



STAR Project:

Strategic Targets Aim to Reduce *haemodialysis catheter-related bloodstream infections*

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For Renal Unit

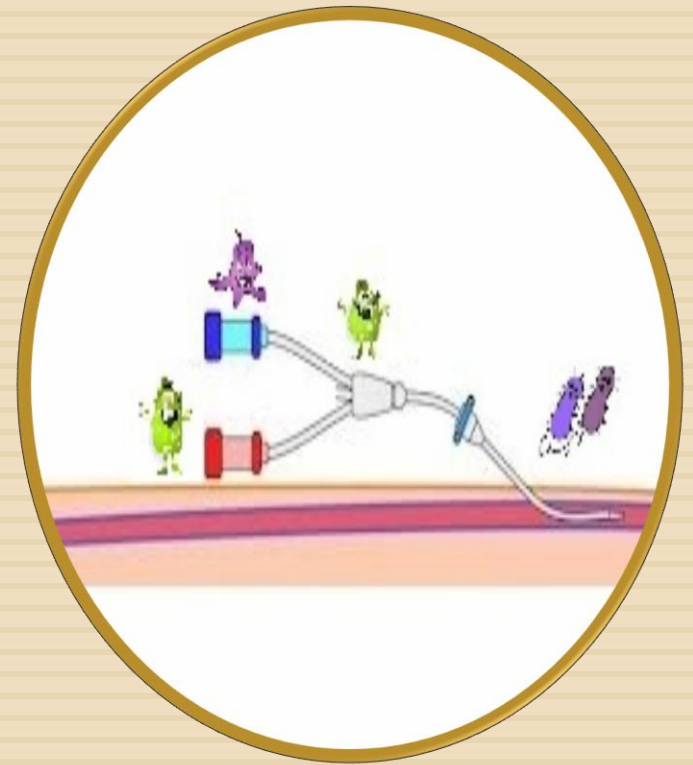
Risk of Haemodialysis catheter

- Haemodialysis patients are at high risk of CRBSIs
- 3.5 events per 1 000 catheter days
- Risk of bacteremia is 7.64-fold higher in haemodialysis patients with catheters as compared to arteriovenous fistula

Saxena *et al* (2005).Vascular access related infections in hemodialysis patients,
Saudi Journal of Kidney Disease &Transplantation 16(1), 46-71.

Catheter related blood stream infections

- Attributable mortality:
4-20%
- Attributable cost :
US\$37,00 to US\$29,000
- Prolongation of
hospitalization : mean 7
days



Background

In 2007

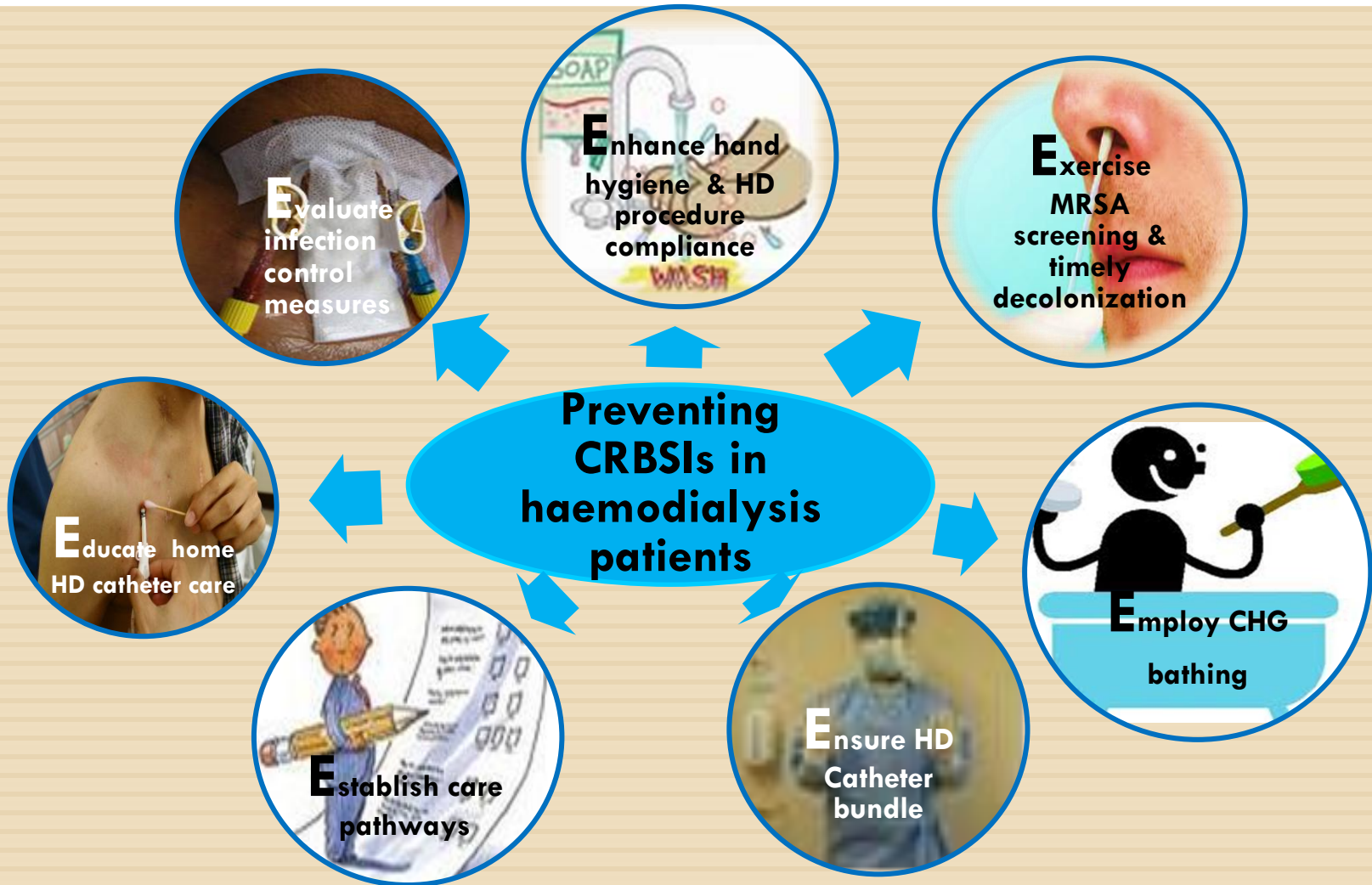
- HD patients contributed to one-fifth of overall CRBSIs in PMH
- MRSA accounted for 90% of all CRBSIs in HD patients.



Aims of STAR Project

- To reduce CRBSIs among haemodialysis patients by implementing evidence-based practice interventions.

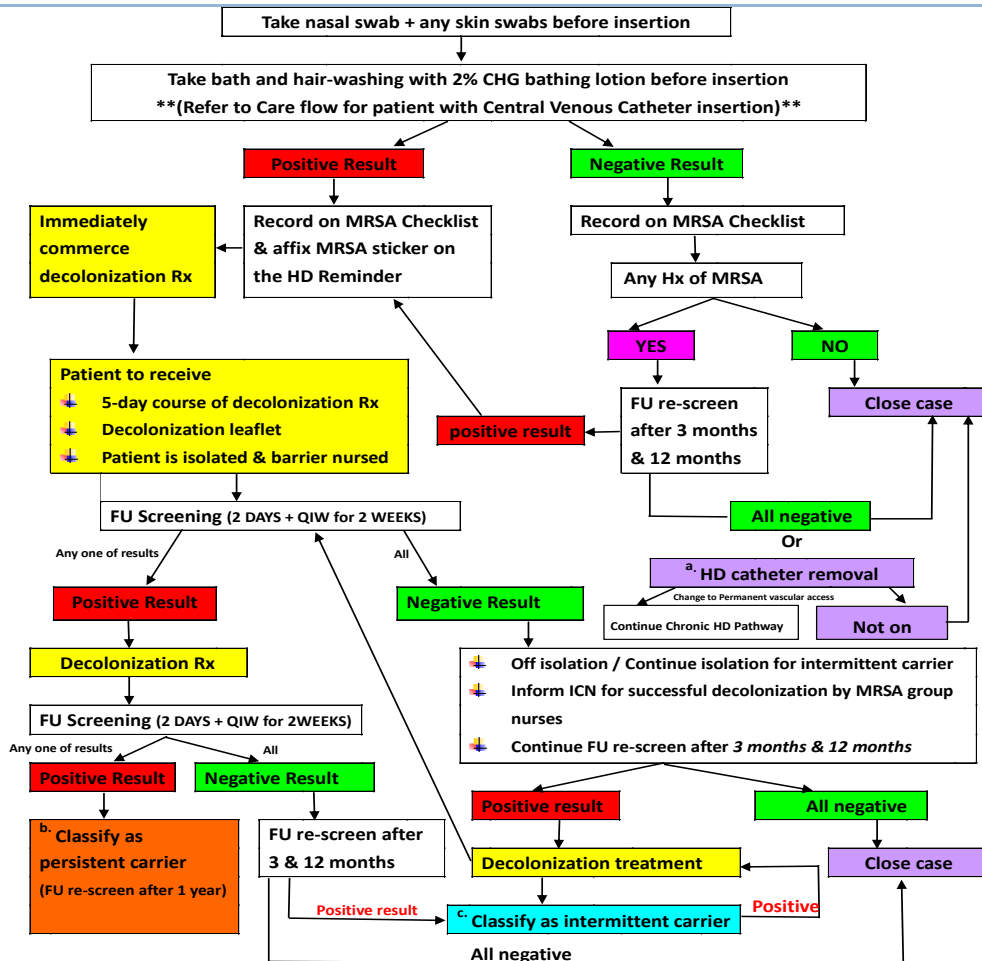
Seven-E Approach to prevent CRBSIs



Enhanced MRSA surveillance

MRSA Screening Pathway for Haemocatheter insertion

- Identify MRSA carriers for early implementation of infection control measures to prevent cross transmission



Remarks:

^a. If free of HD catheter and not on HD, case closed & FU re-screening is NOT required.

^b. "Persistent carrier" is defined as positively by culture at the same body site despite TWO consecutive decolonization courses. (Within Decolonization Loop) or resistant to Mupirocin.

^c. Patients with intermittent positive cultures, decolonization treatments, continue isolation and FU re-screening are still required. These cases would be referred to nephrologists for review by MRSA group nurses.

HD catheter bundle

- Hand Hygiene
- Maximal Barrier precautions
- Chlorhexidine skin antiseptis
- Catheter site insertion- avoid using femoral vein
- Remove unnecessary lines

Photo Guide for Central Line Insertion Procedure – Department of M&G

Before procedure			
	<p>1a. Prepare patient</p> <ul style="list-style-type: none"> - Mark/ Assess site - Position patient correctly for procedure before drape - Assist to put on surgical mask 		<p>2. Prepare Equipment</p> <ul style="list-style-type: none"> - Dressing trolley - 2% Chlorhexidine in 70% Alcohol - Procedure set - Sterile disposable drape (150 x 100 cm) - Suitable central venous catheter
	<p>1b. Adopt standard precautions</p> <ul style="list-style-type: none"> -Cap -Faceshield -Surgical mask (doctor & nurse) 		
Procedure steps			
	<p>3. Antiseptic hand wash (scrubbing in)</p> <ul style="list-style-type: none"> - Wash hands with water and hibiscrub for at least 15 seconds. 		<p>4. Wear maximum aseptic barriers</p> <ul style="list-style-type: none"> - Sterile gown - Sterile gloves
	<p>5. Skin Preparation</p> <ul style="list-style-type: none"> - Prepare skin with 2% Chlorhexidine in 70% Alcohol - Use back and forth friction scrub for at least 30 seconds (Do not wipe or blot) - Allow antiseptic solution to dry completely before puncturing the site at least 2 minutes 		<p>6. Designate sterile field</p> <ul style="list-style-type: none"> - Use 4 pieces of cotton sterile towels for designate the puncture site - Then use large sterile disposable drape to cover patient - Cut a key hole for puncture procedure with sterile scissors
			
After procedure			
	<p>7. Site dressing</p> <ul style="list-style-type: none"> - Wipe off residual blood from the site and tubing and dry completely - Use sterile gauze dressing to cover puncture site - Secure dressing and catheter 		<p>8. De-gown in a proper way</p> <ul style="list-style-type: none"> - After procedure, follow photo guide to degown - Degown according to the infection control guideline
			

Designated areas & equipment for HD Catheter insertion



Designated procedure trolley for catheter insertion



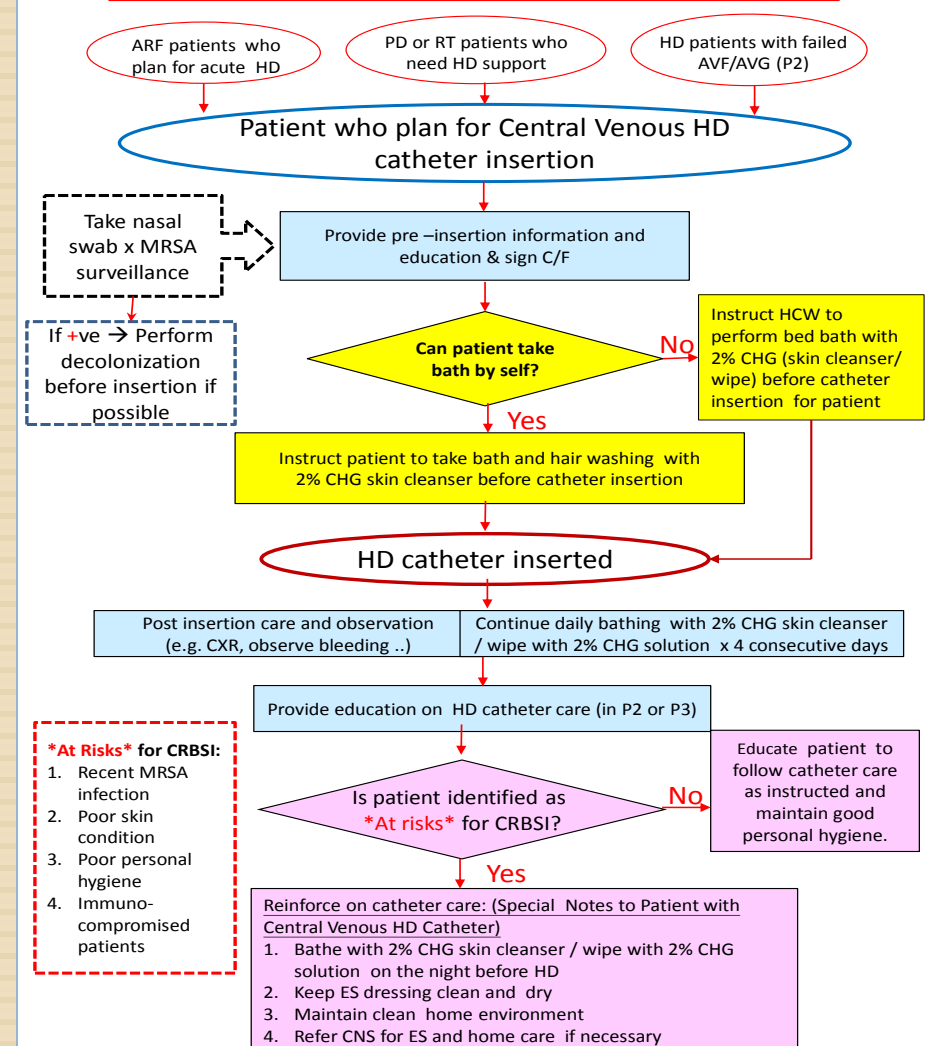
Procedure Room

Chlorhexidine bathing Protocol

- To minimize skin shedding of bacterial load



Care flow for Patient With Central Venous Haemocatheter



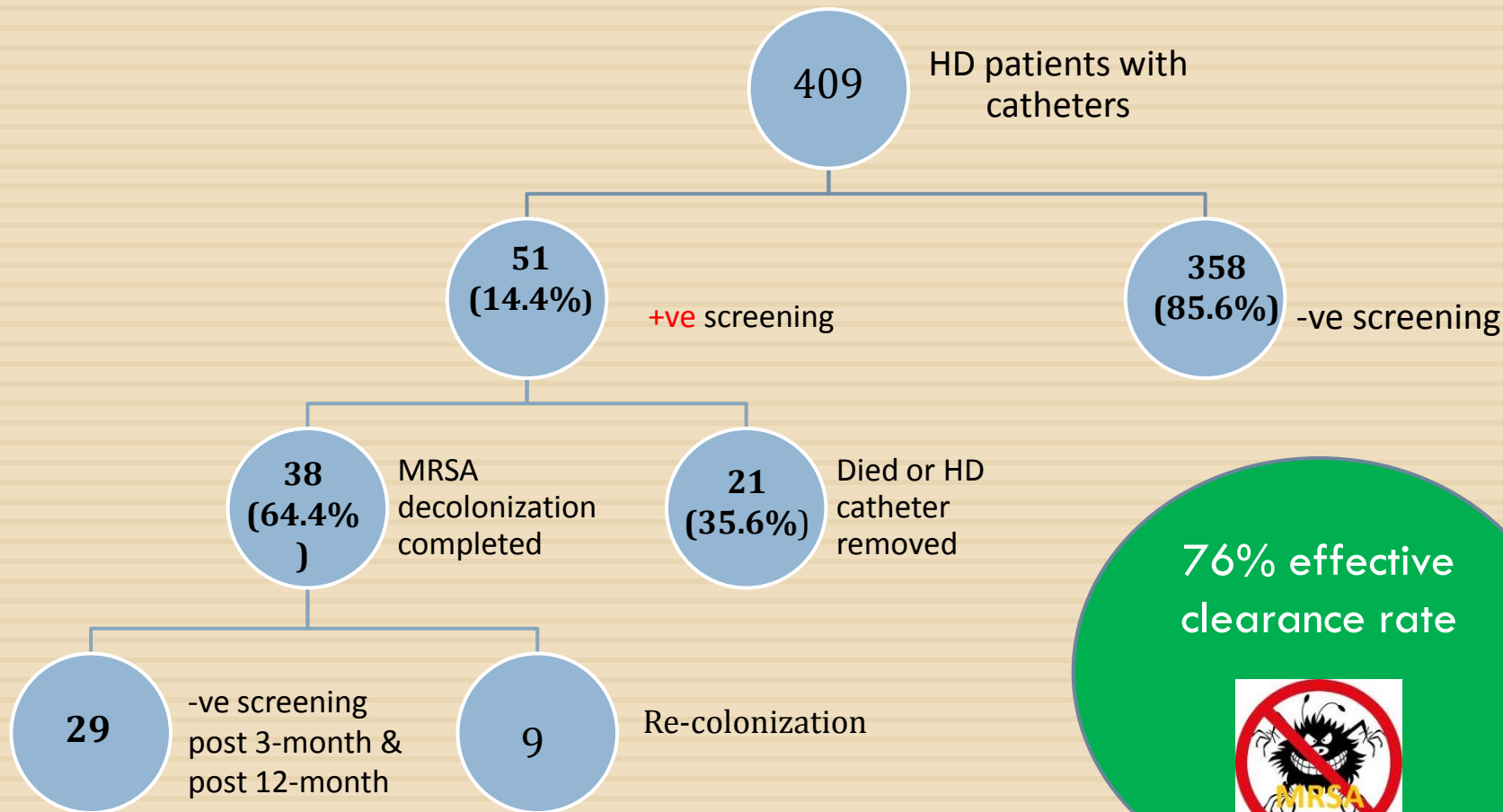
Specific infection Control measures instituted

- Use prophylactic antimicrobial lock solution for HD patients with limited vascular access or history of multiple CRBSIs.
- Use antimicrobial ointment for high risk HD patients (eg. poor skin condition) after haemocatheter insertion until their insertion sites have healed.
- Conducting home visit to solitary patients with poor personal hygiene by Community Nursing Service.

WHAT WE ACHIEVED.....



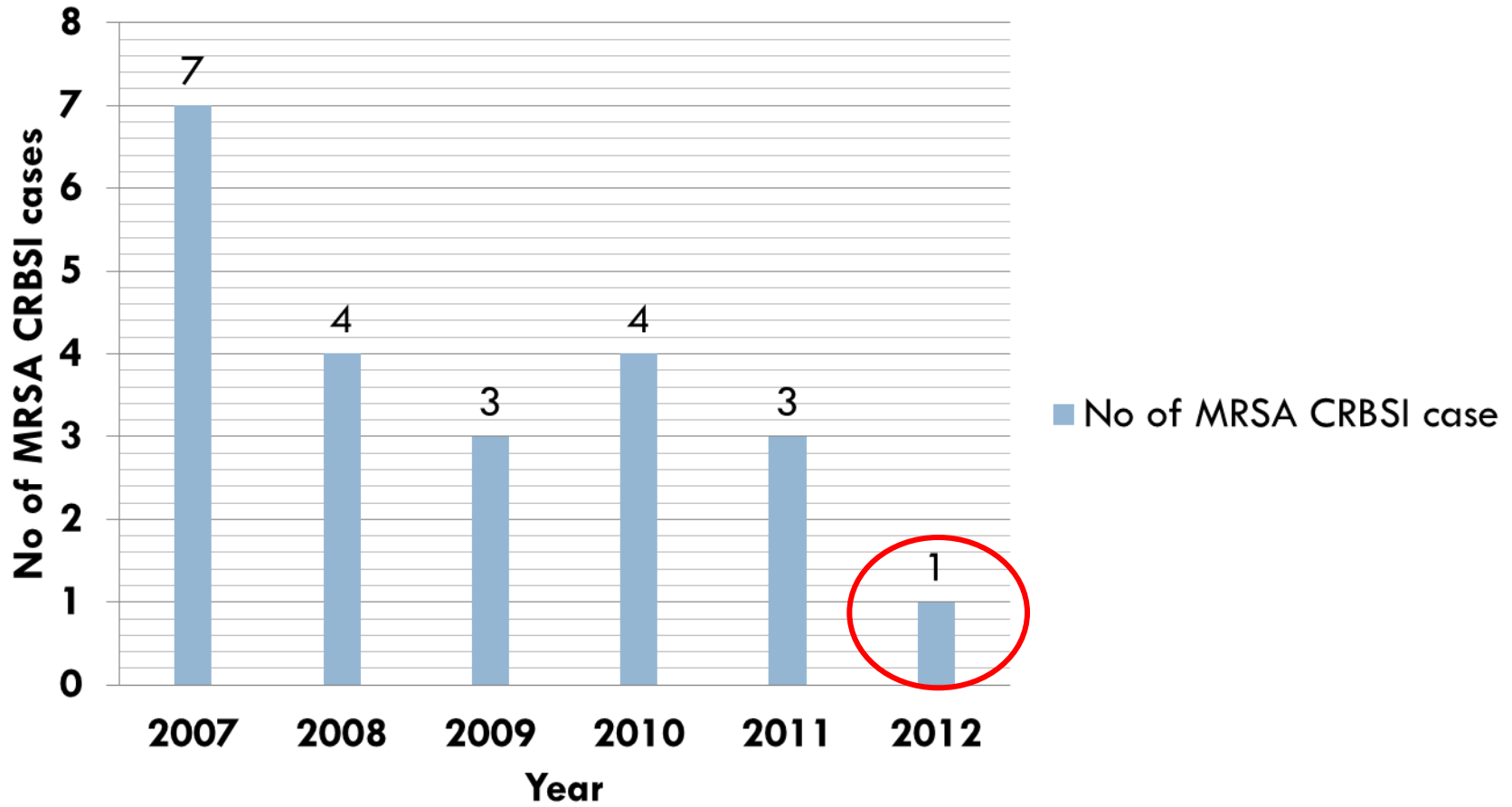
MRSA Prevalence Screen in HD Patients (2008-2012)



76% effective
clearance rate

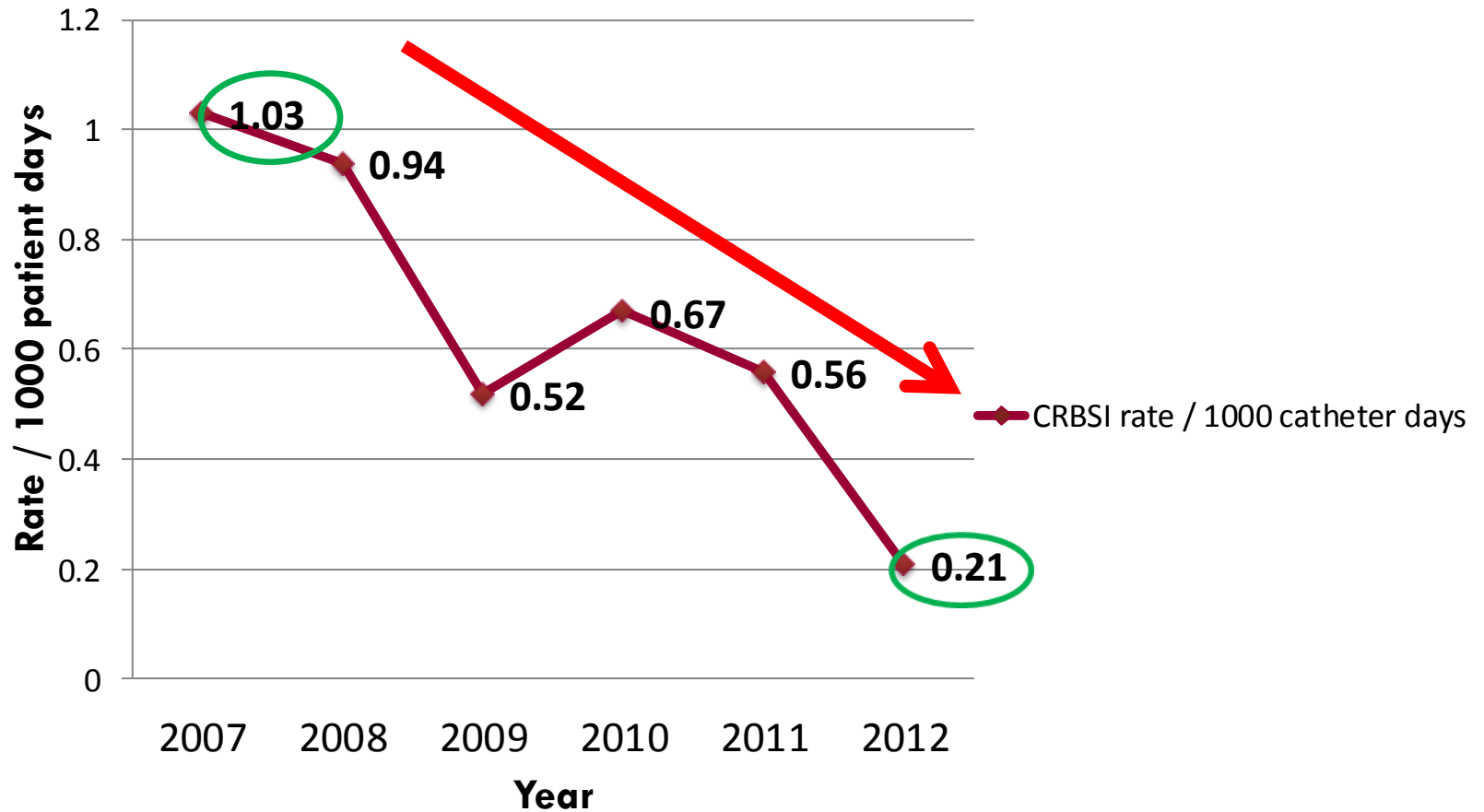


Decreased MRSA CRBSIs



Overall Decreased CRBSI Rate

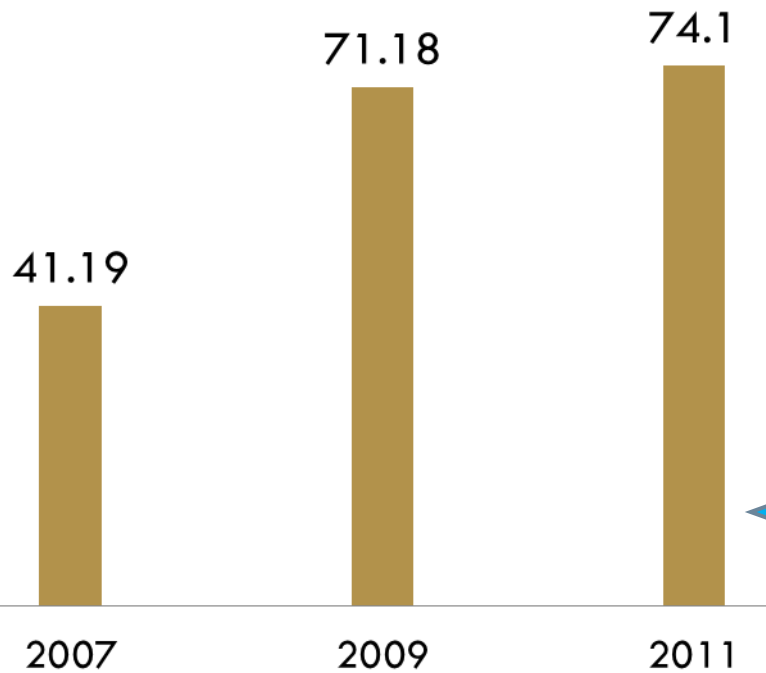
CRBSI rate / 1000 catheter days in PMH Renal Unit



Hand Hygiene & Procedure Adherence Increased

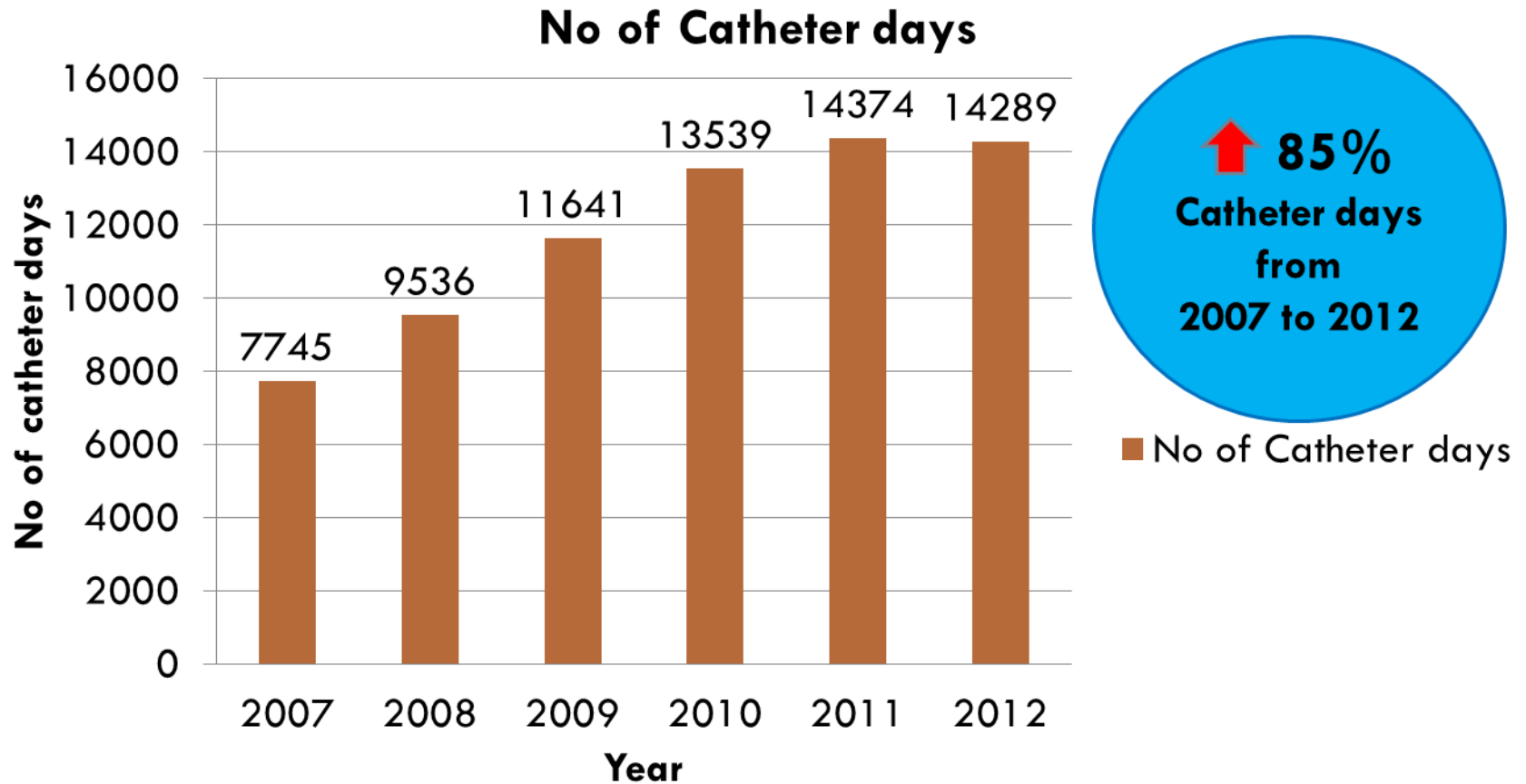
hand hygiene compliance rate (%) in PMH

■ hand hygiene compliance rate (%)



Achieved 100% compliance to CVC insertion with key components & HD procedures

Increasing catheter days in Renal Unit



Conclusion

- A comprehensive evidence-based interventions program through collaborative and multidisciplinary approach can substantially decrease CRBSIs, which implies a reduction in mortality, hospital cost, hospitalization and improved patient's outcomes.
- Structural patient education & unified care pathway are crucial to assure the strategic approach sustainable, cost-effective and efficient.
- Culture of safety has been embedded through periodic audit and review of clinical practice.

Our next steps:

- Decrease no of HD catheters by early Tenckhoff catheter insertion / creation of AV fistula or AV graft.
- Assign vascular access coordinator to provide education and early permanent dialysis access plan for renal patients.
- Sustain implementation of evidence based practice and collaboration with multidisciplinary team.

Thank You

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