

Hospital Bath Basins are Frequently Contaminated with Multi-Drug Resistant Organisms (MDRO) which are Common ICU Pathogens

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Disclosures



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Laboratory testing was completed by Advanced Testing Laboratory (ATL), Cincinnati, OH

Hospital Acquired Infections

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FastStats

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Leading Causes of Death

(Data are preliminary)

Percentage of deaths for leading causes of death

- Heart disease: 616,067
- Cancer: 562,875
- Stroke (cerebrovascular diseases): 135,952
- Chronic lower respiratory diseases: 127,924
- Accidents (unintentional injuries): 123,706
- Alzheimer's disease: 74,632

5th leading cause of in-hospital death

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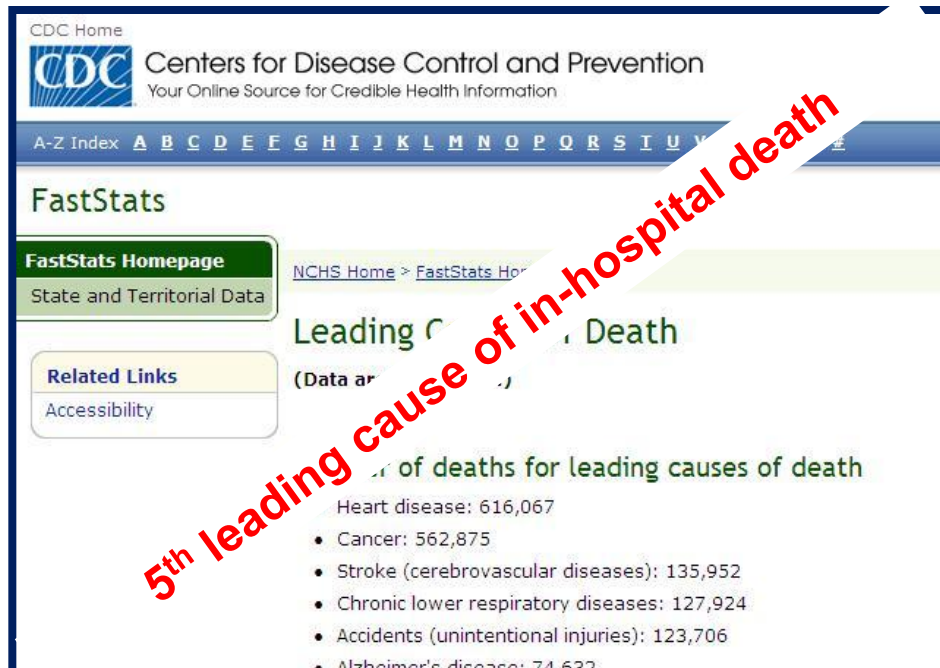
HEALTH POLICY REPORT

Infection Control — A Problem for Patient Safety

John P. Burke, M.D.

N ENGL J MED 348:7 WWW.NEJM.ORG FEBRUARY 13, 2003

Hospital Acquired Infections



- **Most common complication of hospital stay**
- **“The greatest risk that the hospital environment poses to patients”...**
- **In the US alone:**
 - **~10% of patients admitted to ACH acquire HAI**
 - **2 million HAI / year**
 - **90,000 deaths / year**

Systematic review of economic burden of health care-associated infections

Patricia W. Stone, PhD, FAAN^{*,||}

Elaine Larson, PhD, RN, FAAN, CIC^{*,||}

HAI adds \$4.5 to \$5.7 billion / year to costs of patient care



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CMS Changes in Reimbursement for HAIs:

Setting A Research Agenda

Patricia W. Stone, PhD, FAAN^{*,||}, Sherry A. Glied, PhD[†], Peter D. McNair, BN, MPH, MHS^{‡,§},
Nikolas Matthes, MD, PhD, MPH, MSc[¶], Bevin Cohen, MPH^{||}, Timothy F. Landers, CNP,
PhD^{||}, and Elaine L. Larson, RN, PhD, FAAN, CIC^{*,||}

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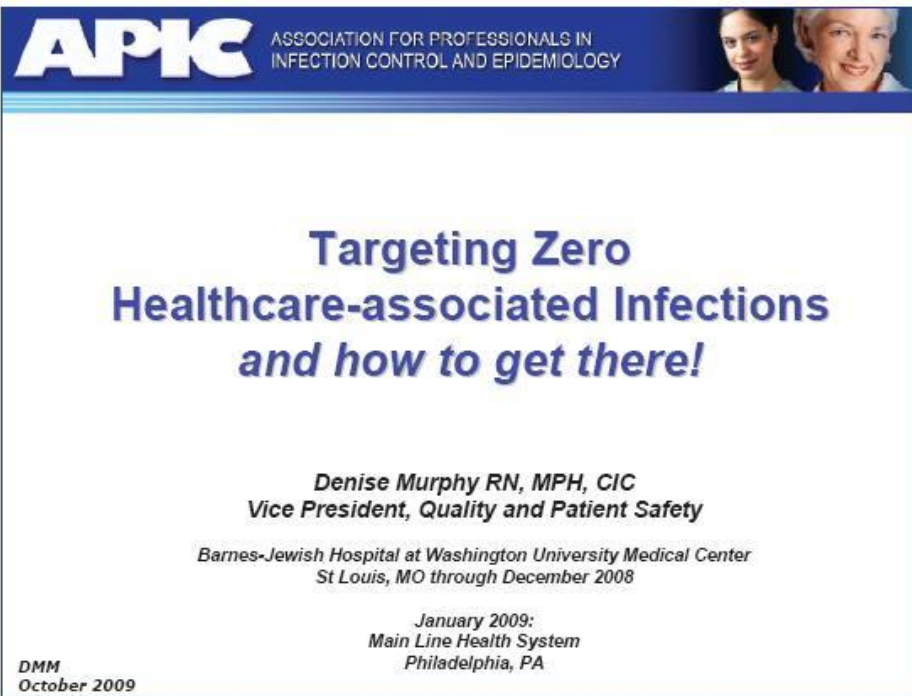
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**HAI costs increased even further now, along with fear of
“bad reputation” connotations**

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An Intervention to Decrease Catheter-Related Bloodstream
Infections in the ICU

Peter Pronovost, M.D., Ph.D., Dale Needham, M.D., Ph.D., Sean Berenholtz, M.D., David Sinopoli, M.P.H., M.B.A.,
Haitao Chu, M.D., Ph.D., Sara Cosgrove, M.D., Bryan Sexton, Ph.D., Robert Hyzy, M.D., Robert Welsh, M.D.,
Gary Roth, M.D., Joseph Bander, M.D., John Kepros, M.D., and Christine Goeschel, R.N., M.P.A.

The Environment as a Reservoir for Hospital Pathogens and MDROs



- Respiratory equipment (Marchaim D et al, ICHE 2010)
- Patient equipment: bed rails, mattress, sheets, close surfaces (Weber D et al, AJIC 2010)
- HCW equipment: computers, cellular phones, pens, ties, white coat, glasses (Borer A, EID 2005)
- Room equipment: walls, curtains, lamps, taps, soap trays (Weber D et al, AJIC 2010)
- Water supply (Cervia JS, Arch Intern Med 2005)

Bath Basins

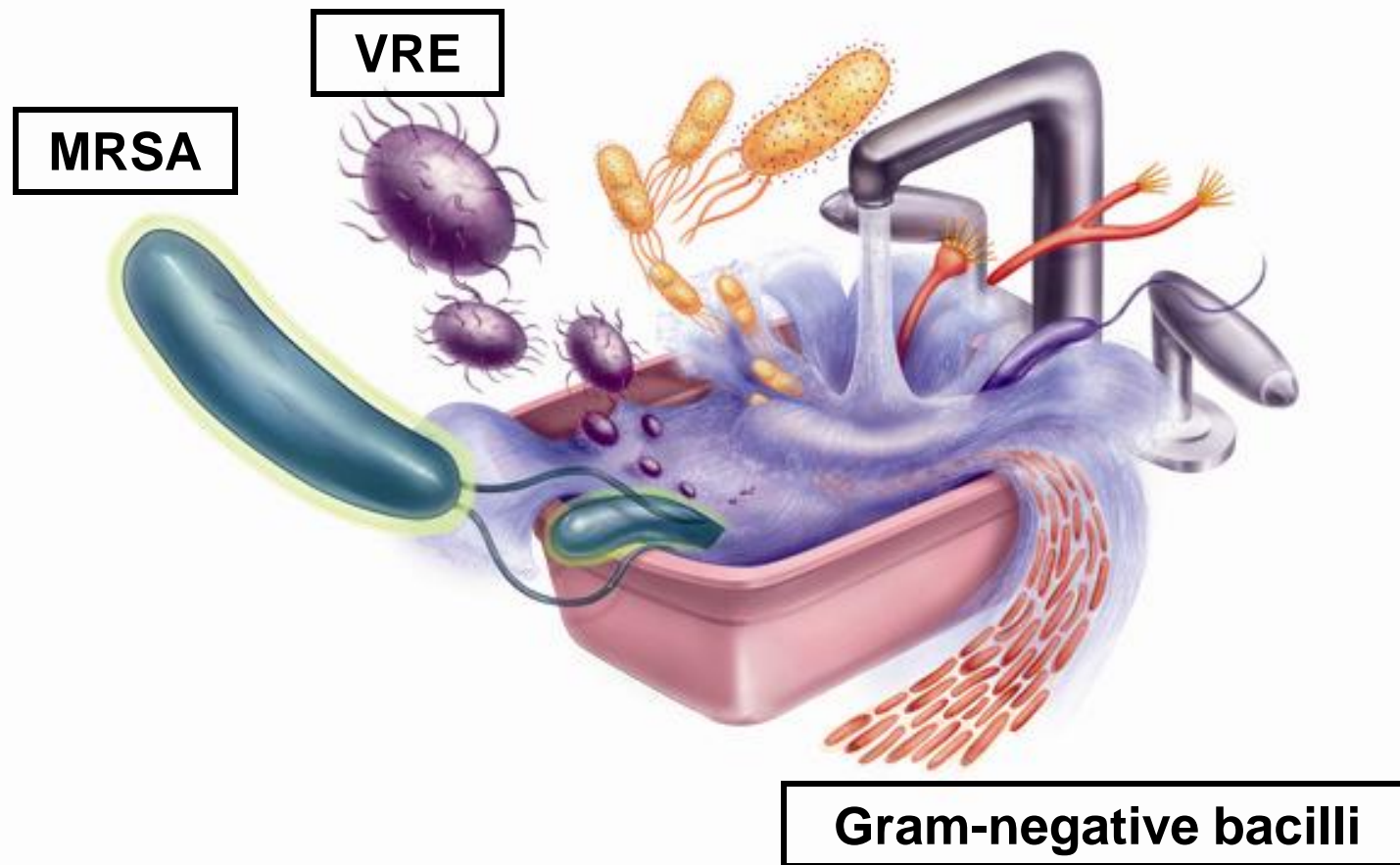






09/01/2011

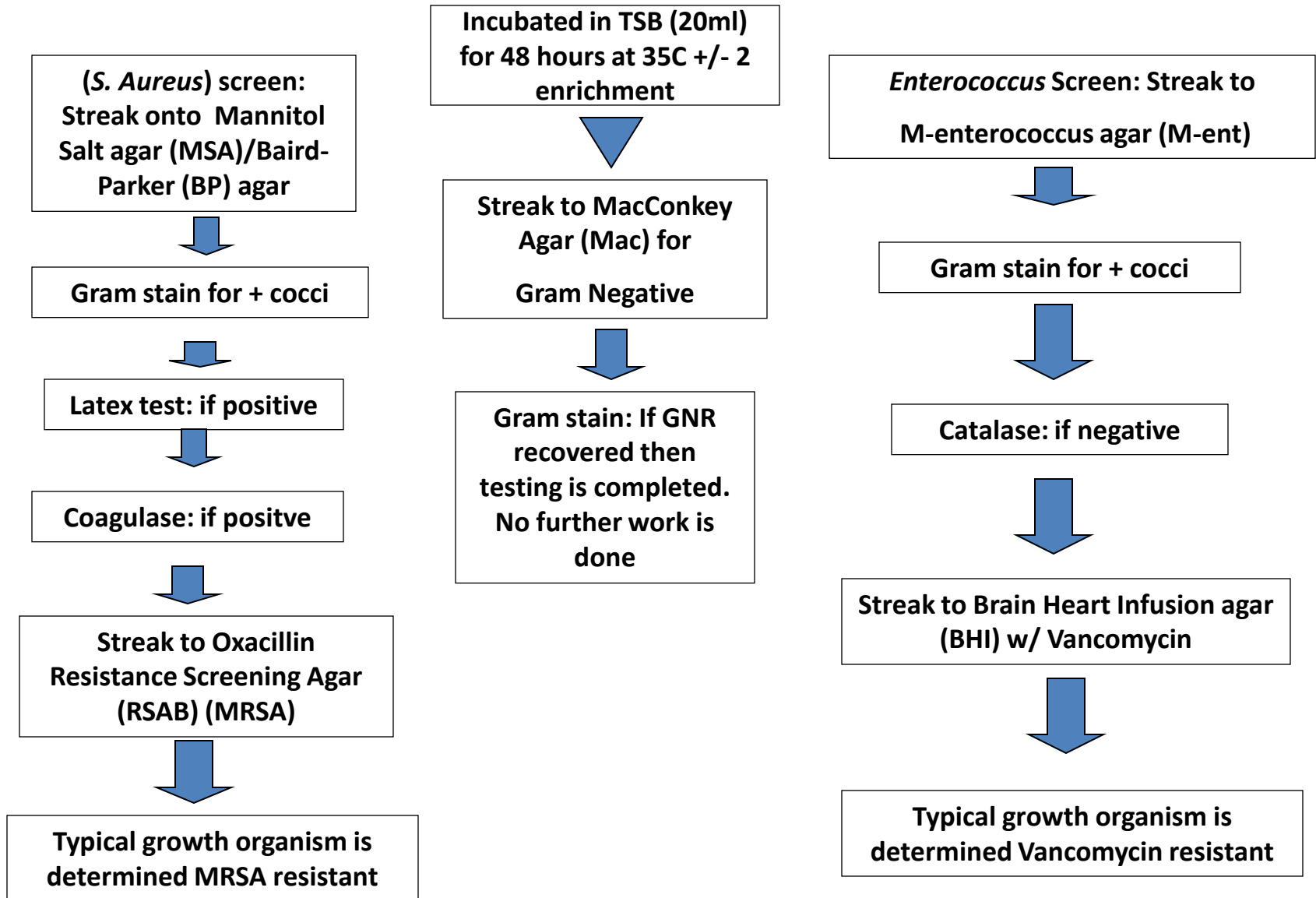
Study Aim



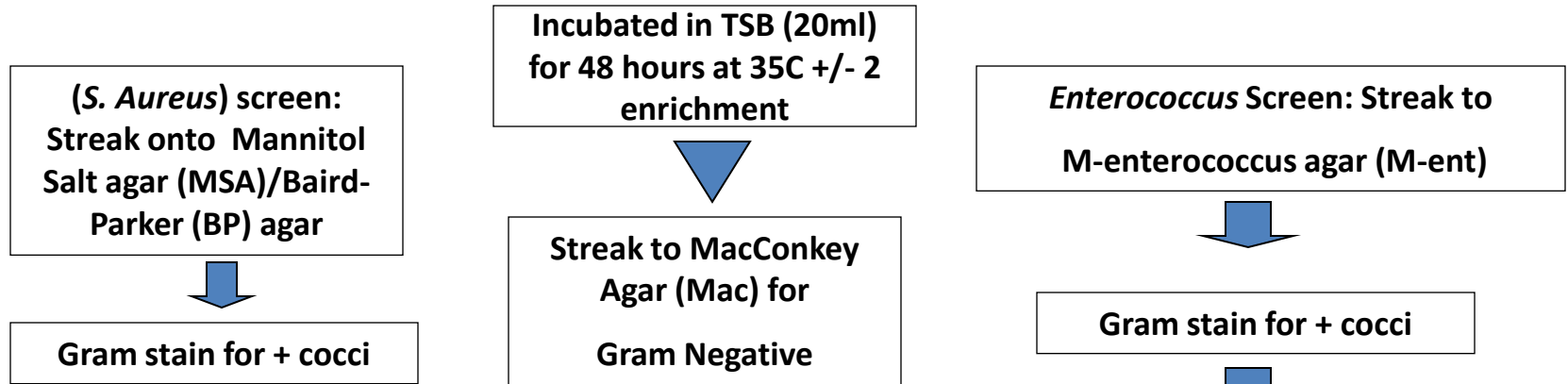
Methods

- Prospective multicenter trial in North-American hospitals from 03/2008 to 12/2010
- Randomly selected basins from ICUs and floors
- Supposedly “clean” in ready-to-use state
- Clockwise single swabbing of interior surface
- Conducted by local IPs
- No access to any patient information, including MDRO carriage status

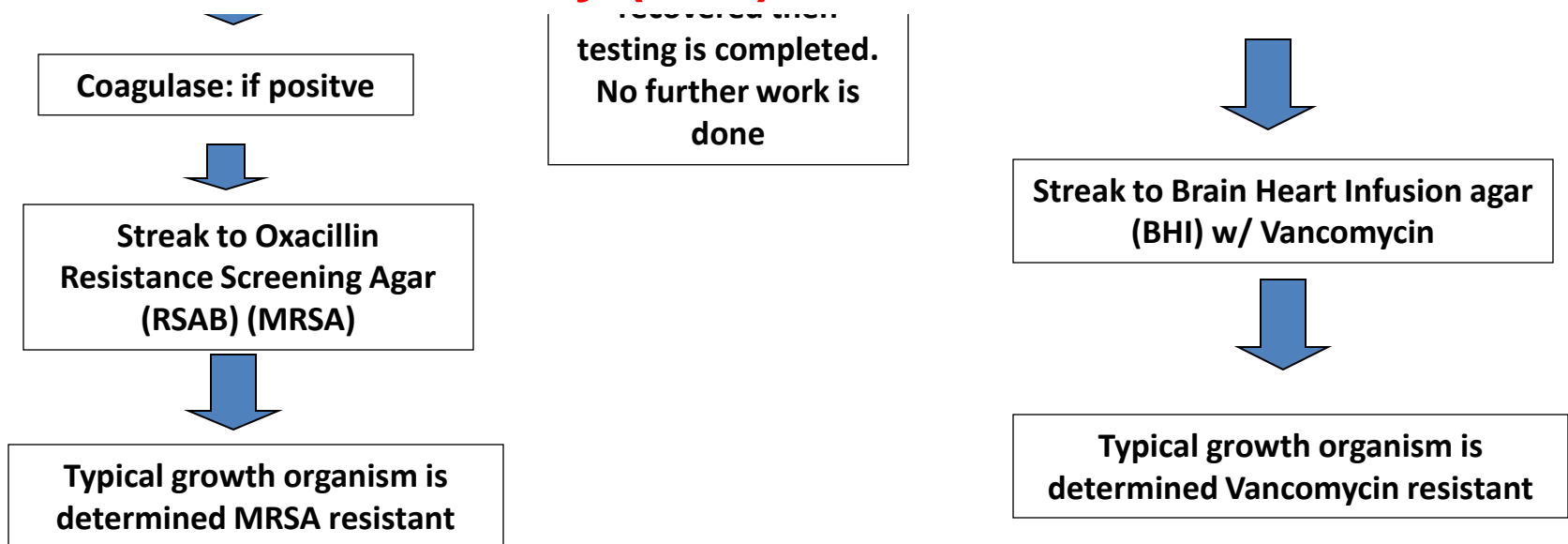
Basin Sampling flow chart



Basin Sampling flow chart



Laboratory testing was completed by Advanced Testing Laboratory (ATL), Cincinnati, OH



Results

- 83 hospitals, 28 different states and provinces in US and Canada
- 1,005 basins cultured, 643 (64%) from 100% of the hospitals were contaminated with 1 or more of the following: VRE, MRSA, or Gram-negative bacilli
 - 356 (35%) basins from 74 (89%) hospitals were colonized with VRE
 - 474 (47%) basins from 81 (98%) hospitals were colonized with Gram-negative bacilli
 - 35 (3.5%) basins from 26 (31%) hospitals that were colonized with MRSA

Conclusion

- Bath basins are frequently contaminated with common pathogens associated with HAI, including multi-drug resistant pathogens
- Bath basins should be treated and handled in the room as a potentially contaminated object, even if they appear clean:
 - handle with gloves only
 - no contact with other equipment
 - store securely

The future in environmental disinfection practices

INFECTION CONTROL AND HOSPITAL EPIDEMIOLOGY OCTOBER 2010, VOL. 31, NO. 10

UV light based disinfection

Room Decontamination with UV Radiation

William A. Rutala, PhD, MPH; Maria F. Gergen, MT (ASCP); David J. Weber, MD, MPH

APPLIED AND ENVIRONMENTAL MICROBIOLOGY, Oct. 2000, p. 4187-4192
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Urea Hydrogen Peroxide Reduces the Numbers of Lactobacilli, Nourishes Yeast, and Leaves No Residues in the Ethanol Fermentation

N. V. NARENDRANATH, K. C. THOMAS, AND W. M. INGLEDEW*

Department of Applied Microbiology and Food Science, University of Saskatchewan, Saskatoon, SK S7N 5A8, Canada

H2O2 Hydrogen peroxide disinfection

But until then...

- Re-examine cleaning and “terminal cleaning” practices in scientific controlled trials
- When feasible, eliminate equipment that is likely to become contaminated from the patient care environment
 - Consider disposable product alternatives



- Elaine Flanagan
- Thomas Chevalier