, RN, MS candidate
Gail Kulesza, RN, MS candidate
Aimee Stefanski, RN, MS candidate
University of Connecticut
- PRESENTATION E** *Room 221*
ADVANCED ORGAN SUPPORT AND TRANSPLANTATION.
Irene Wood, RN
Staff Nurse, Transplant Unit, Hartford Hospital
- CRITICAL INQUIRY FOR NURSING PRACTICE.**
Joyce Fontana, RN, MSN, Doctoral Student
Assistant Professor, St. Joseph College
- 12:30 P.M. LUNCHEON** *Heublein Hall*
Musical Entertainment: N'style
POSTER AWARDS
- 1:15 P.M. PLENARY ADDRESS** *Heublein Hall*
FLORENCE NIGHTINGALE AND THE ORIGINS OF HOME HEALTH CARE.
Marylouise Welch, RN, Ph.D.
Associate Professor, St. Joseph College
- 2:15 P.M. CONFERENCE WRAP UP** *Heublein Hall*
Summary, Evaluation and Book Giveaways.

All sessions will be held in the Education and Resource Center at Hartford Hospital. The Robinson Library is located on the 3rd floor.

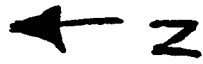
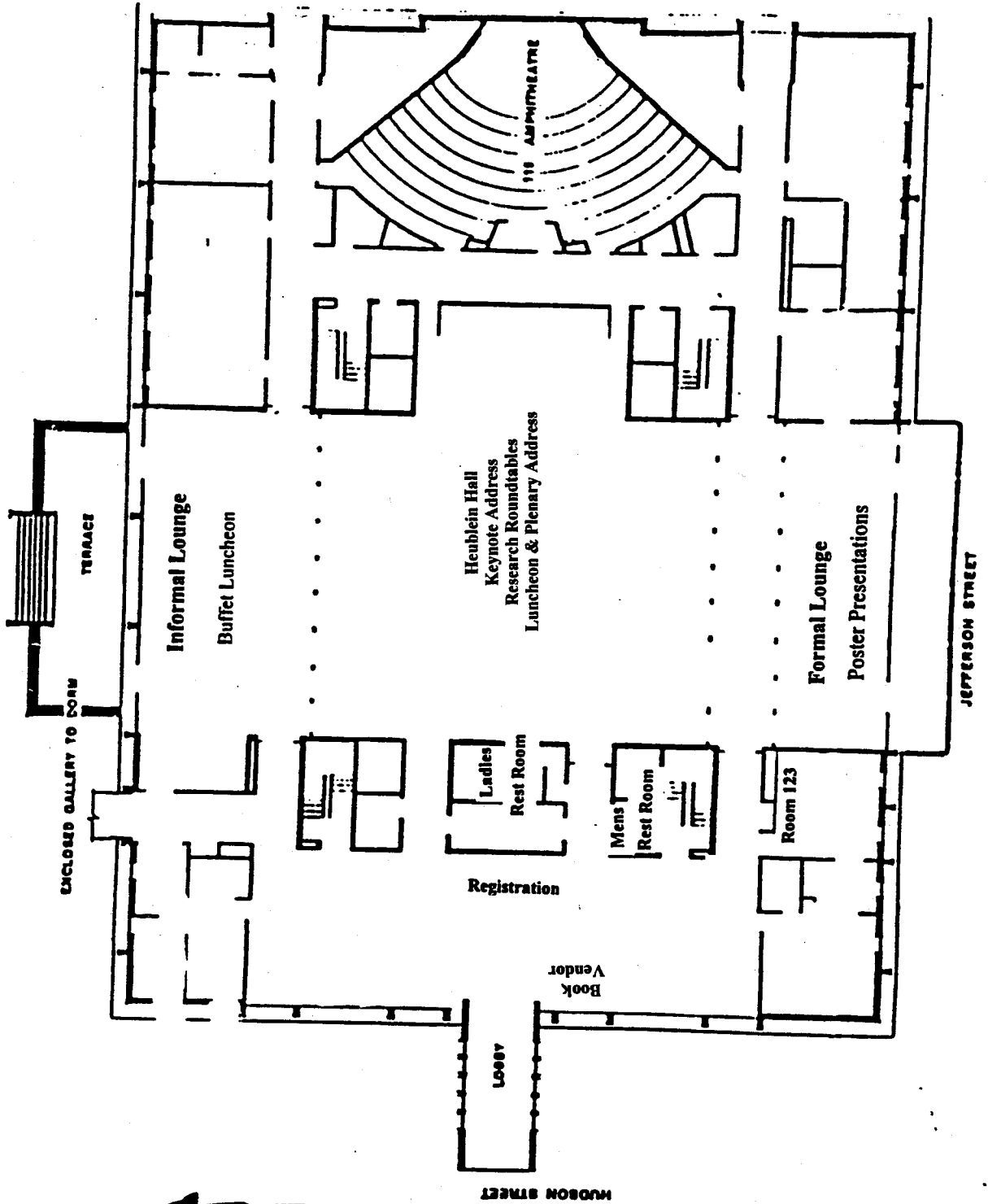
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**MAP OF EDUCATION &
RESOURCE CENTER**

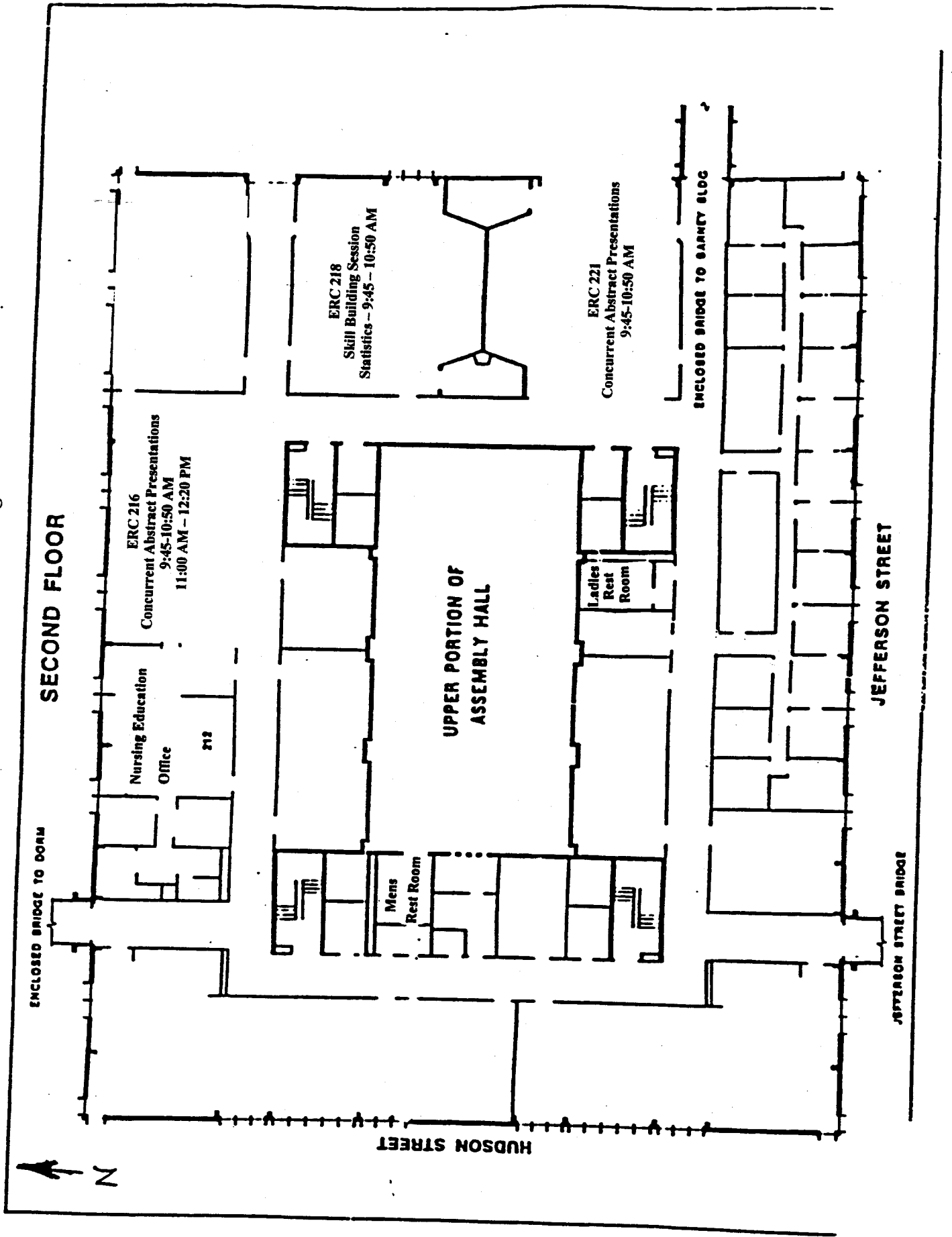
Education & Resource Building

FIRST FLOOR



Education & Resource Building

SECOND FLOOR



ENCLOSED BRIDGE TO CORN

ERC 216
Concurrent Abstract Presentations
9:45-10:50 AM
11:00 AM - 12:20 PM

Nursing Education
Office

218

HUDSON STREET

UPPER PORTION OF
ASSEMBLY HALL

Mens
Rest Room

ERC 218
Skill Building Session
Statistics - 9:45 - 10:50 AM

ERC 221
Concurrent Abstract Presentations
9:45-10:50 AM

ENCLOSED BRIDGE TO BARNEY BLDG

JEFFERSON STREET

JEFFERSON STREET BRIDGE

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ACKNOWLEDGEMENTS

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ACKNOWLEDGEMENTS

SPONSORSHIP OF KEYNOTE SPEAKER, ELAINE LARSON, RN, Ph.D., PROVIDED BY AN EDUCATIONAL GRANT COURTESY OF *Abbott Laboratories*.

NURSING HISTORIANS:

Christina N Beaudoin, MSN, APRN, CS
Eleanor Krohn Herrmann, Ed.D, RN, FAAN

SPECIAL THANKS TO MEMBERS OF THE CONFERENCE PLANNING COMMITTEE:

Janice Cusino, RN, MSN	Janice Lamb, RN, MSN
Dawn Beland, RN, MSN	Joan MacRae, RN, MSN
Cindy Belonick, APRN	Peg Moynihan, RN, MS
Pam Burris, RN, MSN	Rosanne Papa, RN, BSN
Laura Caramanica, RN, Ph.D.	<i>Hartford Hospital</i>

Sally Strange, RN, MSN *Connecticut Children's Medical Center, Hartford, CT*
Cheryl Tafas, RN, MSN *University of Connecticut Health Center, Farmington, CT*
Kathleen Stolzenberger, RN, MSN *Middlesex Hospital, Middletown, CT*
Kathleen Barta, RN, BC, MS, MSN *MidState Hospital, Meriden, CT*
AnnMarie Diloreto, RN, CNS *New Britain General Hospital, New Britain, CT*
Joanne Anfinson, RN, PhD *Capital Community College, Hartford, CT*
Linda Barile, RN, PhD *Central Connecticut State University, New Britain, CT*
Anne Durkin, RN, PhD *Quinnipiac University, New Haven, CT*
Barbara Aronson, RN, MSN *Southern Connecticut State University, New Haven, CT*
Terry Bosworth, PhD, RN *St. Joseph College, West Hartford, CT*
Mary Beth Mathews, RN, PhD *University of Hartford, West Hartford, CT*
Arthur Engler, RNC, APRN, DNSC *University of Connecticut, Storrs, CT*
Catherine Gilliss, DNSc, RN, FAAN *Yale University, New Haven, CT*

Contact Hours: 5.7 CHs will be awarded to participants attending the full day conference and handing in evaluation form. For those unable to attend the entire day, individual contact hours will be awarded for Keynote Address and Plenary Address.

Hartford Hospital is an approved provider of continuing nursing education by the Connecticut Nurses' Association, an accredited approver by the American Nurses Credentialing Center's Commission on Accreditation. Contact hour approval does not imply ANCC Commission on Accreditation/CNA or Hartford Hospital endorsement of any commercial products displayed in conjunction with this conference.

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ADDITIONAL SUPPORT FOR CONFERENCE PROVIDED BY:

3M Corporation

Abbott Laboratories

Kimberly-Clark Corporation

Sacred Heart University

Book Exhibit and Book Raffle Courtesy of Anthony Cantore, Elsevier Science, Publisher

BOOK VENDOR DISPLAY

ERC Lobby

7:30 - 8:00 AM

9:15 - 9:45 AM

12:30 - 1:15 AM

Anthony Cantore, Clinical Sales Representative for Elsevier Sciences Publishers, will be set up in the ERC Lobby with a display of various journals, textbooks and multimedia relating to research utilization and the research process. Samples of publications from W.B.Saunders, C.V. Mosby, Churchill Livingstone and Harcourt Brace will be on display.

Several publications will be given away as door prizes at the end of today's conference. Make sure to fill out your raffle ticket and drop it off in the box at the registration table before we break for lunch.

Stop by the display during the times listed below and check out the diversity of publications available to assist health care professionals in the conduct, dissemination and utilization of research.

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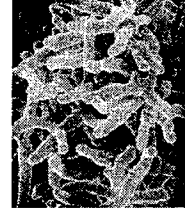
KEYNOTE ADDRESS



How Clean Should We Be? Prevention of Infectious Diseases: The Public Health Nurse in All of Us

Hand Microbial Ecology

Background:
Where Did the
Recommendations
Come From?



Skin As A Barrier

- Stratum corneum composed of ~15 layers of flattened dead cells
- New layer formed daily
- Completely replaced every 2 wks
- Horny protective layer of bricks and mortar



From healthy skin....

- 10^7 particles shed daily
- 10% contain viable bacteria
- Acidic pH is antibacterial
- Lipids prevent dehydration



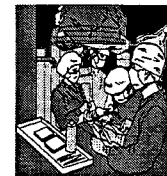
Effects of Soap on Skin

- Increased pH
- Reduced lipids
- Increased transepidermal water loss
- Increased shedding of squamous cells



Effect of Scrubbing on Skin Shedding

- CFU reduced satisfactorily with either surgical scrub or alcohol
- No increase in shedding after alcohol
- 18-fold increase in shedding after scrub



Meers & Yeo, 1978

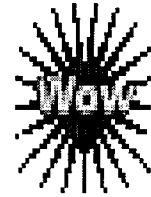
Studies of Hand Flora



Factors affecting skin condition

(Seitz, Newman, AJIC, 1988)

- Nurses in Arizona and Wisconsin
- Winter, northern locale, age >30 yrs increased risk of dry, chapped hands
- Washing only 1-2 times/hour increased severity of dry skin



Survey 1

- To describe prevalence and correlates of skin damage on hands of nurses
- Four hospitals: two in mid-Atlantic, two in northern U.S.
- 410 nurses working 30+ hr/week in acute care

Assessing Skin Damage: Irritant Contact Dermatitis

- Visual exam at 30X magnification by trained investigators
- Self-report questionnaire
- Reliability and validity confirmed with dermatologist assessment
- Diagnosed conditions (eczema, atopic dermatitis, psoriasis) excluded

Results

- Approximately one-fourth (106/410) had measurable, current skin damage
- 85.6% reported ever having problems
- Damage not correlated with age, sex, skin type, soap used at home, duration of handwashing, glove brand

Correlates of Damage

- Type of soap used at work (CHG < plain soap < other antimicrobial soap, $p=.01$)
- Frequency of handwashing ($p=.0003$)
- Frequency of gloving ($p=.008$)
- Study site (both community hospitals < both academic health centers, $p=.009$)

Logistic Regression

- Dependent variable: skin damage
- Independent variables: type of soap, frequency of handwashing and gloving, study site
- Independent correlates of damage:
Soap used at work ($p=.03$)
Frequency of gloving ($p=.01$)

Survey 2

- Compare microbial flora of hands of nurses with healthy and damaged skin
- Examine relationships between hand care practices, skin condition, and skin flora
- Subjects: 20 nurses with healthy skin, 20 nurses with damaged skin

Methods

- Prospective data collection for 3 work weeks over a 3-month time period
- Subjects kept detailed diary of hand care



- Skin condition scored by visual assessment and self-report
- Hands cultured with glove juice technique
- Random visits to subjects to confirm compliance



Microbiologic Methods

- Samples plated on general nutrient medium and six selective media
- Representative colonies gram-stained and identified with API systems or standard techniques
- Antimicrobial susceptibilities tested by disk diffusion

Results: Hand Care Practices

- Mean handwashes/hr: 2.1 (.68-4.8)
- 57.5% used non-antimicrobial soap
- Mean glovings/hr: 1.3 (.25-3.2)
- 87.5% used powdered gloves only
- 97.4% used hand lotion

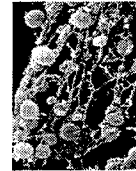


Hand Flora

- Mean CFUs: Undamaged 5.63
 Damaged 5.60 p=.63
- # Species: Undamaged 6.2
 Damaged 8 p=.11
- Colonizers Undamaged 2.6
 Damaged 3.3 p=.03

Hand Flora

- Twice as many with damaged hands were colonized with *S. hominis* (p=.02) and *S. aureus* (p=.11)
- Twice as many carried gram-negative bacteria, enterococci, *Candida*



Comparison with Previous Studies

- 1986, oncology nurses
 Mean CFU: 4.79
- 1992, nurses in Peru
 Mean CFU: 5.74
- 1997, nurses in acute care
 Mean CFU: 5.61

Comparison with Previous Studies: CNS

- Resistant to methicillin

1986 (n=50 isolates)	68.0%
1988 (n=81 isolates)	50.7%
1992 (n=163 isolates)	46.6%
1997 (n=123 isolates)	58.5%

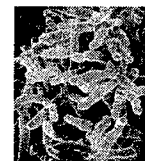
Comparison with Previous Studies: CNS

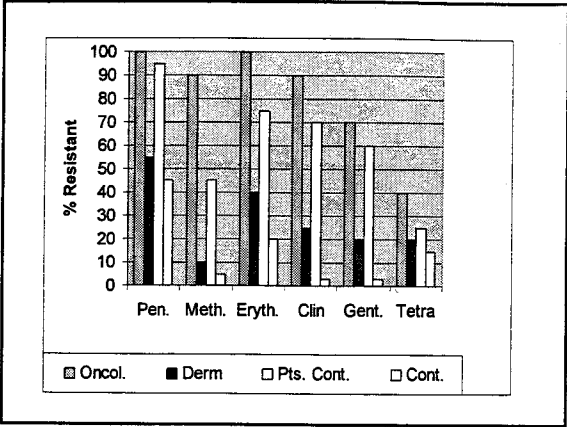
- Resistant to tetracycline

1986 (n=50 isolates)	23.0%
1988 (n=81 isolates)	30.7%
1992 (n=163 isolates)	47.8%
1997 (n=123 isolates)	10.5%

Antimicrobial Resistance

- 58.5% coagulase-negative staphylococci resistant to methicillin
- No increase in resistance over past decade






Differences in Flora by Clinical Area

Horn, et al., ICHE, 1988

- BMT Staff (n=28)
 - Lower CFUs
 - Significantly more resistance in CNS
 - Significantly more JK coryneforms, GNBs, *Candida*
- Dermatology Staff (n=35)
 - Higher CFUs
 - Significantly more *S. aureus*



Differences by Discipline

Horn, et al., ICHE, 1988


- Physicians had higher counts than nurses
- Nurses had higher rates of antimicrobial-resistant CNS flora than physicians
- Rank order of antimicrobial resistance:
 - BMT staff
 - Patients hospitalized 30+days
 - Dermatology staff
 - Normal controls

Conclusions

- Colonizing hand flora of staff reflects patient population contacted
- Efforts to improve hand condition are warranted, since skin damage is associated with changes in flora
- Efforts should include monitoring of hand care practices, adoption of protectant products in policy, increased use of powderfree, hypoallergenic, and/or non-latex gloves

5 min PI vs. 1min PI/Alc

- 28 OR volunteers
- Mean CFU, 1 hr post: 1.5 and .83 (p=.59)
- Mean CFU, 2 hr post: 4.0 and 1.5 (p=.33)
- Conclusion: no significant difference

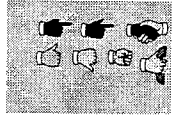


Mil Med 1998; 163:145

Comparison of Five Protocols

Pereira, JHI, 1997; 36:49

- 23 OR nurses, all protocols random order
- Protocols Tested:
 - CHG 5/3.5 min
 - CHG 3/2.5 min
 - PI-Tri 3/2.5 min
 - CHG-IPA 2/0.5 min
 - CHG-EA 2/0.5 min



Results....

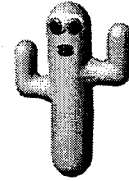
- CHG-5 and ALC had lowest post-scrub counts
- No difference between CHG-5 and ALC at day 1, but ALC significantly lower post-scrub counts at day 5 ($p=0.003$)
- No significant difference in skin condition



Effect of Brush on Skin

Acta Derm Ven 1999; 79:230

- Compared brush scrub with wash for 11 days in different seasons
- TEWL, conductance, pH measured
- Significantly higher TEWL for brush in autumn



Antiseptic Scrub With or Without Brush

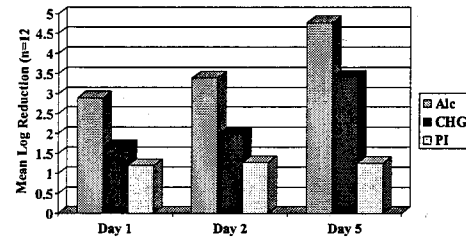
AJIC 1997; 25:11

- 15 volunteers did 5 min scrub using CHG/ALC with and without brush (crossover design)
- No significant differences in CFU
- But, up to twice the number of subjects without a brush had greater CFU reductions



ALC (no brush), CHG, PI (brush)

Surg Serv Mgmt 1998; 4:36



Alcohol Vs. Traditional Scrub:

30-Day SSI Rates

- Clean and clean-contaminated surgery
- Protocols: 75% propanol, 4% PI, 4% CHG
- Infection rates: 2.44% (55/2252) in alc group; 2.48% (53/2135) in other groups
- Compliance significantly better with alc ($p=0.008$), and hands were less dry with less skin irritation

» Parienti, JAMA 2002; 288:722-7

What About the Time?

AORN J 1997; 66:574

- 25 OR staff, randomized crossover
- 2 vs. 3 min scrub
- Difference <0.5 log
- Conclusion: clinically equivalent



Time Tests

Aust New Zeal J Surg 1998; 68:65

- Single wash with 10% PI failed to provide lasting CFU reductions
- 30 sec wash as effective as longer washes
- Conclusion: "prolonged vigorous pre-operative scrubbing is unnecessary"



MRSE Dispersal from Skin of OR Personnel

Tammelin, et al, JHI, 2/00

- Dispersal (>1% total CFU shed into air) occurred in 43% of men, 25% of women;
- Most frequent carriage on cheek (50%), axilla (24%), but dispersal most frequently associated with perineal carriage (5% prevalence)
- Significantly less shedding of total CFU with tightly woven clothes, but no reduction of MRSE shedding

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Slide 40 unavailable for print

Cleaning with artificial and natural nails

McNeil, CID, 2001; 32:367

- 21 nurses with, 20 without artificial nails
- Before cleaning, 85% with and 35% without had gnb, yeast or *S. aureus* (p=.003)
- For those with artificial nails, 14% cleared these organisms after cleaning with soap, 80% after alcohol

Prolonged outbreak traced to staff fingernails.....

Over 15 months, 10.5% of 439 neonates acquired *P. aeruginosa*, 35% died; Significant association with two nurses: one with long natural nails and one with artificial nails; "Requiring short natural fingernails..is a reasonable policy"

Moolenaar, et al ICHE, 2/00



Candida osteomyelitis and diskitis

- Three post-laminectomy patients got deep wound infection with identical strain of *C. albicans*
- Case-control study found significant relationship with one OR tech who wore artificial nails and carried *C. albicans* in nose

CID 2001; 32:352.

S. marcescens wound infections

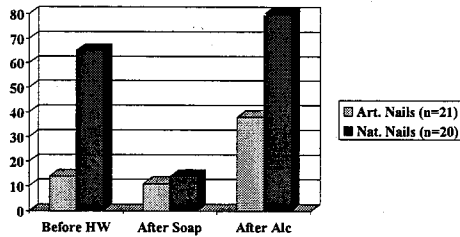
- 7 cardiovascular infections
- Risk factor: exposure to a nurse with artificial nails
- Exfoliant cream removed from nurse's home

Passaro, JID 1997; 175:992



Percentage free of *S. aureus*, gnbs, yeast

CID, 2001; 32:367



Pilot Study, NICU

- Purpose: Compare traditional antiseptic wash (CHG) and mild soap wash + alcohol rinse
- Outcomes: Microbial flora, skin condition
- Random assignment (n=8 in each group)

Larson, et al. Heart and Lung 2000; 29:136



Hand Hygiene Practices

Traditional Wash	Soap/alcohol
• Mean Washes: • 21.2	• 23.8
• Mean Glovings: • 12.4	• 12.4



Microbiology

- NS differences in mean CFU counts at baseline, 2, 4 wks
- NS differences in types of organisms isolated
- All p > 0.44



Skin Condition

- By week 4, significant improvement in skin condition of alcohol group
 - by observer assessment (p=0.001)
 - by subject assessment (p=0.007)



Larson, Heart and Lung, 2000

Sequential Trial of ALC and CHG

- Two products:
 - Detergent w/4%CHG (TSS)
 - 61% ethyl ALC, 1% CHG, and emollients (HP)
- 20 OR staff used each product for 3 weeks sequentially

Larson, et al. AORN J 2001; 73:412



Background

- Our study design
 - Prospective single center clinical trial
 - 3 Operating Suites of the Hospital
- Sample Size
 - required 20
 - recruited 27
- 22 Randomly Assigned to Treatment
- 5 Randomly Assigned to Reference
 - Drop-outs 2
- 25 Completed Entire Study

Background cont.

WEEK	MON	TUE	WED	THUR	FRI
	Hand-Prep (HP)				
	Traditional Surgical Hand Scrub				

Outcomes....

- Skin condition
- Time required
- Hand microbiology
- Preference



Data Collection

- Measurement Tools for Skin Condition
 - VSS, Erythema

INVESTIGATORS

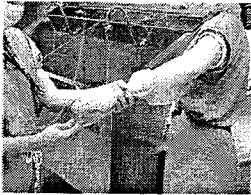
VSS:	Erythema:
1=extensively scaly	0=severe erythema
2=very scaly	1=marked erythema
3=scaly	2=moderate pinkness
4=slightly scaly	3=mild erythema
5=very slightly scaly	4=normal
6=normal	

HSA SUBJECTS

HSA:								
Appearance								
Abnormal	1	2	3	4	5	6	7	Normal
				4				
Intactness								
					5			
Moisture Content								
					4			
Sensation								
						6		

Data Collection

Microbiological Assay

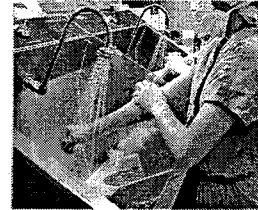
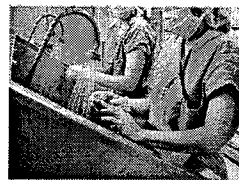


Diary Card

Day	# scrubs	hrs. surg	hrs. glove
mon	4	4	3
tue	3	4	2
wed			
thur			
fri			

Data Collection: Scrub Practices

61 Random Observations



Skin Condition

- Nine ratings during each phase for self-assessment, scaling and erythema
- Skin damage significantly reduced during HP testing period ($p=0.0005$)



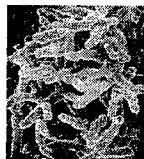
Time Required

- 61 observations of scrub technique (31 for HP, 30 for TSS)
- Direct contact time less for HP product (79.1 vs. 146.6 secs, $p=0.000$)
- Protocol deficiencies fewer for HP (6.5% vs. 50%, $p=0.0001$)

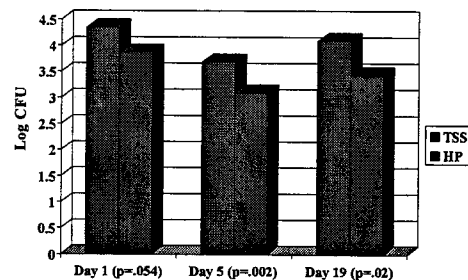


Hand Microbiology

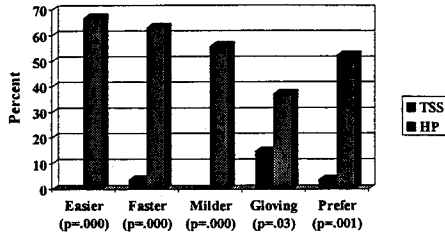
- Pre- and post-scrub cultures obtained on Day 1, 5, and 19 during both phases
- 33 isolates of GNB (83.7% *Acinetobacter*, *Enterobacter*, *Klebsiella*), 1 *S. aureus*, 11 yeast
- No MRSA or VRE



Post-Scrub Microbial Counts



Preferences



Costs for Scrubbing

Larson, AORN J, 2001; 73:412

- Traditional Scrub
 - ~\$60.40/application
 - Mean time required: 6 mins total
- Alcohol Preparation
 - ~\$20.50/application
 - Mean time required: 2 mins total



Alc vs. Soap

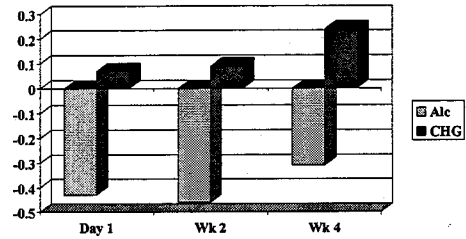
Zaragoza, AJIC, 1999; 27:258

- Mean reduction in counts:
 - plain handwashing: 49.6%
 - alcohol: 88.2% (p<.001)
- Staff acceptance rate "good":
 - plain handwashing: 9.3%
 - alcohol: 72%



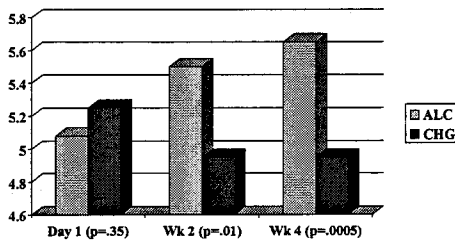
Log Counts, 50 MICU Staff

Larson, CCM, 2001



Mean Skin Scaling Scores, 50 MICU Staff

Larson, CCM, 2001



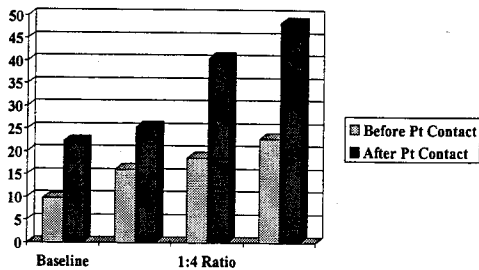
Improvement in Skin Condition

Boyce, ICHE, 2000; 21:442

- After 2 wk use, with soap and water
 - more skin irritation (p=.001)
 - more transepidermal water loss (p=.003)
- "Newer alcoholic hand gels that are tolerated better than soap may be more acceptable to staff and may lead to improved hand-hygiene practices."

Improvement in Practice

Bischoff, Arch Intern Med 2000; 160:1017



Improvement in Practice

Maury, Am J Resp Crit Care Med, 2000; 162:324

- Frequency of appropriate hand hygiene
 - Conventional handwashing only: 42.4%
 - Addition of alcohol rinse: 60.9% (p=.001)
 - 3 months later: 51.3% (p=.007)



Time and Costs

Voss & Widmer, KHE, 1997; 18:205

- **100% compliance with handwashing consumes 16 hr nursing time/day shift, whereas AHD requires 3 hr (p = .01)**
- **“AHD, with its rapid activity, superior efficacy, and minimal time commitment, allows 100% healthcare-worker compliance without interfering with the quality of patient care”**

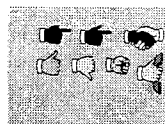
Conclusions

- Prolonged scrubbing unnecessary and damaging
- Brush unnecessary and damaging
- Alcohol products warrant greater use
- Link with outcomes absent



What About Moisturizers/Lotions?

- Prevent dehydration, damage to barrier properties, skin shedding, loss of skin lipids
- Restore water-holding capacity of keratin layer
- Increase width of corneocytes



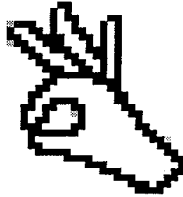
Moisturizers may even...

- Prevent cross-infection by improving barrier properties of skin, reducing shedding of viable bacteria, creating a mechanical or chemical barrier



Therefore...

- Use lotions
- Recommend lotions
- But choose wisely



Summary

- More of the same isn't better
- Improved skin health is good for patients as well as staff
- Minimize scrubbing and skin shedding
- Promising advancing technologies with hand degermers, barrier creams, new delivery mechanisms

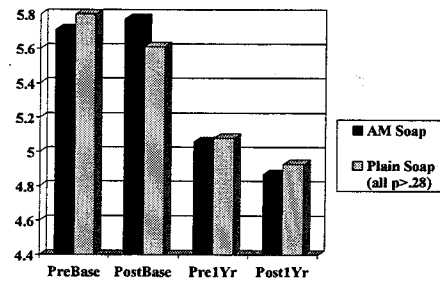


Participants were....

- About 97% Hispanic
- About half born outside U.S.
- Living in multi-unit apartment buildings in upper Manhattan
- 99% female heads of households



Comparison of mean pre and post handwash CFU counts between groups



Hand Hygiene Guideline For Healthcare Settings

- Published 10/25/02
- MMWR
- <http://www.cdc.gov/mmwr/prview/mmwrhtml/rr5116a1.htm>



New emphases

- Skin health, including moisturizers
- Alcohol hand rinses
- Compliance issues
- Preoperative surgical hand preparation
- Fingernails

Outcome/Process Measure



Develop and implement a system for measuring improvements in compliance of healthcare workers with recommended hand hygiene practices. Examples are listed below.

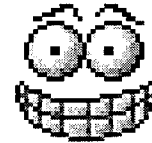
Examples of Measures

- Monitor and record compliance as the number of hand hygiene episodes performed by personnel/number of hand hygiene opportunities, by ward or by service. Provide feedback to personnel regarding their performance.
- Monitor the volume of alcohol-based hand rub (or detergent used for handwashing or hand antiseptics) used/1000 patient-days.
- Monitor the prevalence of personnel wearing artificial nails.
- When outbreaks of infection occur, assess the adequacy of healthcare worker hand hygiene.

Next Challenges

- Adverse reactions?
- Fire hazards?
- Plain vs. antimicrobial soap?
- Skepticism
- Dispensers
- Selecting among products

Just Because It Feels Good,
Doesn't Mean It's Bad



Hygiene of the Skin: When Is Clean Too Clean?

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Skin hygiene, particularly of the hands, is a primary mechanism for reducing contact and fecal-oral transmission of infectious agents. Widespread use of antimicrobial products has prompted concern about emergence of resistance to antiseptics and damage to the skin barrier associated with frequent washing. This article reviews evidence for the relationship between skin hygiene and infection, the effects of washing on skin integrity, and recommendations for skin care practices.

For over a century, skin hygiene, particularly of the hands, has been accepted as a primary mechanism to control the spread of infectious agents. Although the causal link between contaminated hands and infectious disease transmission is one of the best-documented phenomena in clinical science, several factors have recently prompted a reassessment of skin hygiene and its effective practice.

In industrialized countries, exposure to potential infectious risks has increased because of changing sociologic patterns (e.g., more frequent consumption of commercially prepared food and expanded child-care services). Environmental sanitation and public health services, despite room for improvement, are generally good. In addition, choices of hygienic skin care products have never been more numerous, and the public has increasing access to health- and product-related information (1). This paper reviews evidence for the relationship between skin hygiene and infection, the effects of washing on skin integrity, and recommendations for skin care practices for the public and health-care professionals.

Does Skin Cleansing Reduce Risk for Infection?

Personal Bathing and Washing

There is a clear temporal relationship between improvement in general levels of cleanliness in society and improved health. Greene (2) used historical and cross-cultural evidence and causal inference to associate personal hygiene with better health. However, the role of personal cleanliness in the control of infectious diseases over the past century is difficult to measure, since other factors have changed at the same time (e.g., improved public services, waste disposal, water supply, commercial food handling, and nutrition) (3).

Studies of personal and domestic hygiene and its relationship to diarrhea in developing countries demonstrate the effectiveness of proper waste disposal, general sanitary conditions, and handwashing (4,5). However, aside from hand cleansing, specific evidence is lacking to link bathing or general skin cleansing with preventing infections. Part of the difficulty in demonstrating a causal association between general bathing or skin care and gastrointestinal infection is that interventions to reduce diarrheal disease have been

multifaceted, often including health education, improved waste disposal, decontaminating the water supply, and general improvement in household sanitation as well as personal hygiene (6,7). Risk for diarrheal disease has also been linked to the level of parental education (8). Multiple influences complicate definition of the impact of any single intervention.

In 11 studies reviewed by Keswick et al. (9), use of antimicrobial soaps was associated with substantial reductions in rates of superficial cutaneous infections. Another 15 experimental studies demonstrated a reduction in bacteria on the skin with use of antimicrobial soaps, but none assessed rates of infection as an outcome.

Extensive studies of showering and bathing conducted since the 1960s demonstrated that these activities increase dispersal of skin bacteria into the air and ambient environment (10-12), probably through breaking up and spreading of microcolonies on the skin surface and resultant contamination of surrounding squamous cells. These studies prompted a change in practice among surgical personnel, who are now generally discouraged from showering immediately before entering the operating room. Other investigators have shown that the skin microflora varies between persons but is remarkably consistent for each person over time. Even without bathing for many days, the flora remain qualitatively and quantitatively stable (13-15).

For surgical or other high-risk patients, showering with antiseptic agents has been tested for its effect on postoperative wound infection rates. Such agents, unlike plain soaps, reduce microbial counts on the skin (16-18). In some studies, antiseptic preoperative showers or baths have been associated with reduced postoperative infection rates, but in others, no differences were observed (19-21). Whole-body washing with chlorhexidine-containing detergent has been shown to reduce infections among neonates (22), but concerns about absorption and safety preclude this as a routine practice. Several studies have demonstrated substantial reductions in rates of acquisition of methicillin-resistant *Staphylococcus aureus* in surgical patients bathed with a triclosan-containing product (23,24). Hence, preoperative showering or bathing with an antiseptic may be justifiable in selected patient populations.

Hand Hygiene for the General Public

Much contemporary evidence for a causal link between handwashing and risk for infection in community settings comes from industrialized countries (5,7,25-27). Although

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many of these studies may be limited by confounding by other variables, evidence of an important role for handwashing in preventing infections is among the strongest available for any factor studied. Reviews of studies linking handwashing and reduced risk for infection have been recently published (28,29). The most convincing evidence of the benefits of handwashing for the general public is for prevention of infectious agents found transiently on hands or spread by the fecal-oral route or from the respiratory tract (30). Plain soaps are considered adequate for this purpose.

Several highly publicized, serious outbreaks from commercially prepared foods have raised questions about food safety and the hygienic practices of food handlers and others in the service professions. Despite public awareness, however, handwashing generally does not meet recommended standards—members of the public wash too infrequently and for short periods of time (31).

These factors have led to suggestions that antimicrobial products should be more universally used, and a myriad of antimicrobial soaps and skin care products have become commercially available. While antimicrobial drug-containing products are superior to plain soaps for reducing both transient pathogens and colonizing flora, widespread use of these agents has raised concerns about the emergence of bacterial strains resistant to antiseptic ingredients such as triclosan (32,33). Such resistance has been noted in England and Japan (34), and molecular mechanisms for the development of resistance have been proposed (32,35). Although in some settings exposure to antiseptics has occurred for years without the appearance of resistance, a recent study described mutants of *Escherichia coli* selected for resistance to one disinfectant that were also multiply-antibiotic resistant (35). Some evidence indicates that long-term use of topical antimicrobial agents may alter skin flora (36,37). The question remains whether antimicrobial soaps provide sufficient benefit in reducing transmission of infection without added risk or cost.

Hand Hygiene in Health-Care Settings

Issues regarding hand hygiene practices among health-care professionals have been widely discussed and may be even more complicated than those in the general public. Unless patient care involves invasive procedures or extensive contact with blood and body fluids, current guidelines recommend plain soap for handwashing (38,39); however, infection rates in adult or neonatal intensive care units or surgery may be further reduced when antiseptic products are used (40-42).

Skin Barrier Properties and Effect of Hand Hygiene Practices

The average adult has a skin area of about 1.75 m². The superficial part of the skin, the epidermis, has five layers. The stratum corneum, the outermost layer, is composed of flattened dead cells (corneocytes or squames) attached to each other to form a tough, horny layer of keratin mixed with several lipids, which help maintain the hydration, pliability, and barrier effectiveness of the skin. This horny layer has been compared to a wall of bricks (corneocytes) and mortar (lipids) and serves as the primary protective barrier (43). Approximately 15 layers make up the stratum corneum, which is completely replaced every 2 weeks; a new layer is formed approximately daily (44). From healthy skin,

approximately 10⁷ particles are disseminated into the air each day, and 10% of these skin squames contain viable bacteria (45). The dispersal of organisms is greater in males than in females and varies between persons using the same hygienic regimen by as much as fivefold (46).

Water content, humidity, pH, intracellular lipids, and rates of shedding help retain the protective barrier properties of the skin. When the barrier is compromised (e.g., by hand hygiene practices such as scrubbing), skin dryness, irritation, cracking, and other problems may result. Although the palmar surface of the hand has twice as many cell layers and the cells are >30 times thicker than on the rest of the skin (47), palms are quite permeable to water (48).

Long-term changes in skin pH associated with handwashing may pose a concern since some of the antibacterial characteristics of skin are associated with its normally acidic pH (49). In one report, pH increased 0.6 to 1.8 units after handwashing with plain soap for 1 to 2 min and then gradually declined to baseline levels over a period of 45 min to 2 hr (50). Some soaps can be associated with long-standing changes in skin pH, reduction in fatty acids, and subsequent changes in resident flora such as propionibacter (51).

In an investigation of the effect on skin of repeated use of two washing agents, all skin function tests (stratum corneum capacitance resistance, lipids, transepidermal water loss, pH, laser Doppler flow, and skin reddening) were markedly changed after a single wash, and after 1 week further damage was noted (52). In a study of irritant skin reactions induced by three surfactants, damage lasted for several days; complete skin repair was not achieved for 17 days (53).

Soaps and detergents have been described as the most damaging of all substances routinely applied to skin (43). Anionic and cationic detergents are more harmful than nonionic detergents (54), and increased concentrations of surfactant result in more rapid, severe damage (55). Each time the skin is washed, it undergoes profound changes, most of them transient. However, among persons in occupations such as health care in which frequent handwashing is required, long-term changes in the skin can result in chronic damage, irritant contact dermatitis and eczema, and concomitant changes in flora.

Irritant contact dermatitis, which is associated with frequent handwashing, is an occupational risk for health-care professionals, with a prevalence of 10% to 45% (56-58). The prevalence of damaged skin on the hands of 410 nurses was reported to be 25.9% in one survey, with 85.6% of nurses reported to have problems at some time. Skin damage was correlated with frequency of glove use and handwashing (56). Washing with plain soap may actually increase the potential for microbial transmission because of a 17-fold increase in the dispersal of bacterial colonies from the skin of the hands (59). Skin condition clearly plays a major role in risk for transmission.

Microbiology of Hands of Health-Care Professionals

Damaged skin more often harbors increased numbers of pathogens. Moreover, washing damaged skin is less effective at reducing numbers of bacteria than washing normal skin, and numbers of organisms shed from damaged skin are often higher than from healthy skin (60,61). The microbial flora on the clean hands of nurses (samples taken immediately after handwashing) have been reported in several recent studies (Table). Methicillin resistance among coagulase-negative

Table. Microbial flora colonizing hands of health-care professionals

A. Microbial counts			
Year (ref.)	Sample (No. subjects)	Mean log ₁₀ CFU	
1986 (62)	Staff of bone marrow transplant unit (22)	4.89	
1992 (63)	Pediatric staff, Peru (62)	5.88	
1997 (64)	Nurses in acute care unit (40)	5.61	
B. Resistance of coagulase-negative staphylococcal flora			
Year (ref.)	Sample (No. isolates)	Resistant (%) to	
		methicillin	tetracycline
1986 (62)	Staff of bone marrow transplant unit (50)	68.0	23.0
1988 (65)	Oncology, dermatology staff (152)	50.7	30.7
1992 (63)	Pediatric staff, Peru (279)	40.9	45.4
1997 (64)	Acute care nurses (122)	59.0	10.5

staphylococcal flora on hands did not seem to increase during the 1980s to the 1990s, and tetracycline resistance decreased (Table).

When Is Clean Too Clean?

Even with use of antiseptic preparations, which substantially reduce counts of hand flora, no reductions beyond an equilibrium level are attained (66). The numbers of organisms spread from the hands of nurses who washed frequently with an antimicrobial soap actually increased after a period of time; this increase is associated with declining skin health (67). In a recent survey, nurses with damaged hands were twice as likely to be colonized with *S. hominis*, *S. aureus*, gram-negative bacteria, enterococci, and *Candida* spp. and had a greater number of species colonizing the hands (64).

The trend in both the general public and among health-care professionals toward more frequent washing with detergents, soaps, and antimicrobial ingredients needs careful reassessment in light of the damage done to skin and resultant increased risk for harboring and transmitting infectious agents. More washing and scrubbing are unlikely to be better and may, in fact, be worse. The goal should be to identify skin hygiene practices that provide adequate protection from transmission of infecting agents while minimizing the risk for changing the ecology and health of the skin and increasing resistance in the skin flora.

Recommendations for the General Public

Bathing or showering cleans the skin by mechanical removal of bacteria shed on corneocytes. Bacterial counts are at least as high or higher after bathing or showering with a regular soap than before. Frequent bathing has aesthetic and stress-relieving benefits but serves little microbiologic purpose. Mild, nonantimicrobial soap should suffice for routine bathing. Bathing with an antimicrobial product reduces rates of cutaneous infection and could be beneficial when skin infections are likely or before certain surgical procedures. With those exceptions, available data do not support a recommendation for bathing with antimicrobial products.

No single recommendation for hand hygiene practices in the general population would be adequate. The potential advantage of sustained antimicrobial activity for certain occupations (e.g., food handlers and child-care providers) must be balanced with the theoretical possibility of emergence of resistant strains and perhaps other, as yet unrecognized, safety issues.

An alternative to detergent-based antiseptic products is the use of alcohol hand rinses, which have recently become widely available over the counter. Their advantages include rapid and broad-spectrum activity, excellent microbicidal characteristics, and lack of potential for emergence of resistance. Alcohol-based products could be recommended for use among persons who need immediate protection after touching contaminated surfaces or before and after contact with someone at high risk for infection.

Since hands are a primary mode of fecal-oral and respiratory transmission, specific indications for use of antiseptic hand products by the general public are close physical contact with persons at high risk for infection (e.g., neonates, the very old, or immunosuppressed); close physical contact with infected persons; infection with an organism likely to be transmitted by direct contact (diarrhea, upper respiratory infection, skin infections); or work in a setting in which infectious disease transmission is likely (food preparation, crowded living quarters such as chronic-care residences, prisons, child-care centers, and preschools).

Recommendations for the Health-Care Professional

Detergent-Based Antiseptics or Alcohol

Because of increasingly vulnerable patient populations, the demand for hand hygiene among health-care professionals has never been greater. However, frequent handwashing is not only potentially damaging to skin, it is also time-consuming and expensive (68). Finnish investigators demonstrated that after frequent washing the hands of patient-care providers became damaged and posed greater risk to themselves and patients than if they had washed less often. A mild emulsion cleansing rather than handwashing with liquid soap was associated with a substantial improvement in the skin of nurses' hands (69). Alcohol-based formulations are superior to antiseptic detergents for rapid microbial killing on skin (66,67,70-72) and, with the addition of appropriate moisturizers, are probably milder (67,73,74). Since alcohols are rapid acting, are broad spectrum, and require no washing or drying, damage caused by detergents and mechanical friction from towelings is avoided.

Use of Lotions and Moisturizers

Moisturizing is beneficial for skin health and reducing microbial dispersion from skin, regardless of whether the product used contains an antibacterial ingredient (75-77). Because of differences in the content and formulations of lotions and creams, products vary greatly in their effectiveness (78,79). Lotions used with products containing chlorhexidine gluconate must be carefully selected to avoid neutralization by anionic surfactants (80). The role of emollients and moisturizers in improving skin health and reducing microbial spread is an area for additional research.

To improve the skin condition of health-care professionals and reduce their chances of harboring and shedding microorganisms from the skin, the following measures are

recommended: 1) For damaged skin, mild, nonantimicrobial skin cleansing products may be used to remove dirt and debris. If antimicrobial action is needed (e.g., before invasive procedures or handling of highly susceptible patients) a waterless, alcohol-based product may be used. 2) In clinical areas such as the operating room and neonatal and transplant units, shorter, less traumatic washing regimens may be used instead of lengthy scrub protocols with brushes or other harsh mechanical action. 3) Effective skin emollients or barrier creams may be used in skin-care regimens and procedures for staff (and possibly patients as well). 4) Skin moisturizing products should be carefully assessed for compatibility with any topical antimicrobial products being used and for physiologic effects on the skin (81).

Conclusions

From the public health perspective, more frequent use of current hygiene practices may not necessarily be better (i.e., perhaps sometimes clean is "too clean"), and the same recommendations cannot be applied to all users or situations. Future investigation is likely to improve understanding of the interaction between skin physiology, microbiology, and ecology and the role of the skin in the transmission of infectious diseases.

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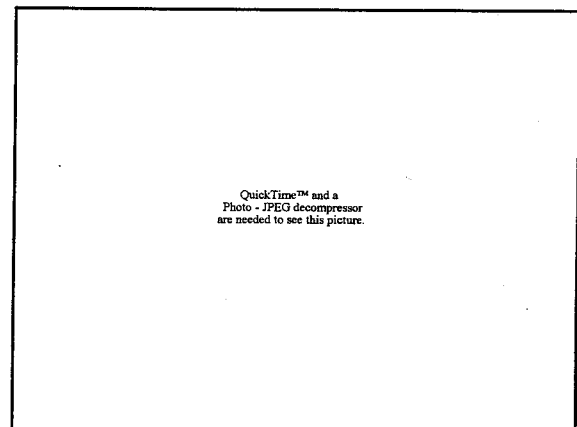
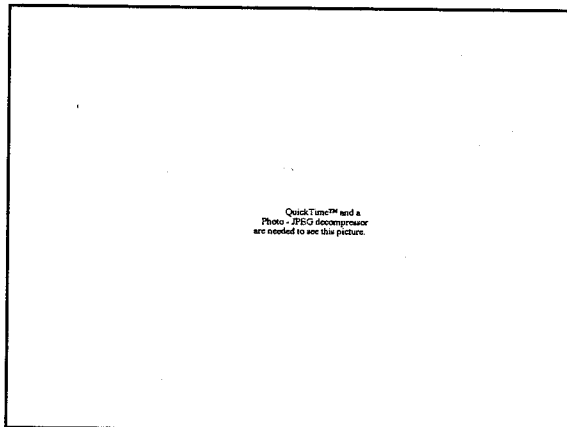
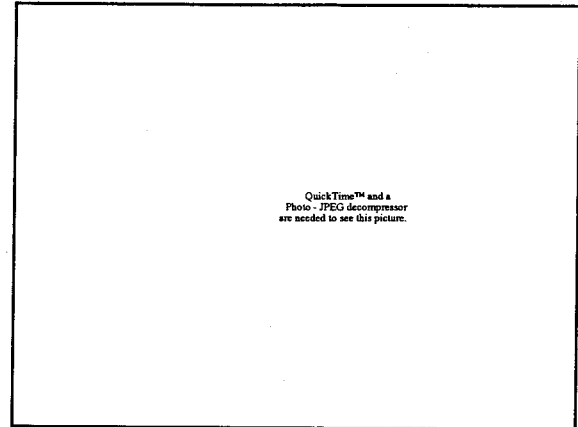
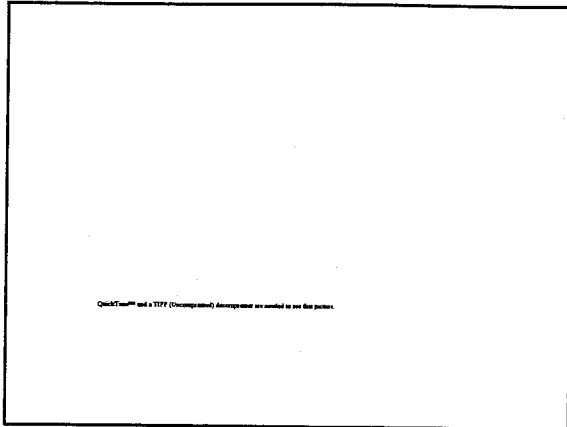
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7TH Annual Research/Research Utilization Conference

**PREVENTION OF INFECTIOUS DISEASES:
The Public Health Nurse in All of Us**

PLENARY ADDRESS



"...My father is not as other men are, he thinks that daughters should serve their country as well as sons....He thinks that God sent women, as well as men, into the world to be something more than 'happy', 'attentive', and 'amusing.'. ..but my father's religious & social ethics make us strive to be the pioneers of the human race & let 'happiness' & 'amusement' take care of themselves."

Private diary November 1855, copy, Wellcome

"I stand at the altar of the murdered men and while I live, I fight their cause."
Diary, 1856

The Nightingale Fund

- 50,000 pounds sterling collected through contributions to *The Times*
- Began the Nightingale School through pressure

Nightingale as Statistician

- Social phenomena could be observed and statistically analyzed (*A. Quetelet*)
- Learned from Dr. Farr the importance of Public Health Data
- Collected and analyzed morbidity and mortality data in the Crimea. Half a year after she arrived in Scutari the mortality in the hospital dropped from 42.7% to 2.2%

Nightingale as Statistician (cont.)

Used statistical analysis to:

- Raise the standards of health care for British soldiers report of the royal Commission on the Sanitary State of the Army
- Change the architectural designs of hospitals *Notes on Hospitals 1863*
- Document the need for District Nursing
- Pioneer work on mortality rates in childbirth
- Create awareness of the problems of poverty, poor sanitation and illness

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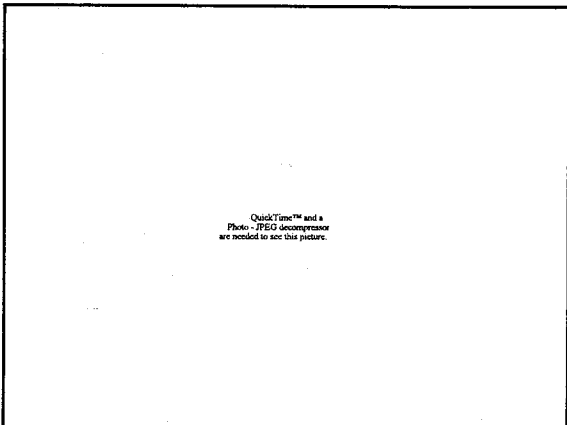
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District Nursing

- William Rathbone, Liverpool pioneer
- 1861 Nightingale suggests training nurses specifically for home nursing
- 1864 Rathbone communicates again his concern for care of sick paupers in work houses and infirmaries (result of Poor Law Act 1834)
- Contacts Nightingale in 1874 for a London Association



Metropolitan and National Nursing Association

- Provide trained Nurses for the sick poor
- William Rathbone as Chair
- Nightingale Fund supported the program through 1881
- Queen Victoria Diamond Jubilee gave 70000 pound Sterling in 1887 to create the Institute for Nursing

Extension of District Nursing

- 1894 "Health Teaching in Towns and Villages"
paper prepared for the Leeds Conference of Women Workers, on Rural Health and Rural Health Missioners
- "is to...nurse the room as well as the patient and teach the family to nurse..."

"Besides nursing the patient, she shows them in their own homes how they can call in official sanitary help to make their own poor room healthy, how they can improvise appliances, how their home need not be broken up."

from "Introduction to the History of Nursing in the Homes of the Poor" in *The History of District Nursing* by W. Rathbone, 1890

“Never think that you have done anything effectual in nursing in London till you nurse, not only the sick poor in workhouses, but those at home.”

Private Note, Easter 1867

“My view you know is that the ultimate destination of all nursing is the nursing of the sick in their own homes ...I look to the abolition of all hospitals and workhouse infirmaries. But it is no use to talk about the year 2000.”

letter to H. Bonham Carter 1876

Statistical Investigations into Colonial Questions

Aboriginal races in Australia 1864
British Army in India; report of the India Sanitary Committee 1864

Commission on India 1959

- Circular of Enquiry to every military station; her observations placed in a ‘Red Book’
- Report in 1863 and final paper 1873

India

- 1860s Letters and paper to the Social Science Association, recommending: health teaching improved sanitation and water
- 1870s and 1880s articles in the Nineteenth Century Magazine urging more representation and freedom for the Indians to administer their own system of justice and sanitation

“What is wanted is that it should not be said now of us...that if we were to leave India tomorrow, we should leave behind us no more traces of our civilization than if India had been in the possession of the hyena...”

letter to Sir Harry Verney 1863

India (cont.)

“How to create a public health department for India. What a work, what a noble task for a government.”
1873

“While teaching Europeans the laws of health, do not forget the natives...A well written little book addressed to the natives in their own language, explaining the very simplest laws of health-how it is that their present habits lead to fever & cholera...”

letter to J. Pattison Walker, 1864

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are needed to see this picture.

Nursing

- *All nurses are sanitary missionaries
- *All nurses are responsible for creating a healing environment in which “the patient is put in the best condition for nature to act upon him”

Public Health Accomplishments

- Established training to provide nurses for the poor in their homes
- Established District organizations
- Established additional training for District Nurses
- Raised awareness about health needs of the poor

“Health is the produce of civilization-I.e. of real civilization.”

letter to Sir John Lawrence 1864

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7TH Annual Research/Research Utilization Conference

**PREVENTION OF INFECTIOUS DISEASES:
The Public Health Nurse in All of Us**

**CONCURRENT ABSTRACT
PRESENTATIONS**

Surveillance of Hemodialysis-Associated Primary Bloodstream Infections: The Experience of Ten Hospital-Based Centers

Authors: Margaret Dopirak, RN, MPH; Connie Hill, RN, PhD; Marylee Oleksiw, RN, BSN; Diane Dumigan, RN, BSN; Jean Arvai, RN, BS; Ellen English, MS; Evelyn Carusillo, BSN, MA; Susan Malo-Schlegel, RN, MPH; Jeana Richo, MT (ASCP); Karen Traficanti, BSMT, MS; Bobbie Welch MT, RN; Brian Cooper, MD

Purpose & Rationale: To determine baseline rates of primary bloodstream infection (BSI) among a large pool of patients receiving hemodialysis using standardized surveillance tools and methodology.

Research Question: What is the baseline rate of primary BSI in patients receiving long-term hemodialysis in ten hospital-based hemodialysis centers in Connecticut?

Synthesis of Review of Literature: There are few studies that have prospectively observed a large cohort of patients receiving hemodialysis over time to compare the various types of vascular access and the development of BSI. The Centers for Disease Control and Prevention historically has provided an annual report that includes BSI rates in U.S. dialysis centers, but this is based on a questionnaire sent to each chronic care unit. Rates presented in these reports vary widely and are difficult to interpret because of different methodologies, definitions, and study designs used. Infection risk reduction and reliable data used for benchmarking can only be achieved with standardized methods of monitoring and reporting BSI rates.

Methods: In 1998, ten hospital-based hemodialysis centers in Connecticut agreed to form a consortium for surveillance of primary BSI associated with hemodialysis access. The group was formed under the aegis of the Connecticut Hospital Association and the End-Stage Renal Disease Network of New England. The infection control practitioners (ICP) developed standard definitions of infection, data collection tools, formulas for calculating rates, and case-finding methods to be used in the study. At each center, both an ICP and a dialysis-liaison nurse collaborated on data collection. The population selected for our study included all patients who were receiving long-term hemodialysis in the ten hospital-based outpatient dialysis facilities. Patients receiving short-term dialysis, inpatients, or those undergoing dialysis elsewhere in the facility were excluded.

Results: A total of 158 BSIs occurred during 142,525 dialysis session within a 12-month study period. Of the BSIs 15.2% occurred in patients with fistula or graft access and 84.8% in patient with central venous catheter access (CVCA) ($P < .001$). Coagulase-negative staphylococci and *Staphylococcus aureus* accounted for 61% and *Klebsiella* or *Enterobacter* species for 14.6% of infections. Rates declined in the second 6 months of the study from 1.4 to 0.8 infections per 1,000 dialysis sessions ($P < .001$).

Discussion: Primary BSI rates varied among participating centers and declined during the study period. BSIs were strongly associated with CVCA. Further studies are needed to determine the reasons for the variance in rates between centers and among various types of hemodialysis access.

MRSA AND BARRIER PRECAUTIONS IN A CRITICAL CARE UNIT

Surveillance for MRSA infections showed an increase in patients in the medical-surgical Critical Care Unit during August 1999. Several factors in the literature have been associated with acquisition of MRSA, and stay in an intensive care unit is one. CDC advocates the use of Contact Isolation to prevent spread of MRSA and that precaution is implemented when a patient is identified as infected or colonized. Standard Precautions are also practiced.

The Infection Control Committee considered the prevalence of MRSA in the CCU and the hospital, the risk factors in CCU population and the reservoirs and mode of transmission. One control approach chosen and implemented, August 10, 1999, was Barrier Precautions – the application of gloves when in contact with any and all CCU patients. All department staff (i.e., respiratory therapists, EKG, IV, and Radiology) who have direct contact with CCU patients were instructed in the application of Barrier Precautions and its purpose. An important aspect emphasized was that gloves must be changed and hands washed between patient contact. All rooms had Barrier Precautions signs posted and all supplies necessary to apply Standard Precautions and Contact Isolation are readily available in CCU. Barrier Precautions have been initiated in other facilities. Success, reduction in persistent transmission, may be reflected in staff compliance with precautions and monitoring of such. Quality Improvement monitoring was conducted January 3 – March 31, 2000, in the CCU to observe compliance with Barrier Precautions.

The Nurse Epidemiologist observed healthcare workers' compliance with Barrier Precautions Monday through Friday at different times during the day in CCU. On weekends Infectious Disease physicians played a role in this process as did the Nursing staff. When noncompliance was observed, instructions were given for correction.

Analysis:

After the implementation of Barrier Precautions from September through December there were no patients who acquired MRSA while in the CCU despite the fact that patients with known MRSA were admitted to the unit.

For the months of January, February and March, thirty observations of healthcare workers were conducted for each month:

For January, there were eight noncompliance practices: six registered nurses, one medical student, and one IV technician = 74% compliance.

For February, there was one noncompliant practice: one medical resident = 97%.

For March, there were no noncompliant practices = 100%.

From January to March 2000 only three MRSA isolates were identified in CCU patients despite five being admitted to the unit with MRSA.

From April through July there were no patients who acquired MRSA while in CCU despite fourteen patients with known MRSA admitted to the unit.

Conclusion:

A number of studies have demonstrated that compliance of healthcare workers with recommended Barrier Precautions is often suboptimal. A three-month system for monitoring and improving the compliance of the staff with the recommended Barrier Precautions has shown that 100% was achieved (74%, 97%, 100%).

Despite the presence of known patients with MRSA, it is possible to control nosocomial (hospital-acquired) transmission in the CCU with the application of Barrier Precautions.

**Cultural Caring in Nursing Practice:
A Meta-Synthesis of Qualitative Research**

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Nurses in the US are a homogenous group despite the high minority population. Approximately 90% of all Registered Nurses are Caucasian. The degree of uniformity of nurses compared to the U.S. population as a whole begs the question: Are nurses prepared to care for the increasingly multicultural patient?

The number of qualitative studies regarding the experience of nurses caring for ethnic groups has increased, yet there remains a limited understanding of the meanings derived from this work. The aim of this article is to synthesize the qualitative work regarding nurses' experiences through meta-synthesis.

The sample consists of 13 articles published between 1990 and 2001. This meta-synthesis uses the methodology of Noblit and Hare's meta-ethnographic comparative method. This approach allows the researcher to compare and analyze text and create new interpretations and meanings. The metaphors found in the studies were reduced to six overall themes that describe the nurses' experience caring for patients from other cultures. The six themes include (a) connecting with the client, (b) cultural discovery, (c) the patient in context, (d) in their world, not mine, (e) road blocks, and (f) the cultural lens.

Cultural competence has become a new imperative in a world that is beginning to look more like a salad bowl than a melting pot. It is interesting to note that the majority of the studies used in the sample have been completed since 1995. This alone speaks for the urgent need for nurses to expand their care practices. Continued research needs to be done in to enhance the knowledge base of nurses. Stated repeatedly in the studies was that nurses need increased understanding and experience with other cultures in order to obtain a culturally sensitive practice.

Family Decision Making at the End-of-Life

A Meta-Synthesis of Qualitative Research

Gary Bouley MS, RN

Abstract

There have been many empirically based literature about issues in family decisions to withhold or withdraw life support. However, during the decades of the nineties, several qualitative studies were conducted, mostly as doctoral dissertations.

This paper presents many facets regarding families of critically ill adults and their turmoil in making an End-of-Life (E.O.L.) Decision. Through a construction model made possible by a meta-synthesis, a technique akin to a meta-analysis for quantitative studies, seven qualitative studies were interpreted. The meta-synthesis revealed seven themes which were common among the families; gathering cues, suffering, spiritual needs, chronic illness/failing body, making a connection, and letting go. A finding present through all the themes was the importance of developing relationships. The relationships encountered included: (a) patient-family, (b) family-health care provider, (c) family-clergy, and (d) family-God. A guilt free decision can be made if all these relationships are sustained. The nurse has a responsibility to work closely with the family to ensure a strong relationship, as well as being aware of other relationships, in order to ensure a positive experience in this most difficult decision a family is required to make.

Abstract Title: The Role of Learning Communities

Author(s): Sherry Bassi RN, EdD, CS E. Carol Polifroni, RN, EdD, CNAA, BC

Purpose and Rationale: A concept analysis of the role of learning communities to address public health-related issues/problems.

Synthesis of Review of Literature: Learning communities are cohort-based communities addressing the teaching and developmental needs of "a group of people engaged in intellectual interaction for the purpose of learning (Cross, 1998, p. 4). These communities of study call for a coherence of content across disciplines, an appealing approach for *The Public Health Nurse in All of Us*. Dewey (1933) and Meiklejohn (1932) proposed student-learning communities that promoted a community of learning that was active, student centered and involved shared inquiry. Learning communities tend to be less formal emphasizing the team aspect of achieving project goals. By creating a learning community that brings us together structurally, intellectually and emotionally (Gabelnick, et al., 1990) we can build better connections with our nursing colleagues and members of our communities. An environmental management approach to prevention is grounded in the field of public health, emphasizing the broader physical, social, cultural and institutional forces that contribute to the health and well being of individuals and their communities (Wallack, Dorfman, Jernigan, and Themba, 1993).

Discussion/Application to practice: This presentation will define and detail what learning communities are, their specific structure and foci as well as their strengths and weaknesses. This will be followed by sharing specific examples of learning communities that are currently being proposed at the University of Connecticut targeting the Division of Health and Human Services which encompass the schools of Nursing, Pharmacy, Allied Health and Family Studies. The proposed learning community will be comprised of volunteers representing faculty, student affairs professional staff (health and counseling services) as well as members of the targeted aggregate (students). Two learning community prototypes are discussed. The first is a learning community that will address the health problem of the high-risk use of alcohol by under-age individuals. The goals of the project not only aim to reduce the incidence of high-risk drinking and reduce the academic impairment as a result of the second hand effects of the drinking, but also to demonstrate a working prevention partnership between the disciplines of student and academic affairs. The main goal of the proposal is to create a collaborative model of AOD (alcohol and other drug) curriculum infusion specifically addressing an environmental management approach. The learning communities will address three levels of intervention at the individual (identified at-risk), at the population as a whole and the community (NIAAA, 2002).

A second type of learning community is the creation of interdisciplinary teams to address any issue within the health care system. Literature posits that interdisciplinary team planning improves patient care outcomes, and yet, there are few examples of such planning within academia.

Using the above-proposed models, learning communities may be appropriate to address a range of public health concerns that can prove mutually satisfying for all involved. This presentation will

serve to generate further expansion.

USE OF HYDROTHERAPY FOR PAIN RELIEF DURING LABOR

AUTHOR: Denise Bourassa, RN, BS

Purpose and Rationale: The current "Protocol for Hydrotherapy use for laboring Patients" was inconsistent with current literature, therefore leading to the ineffective use of hydrotherapy for pain relief during labor. Research Utilization process was undertaken to change the protocol to accurately reflect current literature regarding hydrotherapy and current practices in area hospitals. Existing protocol limits tub use secondary to restriction on cervical dilation.

Research Questions: *When is hydrotherapy during labor most effective for pain relief?* Additional practice questions included: At what dilation of the cervix is hydrotherapy contraindicated? Which areas of the current protocol are inaccurate with regard to latest research? What are area hospitals protocols? How can we change the protocol at Hartford Hospital to correctly use hydrotherapy during labor? What patient outcomes should be evaluated following protocol change?

Synthesis of Review of Literature: Literature review consisting of Journal article from JOGNN, Midwifery Today, Midwifery, Royal College of Obstetricians and Gynaecologists Position Paper and a randomized study of 200 women done by Margareta Eriksson, Lars-Ake Mattson and Lars Ladfors were all used to compare Hartford Hospitals' current protocol with the latest research. Current Hartford Hospital protocol restricted women from using hydrotherapy after 5 cm dilation, when in fact, literature recommends entrance to tub at 5 cm or more. (Simkin,2002), (Odent, 1999), (Kitzinger, 2000), (Brown, 1998)

Methods/Procedures: With the collaboration of an Independent Child Birth Instructor, area hospitals were benchmarked in their practices regarding hydrotherapy (tub) use. Literature reviewed for latest, most current practices. Changes to the protocol were made to reflect current evidence and brought to Labor and Delivery Practice Committee. The Committee approved protocol change(s) and presented those changes to the Medical Staff. Medical staff also accepted change in protocol to no longer contraindicate hydrotherapy after 5cm dilation.

Results: The result of this research utilization project proved that the current protocol regarding hydrotherapy was inconsistent with latest evidence. Hartford Hospital protocol contraindicates tub use after 5 cm dilation, literature indicates that tub use early in labor (<5 cm) can arrest the labor process and should be avoided until active labor (>5 cm).

Discussion/Application to Practice: Following approval by the medical staff and Nursing Practice Committee on Labor and Delivery, hydrotherapy protocol as been changed to allow tub use in labor until 8 cm or transition. This is consistent with the bench marking of area hospitals, current literature and research. Education Committee will be in serviced to the new protocol and from there will in service the nursing staff.

Evaluation of Practice Change: Increased use of tub on Labor and Delivery for hydrotherapy. Increased patient satisfaction among those interested in hydrotherapy for pain control.

Abstract Title:

Coping Mechanisms of Renal Transplant Patients Throughout the Transplant Process

Author: Irene Wood, GN, BSN

Purpose and Rationale: The purpose of this research, which was prompted by the researcher's own experiences on the transplant unit of a large regional hospital, was to identify the stressors associated with renal transplantation and the coping mechanisms used to deal with those stressors. In addition, the role that nurses play in helping patients cope with renal transplantation was also addressed.

Research Questions: What are the most common stressors associated with renal transplantation? What are the most common coping methods used to deal with those stressors? How effective are those coping methods? And, what role does the nurse play in identifying stressors and helping patients cope with renal transplantation?

Synthesis of Review of Literature: Renal transplant is one of the most desirable forms of treatment for end-stage renal disease, yet it is not without complications and stressors. Past literature suggests that stressors tend to differ depending on the stage of transplant, such as the waiting period or the post-operative period; however, those stressors tend to follow similar themes. The literature also suggests that there are multitudes of coping mechanisms that can be applied, and they are similar no matter what the current stage of the transplant process. A general theme found was that keeping "tempered hope" and having social support were two of the greatest methods of coping. Lastly, the nurse plays a vital role in addressing the psychological and psychosocial, in addition to physical, needs of the patient to help improve his or her self-care. Nurses have the duty to frequently assess their patients and provide timely interventions to address any issues. The nurse can facilitate self-care by supporting the patient, sharing knowledge, facilitating learning and personal development, helping the patient build social networks, and providing a supportive environment. Most important, the nurse can ensure that the patient has adequate coping resources, and can advocate to others the importance of helping the patient recover both physically and emotionally.

Methods/Procedures: Dorothea Orem's Self-care Deficit Theory of nursing was used as the conceptual framework for this research. CINAHL, Medline, and PsychInfo were used to conduct a search of the literature. From this, a two-pronged approach to education was developed. The first area, directed toward patients, involves the development of an educational brochure. The second area is directed toward clinical staff, especially nurses, and involves a poster presentation.

Discussion/Application to Practice: It is important for nurses to recognize the psychosocial aspects of renal transplant because deficits may impede the patient from learning or completing adequate self-care. Nurses must conduct frequent thorough assessments and perform proper interventions for both physical and psychosocial issues. Nurses should also provide support for patients and encourage them to participate in their own care, in addition to ensuring that they possess adequate coping resources.

Factors Affecting Learning During Health Education Sessions

Deborah McDonald, Marjorie Wiczorek, Deborah Hoover, Gail Kulesza, Aimee Stefanski, Wendy Huang, Candice Pych, Linda Young, Jennifer Shanaman, Amy D'Agata, Jeannette Petrie, Jody Ragozzine, Rebecca Schlosser, Cheryl Walker, & Laura Lata

Purpose & Rationale: The purpose of this study was to test how background noise and interruptions affect the ability to learn health information.

Research Question: Do people learn less health information due to noise and interruptions?

Review of Literature: While extensive literature exists regarding effective ways to teach health information (i.e. Johnson, 1999; Redman, 2001), there remains a paucity of research examining how factors such as noise, and interruptions might impact the ability to learn health information.

Methods: Seventy-eight college students were randomly assigned to one of four conditions in this pretest posttest double blind 2 X 2 factorial experiment comparing interruption (interruption/no interruption) by noise (noise/no noise). Each student viewed one of four videotapes teaching the exact same content about safe antibiotic use. Students in the treatment condition viewed the videotape with no noise or interruptions. Students in the noise condition viewed the videotape, but had continuous low-level hospital-like noise throughout the videotape. Students in the interruption condition saw the speaker interrupted twice by a ringing telephone. Students in the noise and interruption condition were exposed to both the interruption and noise. All of the students were pre-tested with the Antibiotic Resistance Test, a 13-item test developed for the study. Students then watched the five-minute videotape. Immediately after watching the videotape students were instructed to write their diet during the past 24 hours. The recall task allowed testing of long term rather than short term memory of the antibiotic information. Students then completed the posttest, which was identical to the pretest.

Results: There were no significant pre-existing differences between the groups, with the exception that the noise-only group had significantly more students who had taken a college level microbiology course. Therefore students in the four groups who had taken a college level microbiology courses were removed from the analysis, resulting in a total of 48 remaining students. Using the pretest as the covariate, analysis of covariance (ANCOVA) was conducted comparing the four groups on the posttest knowledge scores. The ANCOVA results were significant, $F(3,43)=2.92$, $p < .05$, with a .17 effect size. Post hoc Scheffe' testing supported a significant difference between the treatment group with no distraction ($M = 11.3$; $SD = 1.14$) and the group with noise and interruption ($M = 9.6$; $SD = 1.80$), $p < .05$. Only 35.3% of the noise/interruption group students compared to 57.1% of the no distraction group students correctly answered a question about harmful symptoms from combining antibiotics and alcohol.

Discussion and Application to Practice: Healthy college students were significantly affected by the combination of noise and interruption while learning about safe antibiotic use. Distractions during health teaching sessions are common in the acute care setting and might need to be minimized to enhance the ability to learn health information.

Abstract Title: Critical Inquiry for Nursing Practice

Purpose & Rationale: There is an abundance of critical scholarship in the nursing literature. These studies are frequently combined with other methodologies and associated with differing, although compatible, theoretical foundations. It is not surprising, then, that critical scholarship is just as eclectic in the way in which it identifies itself. Inconsistent labels, often with inadequate explanations are problematic when attempting to understand critical inquiries. The purpose of this research was to clarify the underlying features of critical inquiry in an attempt to assist nurses in identifying and understanding critical scholarship, regardless of how it is presented. A brief historical account of the theoretical foundations of critical inquiry are be presented. The fundamental components of critical inquiry are illustrated by examining an emancipatory study investigating the experience of practicing nursing in today's health care system.

Research Question: What distinguishes critical inquiry from other methodologies in nursing research?

Synthesis of Review of Literature: The literature review revealed confusion regarding what is and is not critical in nursing research. The confusion exists because many studies that could be considered forms of critical inquiry do not identify themselves as such. There was no consensus in terminology or in classification. As a result, critical studies may be called emancipatory or praxis research. Additionally, most studies in the nursing literature labeled as action, participatory action or feminist research are primarily critical.

Methods/Procedures: A review of the research on critical methodology was conducted which served as a basis for a concept analysis of critical inquiry. A separate review of critical nursing studies was conducted to determine how these studies represented themselves. Using a case study approach, an emancipatory study was critiqued using the identified foundational characteristics of critical inquiry as a basis.

Results: Although they make use of many methods, theories and labels, critical studies are consistent at the level of methodology, which is characterized by: Critique, context, politics, emancipatory intent, democratic structure, dialectical process and reflexive nature.

Discussion/Application to Practice: All nurses have been affected by the climate of unpredictability and uncertainty that has existed as the health care system has undergone massive change in the last decade. As nurses work to retain some control over their own practice, they should understand the context of their struggle using a totalistic view. Critical inquiry provides this view for nursing and is now, more than ever, an important research paradigm for nursing. It offers the profession an opportunity to understand our reality and those of our patients well enough to take collective action to change undesirable situations.

7TH Annual Research/Research Utilization Conference

**PREVENTION OF INFECTIOUS DISEASES:
The Public Health Nurse in All of Us**

SKILL BUILDING SESSIONS

PREVENTION OF INFECTIOUS DISEASES: The Public Health Nurse in All of Us

SKILL BUILDING SESSIONS

9:45 A.M.—10:50 A.M.

PRESENTATION A *Room 217*

CRITIQUING QUANTITATIVE RESEARCH: HOW TO KNOW WHAT YOU ARE COUNTING, COUNTS.

Sheryl Horowitz, BA, Ph.D.

Research Analyst, Hartford Hospital

PRESENTATION B *Robinson Library*

SEARCHING THE RESEARCH LITERATURE.

Arlene Freed, MLS, AHRP and Ellen MacNaughton, MLS

Health Sciences Library, Hartford Hospital

11:00 A.M.—12:30 P.M.

Presentation D *Room 217*

QUALITATIVE RESEARCH BEYOND THE STATS.

Maria Tackett, RN, MSN, CCRN, CEN

Nurse Director, Hartford Hospital

PRESENTATION E *Robinson Library*

SEARCHING THE RESEARCH LITERATURE.

Arlene Freed, MLS, AHRP and Ellen MacNaughton, MLS

Health Sciences Library, Hartford Hospital

7TH Annual Research/Research Utilization Conference

**PREVENTION OF INFECTIOUS DISEASES:
The Public Health Nurse in All of Us**

POSTER PRESENTATIONS

PREVENTION OF INFECTIOUS DISEASES: The Public Health Nurse in All of Us

POSTER PRESENTATIONS 9:15 A.M.—9:45 A.M.

THE PREVENTION OF URINARY TRACT INFECTIONS IN THE HOME CARE SETTING

Denise Marcella, RN, BSN, *Client Care Coordinator, VNA Health Care, Waterbury, CT.* Patricia Srenaski, RN, BSN, *Occupational Health Nurse and Infection Control Coordinator, VNA Health Care, Waterbury and Hartford, CT.*

Celeste Yanni, RN, MA, *Clinical Education Coordinator, VNA Health Care, Waterbury and Hartford, CT.*

DEVELOPMENT AND IMPLEMENTATION OF A PROTOCOL FOR THE ASSESSMENT AND PREVENTION OF DEEP VEIN THROMBOSIS ON NORTH 9

Barbara Aronson, APRN, PhD (C), CS, *Assistant Professor, Southern Connecticut State University.* Dawn Beland, RN, MSN, CCRN, CS, *Coordinator, Stroke Center, Hartford Hospital.* Lisa Viviano, RN, *Clinical III, Hartford Hospital.* Mary Murphy, RN, MSN, *Clinical Educator, Hartford Hospital.* Rose Maljanian, RN, MBA, *Humana*

USE OF HYDROTHERAPY FOR PAIN RELIEF DURING LABOR

Denise Bourassa, RN, *Hartford Hospital.*

MRSA AND BARRIER PRECAUTIONS IN A CRITICAL CARE UNIT INTRAMUSCULARLY INJECTION: PRESENTING GUIDELINES FOR EVIDENCE BASED PRACTICE

Karen D'Attilio, RN, Joanne F. Roy, RN, PhD, *Nurse Educator, Hartford Hospital.*

ADVANCED ORGAN SUPPORT AND TRANSPLANTATION

Irene Wood, BSN, *Hartford Hospital.*

MRAS AND BARRIER PRECAUTIONS IN A CRITICAL CARE UNIT

Diane Baranowsky, RN, BS, MS, CIC, *Nurse Epidemiologist, Stamford Hospital*

DEVELOPMENT OF NURSE CLINICAL LEADER ROLE

Joanne F. Roy, RN, PhD, *Nurse Educator, Hartford Hospital.*

The Prevention of Urinary Tract Infections in the Home Care Setting

Purpose & Rationale:

Home care services are expanding rapidly as the health care system shifts from acute care to the community based setting. Infection surveillance, prevention and control strategies based in the acute care arena struggles to become relevant to home care. A home care acquired infection is defined as an infection related to home care treatment, not incubating at time of admission and identified at least 7 days after admission. Surveillance results for July 2001 to June 2002 demonstrated a 51% increase in the occurrence of home care acquired urinary tract infections (UTI) in the population served by one home care agency. This research studies risk factors associated with UTI and proposes prevention and control measures for the identified home care population.

Research Questions:

What population was most susceptible to a urinary tract infection?

Which defining risk factors predisposed this home care population to a urinary tract infection?

What clinical interventions can be taken to prevent urinary tract infections in this population?

Synthesis of Review of Literature:

Valid and reliable definition and measurement of infection control in the home care setting is a developing field of interest (Bellen, 1996; Popovich, 1999; Manangan et al., 2002; Rhinehart, 2001). While the occurrence of serious infection is less likely in the home, those that do occur require different means of quantification and the education of informal care providers (Simmons et al., 1990; Bennett, 1994; Woome et al, 1999). The organizational infection control nurse and the home care nurse have pivotal roles in the identification of occurrences and trends and the education of clients and care providers in the management of home care acquired infection (Friedman and Rhinehart, 2000; Rhinehart, 2001).

Methods/Procedures:

Home care nurses who identify a diagnosed or suspected UTI submit a "Home Care Acquired Infection Screening Report" to the agency's Infection Control Coordinator (ICC). The ICC does a retrospective chart review to obtain the following information: client identifying data, site of infection, signs/symptoms of infection, risk factors and interventions. Home care acquired infections are logged and described in chart and graph format.

Results:

Females over the age of 65 had the largest number of urinary tract infections. Host-related risk factors included having a cardio-pulmonary diagnosis (48%), a mental health diagnosis (45%), history of a previous UTI (35%) and impaired mobility (35%). Other risk factors typically correlated with UTI included: diabetes, incontinence and constipation.

Discussion/Application to Practice:

To decrease the risk of infection in the identified population this organization planned a nursing inservice to discuss risk factors and accompanying interventions. Content of sessions included causes of transient urinary control problems, assessment parameters and treatments, and prevention strategies for patient education. Urinary tract infection rates for fiscal year 2003 are currently being collected and will be analyzed for improvements in trends based on this educational intervention.

Abstract Title: Development and Implementation of a Protocol for the Assessment and Prevention of Deep Vein Thrombosis on North 9

Authors: North 9 Research Roundtable Team

Purpose and Rationale:

The purpose of this research-based protocol is to identify a standard method by which to assess patients for risk factors for the development of deep vein thrombosis and to employ standard prophylactic interventions. Although all hospitalized patient have some degree of risk, the North 9 patient population including patients from the services of ENT, Neurology, Neurosurgery and Trauma are at substantially higher risk for the development of deep vein thrombosis and pulmonary embolism. Despite overwhelming evidence of the efficacy of DVT preventative interventions, research suggests that many hospitalized patients receive inadequate or inappropriate prophylaxis. The clinical silent nature of the disease in most patients and the morbidity, costs and potential mortality associated with unprevented thrombosis, provide sufficient rationale for the implementation of a standardized prophylaxis protocol among this high-risk population.

Synthesis of Review of Literature:

Recently published practice guidelines and consensus statements provide new direction with regards to the prevention of deep vein thrombosis in the acute care setting. These guidelines recommend that every hospital develop a written thromboprophylaxis policy for high-risk groups in their institutions based on recommendations included in the guidelines.

Methods/Procedures:

Implementation of the DVT prophylaxis educational program will be evaluated utilizing a pre/post cohort evaluation design. Cohorts will include patients admitted to the neuro/trauma unit six months prior to and six months post-implementation of the protocol. It is expected that approximately 1,000 patients will be available from which to sample in each time period. Program outcomes will include: 1) Staff knowledge of DVT prophylaxis as measured by a pre/post knowledge test; 2) Nurse documentation of prophylactic treatment via a chart audit; 3) Incidence of DVT based on documented cases recorded by the vascular laboratory via Doppler studies, and 4) Medication therapy via audit of the pharmacy database.

Discussion/Application to Practice:

The North 9 Research Roundtable Team is in the process of implementing and evaluating a comprehensive, multi-disciplinary protocol for the prevention of DVT that includes risk factor assessment, routine monitoring for clinical signs and symptoms of DVT, appropriate anticoagulation therapy, early mobilization and exercise, the use of mechanical devices, patient and family education and discharge follow-up. After this trial has been completed and data analyzed, it is anticipated that this protocol will be revised and implemented throughout the hospital with other high-risk patient populations.

USE OF HYDROTHERAPY FOR PAIN RELIEF DURING LABOR

AUTHOR: Denise Bourassa, RN, BS

Purpose and Rationale: The current "Protocol for Hydrotherapy use for laboring Patients" was inconsistent with current literature, therefore leading to the ineffective use of hydrotherapy for pain relief during labor. Research Utilization process was undertaken to change the protocol to accurately reflect current literature regarding hydrotherapy and current practices in area hospitals. Existing protocol limits tub use secondary to restriction on cervical dilation.

Research Questions: *When is hydrotherapy during labor most effective for pain relief?* Additional practice questions included: At what dilation of the cervix is hydrotherapy contraindicated? Which areas of the current protocol are inaccurate with regard to latest research? What are area hospitals protocols? How can we change the protocol at Hartford Hospital to correctly use hydrotherapy during labor? What patient outcomes should be evaluated following protocol change?

Synthesis of Review of Literature: Literature review consisting of Journal article from JOGNN, Midwifery Today, Midwifery, Royal College of Obstetricians and Gynaecologists Position Paper and a randomized study of 200 women done by Margareta Eriksson, Lars-Ake Mattson and Lars Ladfors were all used to compare Hartford Hospitals' current protocol with the latest research. Current Hartford Hospital protocol restricted women from using hydrotherapy after 5 cm dilation, when in fact, literature recommends entrance to tub at 5 cm or more. (Simkin,2002), (Odent, 1999), (Kitzinger, 2000), (Brown, 1998)

Methods/Procedures: With the collaboration of an Independent Child Birth Instructor, area hospitals were benchmarked in their practices regarding hydrotherapy (tub) use. Literature reviewed for latest, most current practices. Changes to the protocol were made to reflect current evidence and brought to Labor and Delivery Practice Committee. The Committee approved protocol change(s) and presented those changes to the Medical Staff. Medical staff also accepted change in protocol to no longer contraindicate hydrotherapy after 5cm dilation.

Results: The result of this research utilization project proved that the current protocol regarding hydrotherapy was inconsistent with latest evidence. Hartford Hospital protocol contraindicates tub use after 5 cm dilation, literature indicates that tub use early in labor (<5 cm) can arrest the labor process and should be avoided until active labor (>5 cm).

Discussion/Application to Practice: Following approval by the medical staff and Nursing Practice Committee on Labor and Delivery, hydrotherapy protocol as been changed to allow tub use in labor until 8 cm or transition. This is consistent with the bench marking of area hospitals, current literature and research. Education Committee will be in serviced to the new protocol and from there will in service the nursing staff.

Evaluation of Practice Change: Increased use of tub on Labor and Delivery for hydrotherapy. Increased patient satisfaction among those interested in hydrotherapy for pain control.

MRSA AND BARRIER PRECAUTIONS IN A CRITICAL CARE UNIT

Surveillance for MRSA infections showed an increase in patients in the medical-surgical Critical Care Unit during August 1999. Several factors in the literature have been associated with acquisition of MRSA, and stay in an intensive care unit is one. CDC advocates the use of Contact Isolation to prevent spread of MRSA and that precaution is implemented when a patient is identified as infected or colonized. Standard Precautions are also practiced.

The Infection Control Committee considered the prevalence of MRSA in the CCU and the hospital, the risk factors in CCU population and the reservoirs and mode of transmission. One control approach chosen and implemented, August 10, 1999, was Barrier Precautions – the application of gloves when in contact with any and all CCU patients. All department staff (i.e., respiratory therapists, EKG, IV, and Radiology) who have direct contact with CCU patients were instructed in the application of Barrier Precautions and its purpose. An important aspect emphasized was that gloves must be changed and hands washed between patient contact. All rooms had Barrier Precautions signs posted and all supplies necessary to apply Standard Precautions and Contact Isolation are readily available in CCU. Barrier Precautions have been initiated in other facilities. Success, reduction in persistent transmission, may be reflected in staff compliance with precautions and monitoring of such. Quality Improvement monitoring was conducted January 3 – March 31, 2000, in the CCU to observe compliance with Barrier Precautions.

The Nurse Epidemiologist observed healthcare workers' compliance with Barrier Precautions Monday through Friday at different times during the day in CCU. On weekends Infectious Disease physicians played a role in this process as did the Nursing staff. When noncompliance was observed, instructions were given for correction.

Analysis:

After the implementation of Barrier Precautions from September through December there were no patients who acquired MRSA while in the CCU despite the fact that patients with known MRSA were admitted to the unit.

For the months of January, February and March, thirty observations of healthcare workers were conducted for each month:

For January, there were eight noncompliance practices: six registered nurses, one medical student, and one IV technician = 74% compliance.

For February, there was one noncompliant practice: one medical resident = 97%.

For March, there were no noncompliant practices = 100%.

From January to March 2000 only three MRSA isolates were identified in CCU patients despite five being admitted to the unit with MRSA.

From April through July there were no patients who acquired MRSA while in CCU despite fourteen patients with known MRSA admitted to the unit.

Conclusion:

A number of studies have demonstrated that compliance of healthcare workers with recommended Barrier Precautions is often suboptimal. A three-month system for monitoring and improving the compliance of the staff with the recommended Barrier Precautions has shown that 100% was achieved (74%, 97%, 100%).

Despite the presence of known patients with MRSA, it is possible to control nosocomial (hospital-acquired) transmission in the CCU with the application of Barrier Precautions.

Abstract Title:

Coping Mechanisms of Renal Transplant Patients Throughout the Transplant Process

Author: Irene Wood, GN, BSN

Purpose and Rationale: The purpose of this research, which was prompted by the researcher's own experiences on the transplant unit of a large regional hospital, was to identify the stressors associated with renal transplantation and the coping mechanisms used to deal with those stressors. In addition, the role that nurses play in helping patients cope with renal transplantation was also addressed.

Research Questions: What are the most common stressors associated with renal transplantation? What are the most common coping methods used to deal with those stressors? How effective are those coping methods? And, what role does the nurse play in identifying stressors and helping patients cope with renal transplantation?

Synthesis of Review of Literature: Renal transplant is one of the most desirable forms of treatment for end-stage renal disease, yet it is not without complications and stressors. Past literature suggests that stressors tend to differ depending on the stage of transplant, such as the waiting period or the post-operative period; however, those stressors tend to follow similar themes. The literature also suggests that there are multitudes of coping mechanisms that can be applied, and they are similar no matter what the current stage of the transplant process. A general theme found was that keeping "tempered hope" and having social support were two of the greatest methods of coping. Lastly, the nurse plays a vital role in addressing the psychological and psychosocial, in addition to physical, needs of the patient to help improve his or her self-care. Nurses have the duty to frequently assess their patients and provide timely interventions to address any issues. The nurse can facilitate self-care by supporting the patient, sharing knowledge, facilitating learning and personal development, helping the patient build social networks, and providing a supportive environment. Most important, the nurse can ensure that the patient has adequate coping resources, and can advocate to others the importance of helping the patient recover both physically and emotionally.

Methods/Procedures: Dorothea Orem's Self-care Deficit Theory of nursing was used as the conceptual framework for this research. CINAHL, Medline, and PsychInfo were used to conduct a search of the literature. From this, a two-pronged approach to education was developed. The first area, directed toward patients, involves the development of an educational brochure. The second area is directed toward clinical staff, especially nurses, and involves a poster presentation.

Discussion/Application to Practice: It is important for nurses to recognize the psychosocial aspects of renal transplant because deficits may impede the patient from learning or completing adequate self-care. Nurses must conduct frequent thorough assessments and perform proper interventions for both physical and psychosocial issues. Nurses should also provide support for patients and encourage them to participate in their own care, in addition to ensuring that they possess adequate coping resources.

Intramuscular Injection Presenting Guidelines for Evidence-Based Practice

Karen Attilio RN

Joanne Roy RN, PhD

Introduction: In 2001, an educational curriculum was developed to prepare for the implementation of a new clinical leader role within Hartford Hospital. One of the key accountabilities in the clinical leader role includes role-modeling of evidence-based practice and care. The classes in the EBP series addressed the foundations of evidence-based practice, how to search the literature, where to find the evidence and how to begin to disseminate best practice information. Possible EBP topics were discussed and shared within the class and much interest was generated in exploring specific topics. The Evidence-based Practice Guidelines for administering IM injections shared within the class was of particular interest to the clinical nurse leader in Adult Primary Care Clinic who administers numerous injections in practice.

Question: What is best practice in administering intramuscular injections to adult patients within an Adult Primary Care Clinic? Are nurses with Adult Primary Care Clinic aware of these practices?

Goal: The goal of this review was to research the evidence for best practice of intramuscular injections in Adult Primary Care. Focus population was adults receiving medication via the intramuscular route for prophylactic or curative purposes (Nicoll & Hesby, 2002). A plan was developed to further explore these guidelines and disseminate the recommended guidelines to the staff of the clinic settings.

Search Results: An integrative research review and guideline for Evidence-based Practice was published which provided a comprehensive review of the literature as set comprehensive guidelines to implement into practice (Nicoll & Hesby, 2002). As follow-up to the recommendations in this review, various investigations were conducted. Initially, consultation with pharmacy clarified administration routes of specific type of medications, secondly the availability of different size syringes/needles were identified and lastly, an close association with occupational health nurse who is not only responsible for administering various intramuscular injections to staff but is also responsible for ordering equipment such as syringes was developed. Powerpoint presentation was created which included a review of proper site selection, medication preparation, site identification, administration procedures and post administration assessment and presented to Outpatient Department nurses at a monthly staff meeting. Response to the presentation was positive with most nurses finding the presentation informative, a useful review as well as an opportunity for practice change based on evidence (preferred size of syringe; preferred muscle site selection).

Opportunities: Opportunities for future exploration based on this presentation include: how to implement a practice change such as selecting the most appropriate muscle for injections rather than the most commonly used; determining best practice to decrease pain at injection site and exploring best practice with subcutaneous injections.

4. Development of the Nurse Clinical Leader Role

Introduction: Over the past two years, a new and unique clinical leadership role for the nurse at the bedside has been implemented at Hartford Hospital. This role titled, *Clinical Leader (RN, Advanced)* recognizes nursing expertise similar to what is achieved through a clinical ladder program. However, our approach was different because of this nurse's additional responsibility to provide unit based leadership, achieve financial and clinical outcomes, and use data (including clinical evidence) in the administration of patient care. Our new Clinical Leader role provides an opportunity for professional growth and development for the nurse at the bedside and at the same time aligns her contribution to patient care with the operational (business) needs of the Hospital.

Clinical Leaders demonstrate the essence of professional nursing practice and provide leadership on their patient care unit. Their primary role accountabilities are commensurate with our four-shared governance councils' responsibilities: 1. Leadership (Operations Council); 2. Mentoring (Education Council); 3. Quality Improvement (Performance Improvement Council) and 4. Evidence-based Practice (Practice and Research Council). These professional nurses perform important unit responsibilities in addition to being recognized for their clinical expertise.

Selection, Education and Implementation: Criteria for eligibility for the Clinical Leader position included demonstrated nursing experience/expertise in one's specialty, a Bachelor of Science Degree and full time employment status. Candidates for this impressive group of practitioners were chosen through our shared governance peer selection process employed by our nursing staff. Prior to attending a specially designed Clinical Leader educational curriculum, these nurses demonstrated several important skills such as communication and computer competencies through the completion of self-learning packets/tutorials. A formal educational program was offered to build their skills in these four key role accountabilities (leadership; mentoring; quality improvement and evidence-based practice). This was done from a knowledge/awareness perspective followed by an enactment/action perspective. The first class in each series sought to clarify and understand concepts associated with these key accountabilities. The second class in each series focused on behaviors, short-term goals and strategies to translate this new role into daily practice.

Evaluation: Measurement of the Clinical Leader role's unique contributions to patient care and the Hospital's goals were achieved through our Annual Performance Management System. Clinical Leaders set their professional and unit-specific goals with their Nurse Manager in conjunction with the goals set forth in each Clinical Service's by its Collaborative Management Team. The Clinical Leader role is improving unit operations and providing opportunities for the personal/professional growth and development of our nursing staff. Anticipated benefits of this new role will be linked to nurse retention and an improved workplace environment.

7TH Annual Research/Research Utilization Conference

**PREVENTION OF INFECTIOUS DISEASES:
The Public Health Nurse in All of Us**

POSTER CRITERIA

POSTER CRITERIA FOR AWARDS

We welcome your participation in selecting outstanding poster presentations for recognition awards. First, second and third place ribbons will be awarded to posters judged to be worthy of merit. During the 9:15-9:45 AM break, conference participants should:

1. Review all poster stations located in the Formal Lounge area. *Poster tables will be numbered.*
2. After reviewing all poster stations, use the poster criteria described below to choose the *ONE* poster that you felt best meets the awards criteria. Circle rank score for chosen poster.
3. For the poster you choose, assign the poster number (number on the table) on this form. ***VOTE FOR ONLY ONE POSTER EXHIBIT***
4. Fold the form in half and place in the labeled box on the Registration Table by *10:00 AM*. *All voting must be completed by 10:00 AM as box will be removed for tabulating at that time.*
5. Ribbons will be awarded by the Awards Committee. Winners will be acknowledged at 1:10 PM, in the Heublein Hall, just prior to start of Plenary Address.

POSTER CRITERIA FOR AWARDS

POSTER # _____ Scale: 1=Poor 2=Fair 3=Good 4=Very Good 5= Excellent

CRITERIA	RANK				
1. Poster is attractive and draws attention (good use of color, pictures, graphs, etc.)	1	2	3	4	5
2. Important descriptors included in presentation.	1	2	3	4	5
3. Statistical findings & analysis included and was easy to understand (if N/A, delete this item)	1	2	3	4	5
4. The presentation "flows" from the study hypothesis (research question) to design, implementation, results and conclusions, in an organized fashion.	1	2	3	4	5
5. Implications for change in practice evident.	1	2	3	4	5
6. Viewer is able to grasp the total message in 5 minutes or less.	1	2	3	4	5

NOTE: All completed ballots for poster awards must be in ballot box by 10:00 AM. Please remember to only vote for ONE poster. Thank you.

7TH Annual Research/Research Utilization Conference

**PREVENTION OF INFECTIOUS DISEASES:
The Public Health Nurse in All of Us**

EVALUATION FORMS

PREVENTION OF INFECTIOUS DISEASES: The Public Health Nurse in All of Us

1. KEYNOTE & PLENARY ADDRESSES

2. CONCURRENT ABSTRACT PRESENTATIONS

9:45 AM SPEAKERS

11:00 AM SPEAKERS

3. SKILL BUILDING SESSIONS

- **CRITIQUING QUANTITATIVE RESEARCH: HOW TO KNOW WHAT YOU ARE COUNTING, COUNTS**
- **SEARCH THE RESEARCH LITERATURE**
- **QUALITATIVE RESEARCH BEYOND THE STATS**

7TH Annual Research/Research Utilization Conference

**PREVENTION OF INFECTIOUS DISEASES:
The Public Health Nurse in All of Us**

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PREVENTION OF INFECTIOUS DISEASES: The Public Health Nurse in All of Us

8TH ANNUAL RESEARCH/RESEARCH UTILIZATION CONFERENCE – OCTOBER 1, 2004

THEME: Transcultural Research in Cyberspace

KEYNOTE SPEAKER: Josepha Campinha-Bacote, PhD, APRN, BC, CNS, CTN, FAAN

Dr. Campinha-Bacote is the President and Founder of Transcultural C.A.R.E. Associates, a private consultation service which focuses on clinical, administrative, research, and educational issues in transcultural health care and mental health. She has worked with managed healthcare organizations, acute and long term medical centers, outpatient healthcare organizations, academic institutions, community outreach centers and the federal government to enhance the level of cultural competence among their healthcare professionals.

She received her B.S. from the University of Rhode Island, her M.S. from Texas Women's University and her Ph.D from the University of Virginia. Currently, she is pursuing a graduate degree in Theological Studies at Cincinnati Seminary in Ohio. Dr. Campinha-Bacote holds several state, national and international certifications. She is Board Certified by the American Nurses Credentialing Center as a Clinical Nurse Specialist in Adult Psychiatric & Mental Health Nursing, certified by the Transcultural Nursing Society as a Certified Transcultural Nurse, and holds a Certificate of Authority from the Ohio Board of Nursing to practice as an Advanced Practice Clinical Nurse Specialist. In addition, Dr. Campinha-Bacote holds the academic title of adjunct faculty at several universities including The Ohio State University in Columbus, Ohio and the University of Cincinnati, in Cincinnati Ohio.

She has been the recipient of several national and international honors and awards which include the Distinguished Lecturer Award from Sigma Theta Tau International, the Post-Doctoral Research Fellowship Award from the Ohio Department of Mental Health, and the Ethnic/Racial Minority Fellowship Award from the National Institute of Mental Health. Dr. Campinha-Bacote is also a Fellow of the American Academy of Nursing.

Dr. Campinha-Bacote has given more than 1,000 national and international presentations on issues concerning transcultural health care and transcultural psychiatry. She has published over 50 articles in these specialty areas and has received external funding for her research projects. Dr. Campinha-Bacote has developed a conceptual model, *The process of Cultural Competence in the Delivery of Healthcare Services: A Culturally Competent Model of Care*, which several colleges of nursing, pharmacy, social work, medicine and other allied healthcare disciplines are incorporating into their undergraduate and graduate programs. Based on this model, she developed the instrument, *Inventory for Assessing the Process of Cultural Competence Among Healthcare Professionals-Revised*, which measures the level of cultural competence among healthcare professionals.

In 2000, Dr. Campinha-Bacote served on the National Advisory Committee to the U.S. Department of Health and Human Services Office of Minority Health to develop standards for Culturally and Linguistically Appropriate Services (CLAS) in Health Care. She currently serves as a consultant to the National Center For Cultural Competence (NCCC) in Washington, DC and to the Health Resources and Services Administration (HRSA) Managed Care Technical Assistance Center of the U.S. Department of Health and Human Services.

Associates of Transcultural C.A.R.E. Associates include advanced practice healthcare professionals with an expertise in transcultural healthcare issues. They represent the specialty fields of diversity training linguistics, interpreting & translation services, the disciplines of medicine, nursing, psychology, sociology, anthropology and other allied health professions. Our Associates come from various cultural and ethnic groups (Philippino, African, Chinese, Japanese, Trinidadian, African American, Cape Verdean, Native American, Hispanic/Latino, Arab, Southeast Asian, Indian, Korean, Canadian). In addition, associates also include primary and secondary consumers from culturally and ethnically diverse groups who share their personal and candid experiences about receiving care from healthcare systems and healthcare professionals.



EVALUATION FORM
DIVISION OF NURSING EDUCATION & RESEARCH
CONTINUING EDUCATION

TITLE OF COURSE: KEYNOTE ADDRESS AND PLENARY ADDRESS

DATE: OCTOBER 10, 2003

CE CODE 014-733

POSITION: Please fill in the bubble that corresponds with your job title.

- | | | | |
|--------------------------------------|--|--|--|
| <input type="radio"/> RN | <input type="radio"/> ND/NM | <input type="radio"/> RESPIRATORY | <input type="radio"/> OFFICE CLERK |
| <input type="radio"/> LPN | <input type="radio"/> CLINICAL COORDINATOR | <input type="radio"/> PHARMACIST | <input type="radio"/> ADM. ASSISTANT |
| <input type="radio"/> NURSE EDUCATOR | <input type="radio"/> PCA/PSA/PAA | <input type="radio"/> DIETICIAN | <input type="radio"/> SUPERVISOR/MANAGER |
| <input type="radio"/> CNS/NP/APRN | <input type="radio"/> SOCIAL WORKER | <input type="radio"/> SECURITY OFFICER | <input type="radio"/> OTHER |

EDUCATION DESIGN: Please rank the following items with this numerical scale.

- Not Applicable
 Strongly Agree
 Agree
 Disagree
 Strongly Disagree

Question 1: To what extent was the speaker(s) knowledgeable, organized and effective in presentation?

1. Speaker	ELAINE LARSON, RN, PhD	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Speaker	MARYLOUISE WELCH, RN, PhD	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

EDUCATION DESIGN: Please rank the following items with this numerical scale.

- Not Applicable
 Strongly Agree
 Agree
 Disagree
 Strongly Disagree

Question 2: To what extent were you able to meet the following Objectives?

NOTE: ↓ Fill in bubbles completely

1)	Describe the anatomical and physiological aspects of healthy skin. (EL)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2)	Describe the effects of hand washing on the skin. (EL)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3)	Describe survey results of skin condition & microbiology of nurses' hands. (EL)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4)	Describe comparison of soap to alcohol-based products for hand hygiene. (EL)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Place comments on back of form.

5)	Describe research findings regarding the use of skin moisturizers. (EL)
6)	Describe three factors that influenced Nightingale's development as a public health nurse. (MLW)
7)	Describe Nightingale's three main contributions to public health nursing. (MLW)
8)	Did the objectives relate to the purpose/goal(s) of the education activity? Purpose/Goal: Enhance practitioners' knowledge of research findings impacting infection control practices for application in their work settings.

- | | | | | |
|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 |
| 0 | 1 | 2 | 3 | 4 |
| 0 | 1 | 2 | 3 | 4 |
| 0 | 1 | 2 | 3 | 4 |

COMMENTS BOX

title



KEYNOTE

code



014-733

date



10/10/2003