

HA Convention 2013

Promoting evidence – based practice
in preventing MRSA bacteremia in
patients having central venous catheter
undergoing hemodialysis

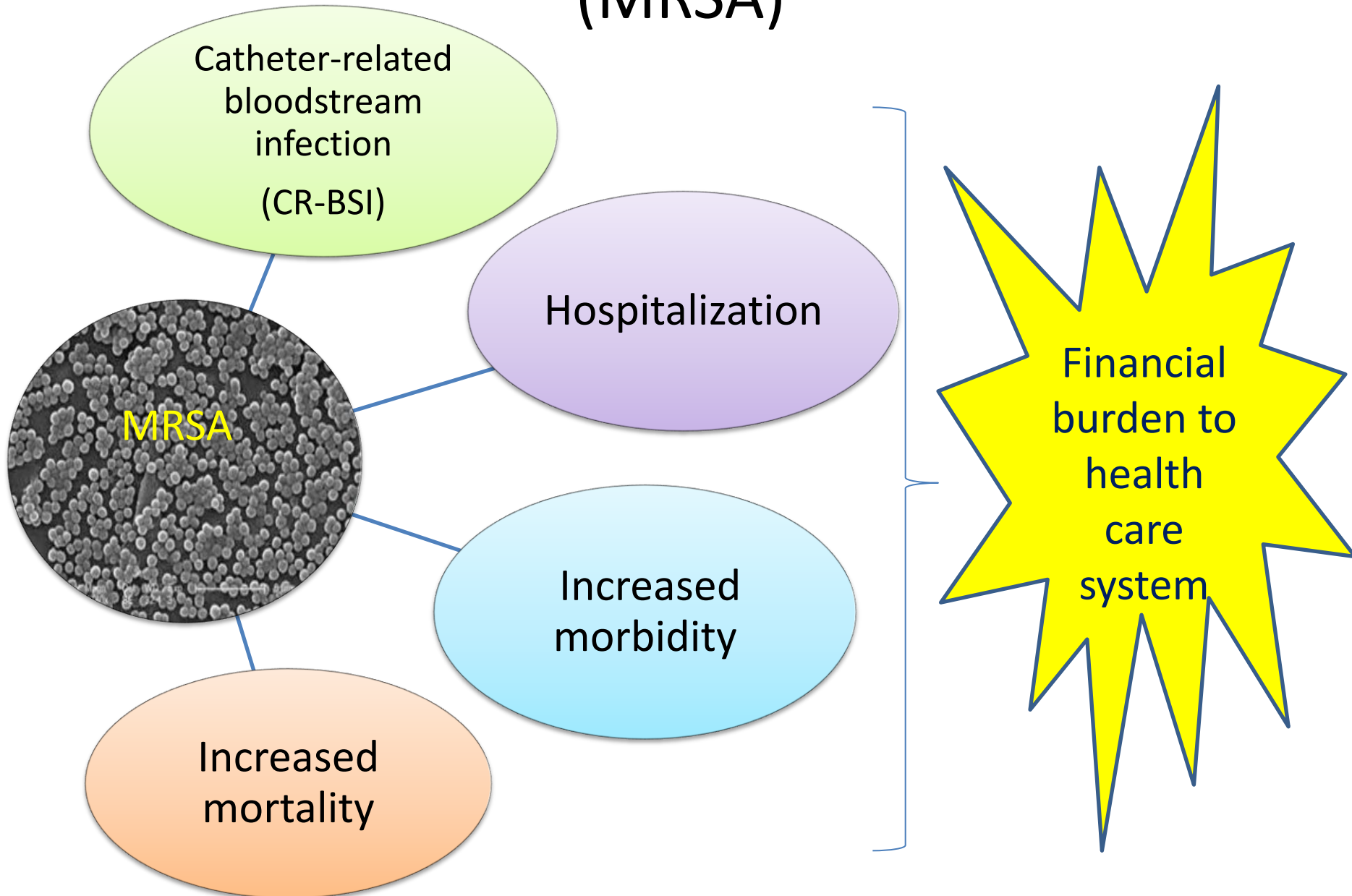
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Methicillin-resistant Staphylococcus aureus (MRSA)



Objective

- To evaluate the effectiveness of implementing evidence-based practice in preventing MRSA bacteremia in patients with central venous catheter (CVC) undergoing hemodialysis

Methodology

From January 2012 to December 2012

- Bundled strategies were implemented to patients with end stage renal disease (ESRD) having Central Venous Catheter for hemodialysis

Strategies



Establish infection control team by multi-disciplinary approach



Education for
Healthcare personnel



Patient education

Strategies for catheter insertion

Preparation



Materials :

A CVC cart containing all essential items



Room environment



Patient:

2 % Chlorhexidine wash for skin cleansing

Strategies for catheter insertion



Maximal sterile
barrier
precautions

Remove not in use
catheters
immediately



Skin disinfection:

Use 2 %
chlorhexidine in
70% alcohol

Allow to dry



Prophylaxis:

Apply Povidone
iodine antiseptic
ointment



Strategies



Hand
hygiene
for staff
& patient



Proper
grooming &
appearance



Mask
wearing

Strategies for environment



Environmental
cleansing

Removal of
unnecessary
items in
clinical area

Designated
area &
equipment
for
infectious
cases

Signage
posting

Strategies

Revised existing guidelines for HD procedure

Routine screening and decolonization therapy for *Staphylococcus aureus*

Assessment on staff's compliance to guidelines

Feedback of the clinical outcome to the staff

Results

From Jan 2012 to Dec 2012

160 patients having CVC for HD
(13803 catheter days, 5980 HD sessions)

Implemented bundle strategies

7 patients had MRSA bacteremia

Reduced from 1.08 episodes to 0.5
episodes per 1000 catheter days

Results

Reduced
by 46%
comparing
with 2011

No case for
4
consecutive
months



Conclusions

- Bundled strategies have reduced the rate of CR-BSI
- To sustain the desirable outcome requires continuous effort
- Ongoing surveillance program needs to be implemented to detect and prevent the spread of MRSA bacteremia

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References:

- Association for Professionals in Infection Control and Epidemiology (2009). Guide to the elimination of catheter- related bloodstream infections. Washington, DC: Author
- Bakke C.K. (2010). Clinical and Cost Effectiveness of Guidelines to Prevent Intravascular Catheter-Related Infections in Patients on Hemodialysis, *Journal of Nephrology Nursing*, 37: 6
- Bashir, M.H., Olson L. K. M.& Walters, S A (2012). Suppression of regrowth of normal skin flora under Chlorhexidine Gluconate dressings applied to Chlorhexidine Gluconate- prepped skin, *American Journal of Infection Control*
- Beathard, G. A. & Urbanes, A. (2008). Infection Associated with Tunneled Hemodialysis Catheters, *Seminars in Dialysis* , 21: 6
- Centers for Disease Control and Prevention (US) (2011). Guidelines for the Prevention of Intravascular Catheter- Related Infections
- Center for Health Promotion, Hospital Authority (Hong Kong) (2012). Infection Control guidelines on Nephrology Services in Hong Kong 2nd edition
- HKEC (2010). Guideline for the Prevention of Intravenous Catheter Related Infections
- Kim, J.S., Holtom P. & Vigen, C. (2011). Reduction of catheter-related bloodstream infections through the use of a central venous line bundle: Epidemiologic and economic consequences, *Am J Infect Control* , 3, p.640-6
- National Kidney Foundation (USA) (2006). Clinical practice guidelines for vascular access
- Theaker, C (2005). Infection control issues in central venous catheter care, *Intensive and Critical Care Nursing*, 21, p. 99—109

Thank You!