Meeting the Challenges of VRE What can we do ???

Annie Leung Nurse Specialist Caritas Medical Centre 19 August 2011

已涉2死 或社區隱形傳播

[明報專訊]衛生防護中心首次接 訴·本法至少回對十大抗**要**惡茵開收, 全部均對「重進」抗生業振致・雷中3種 更尾可在不同细菌「大洗澡 的抗凝差 因·除早前公布的 NDM-1 基因抗荣誉 外,去年中至今已發現8家的IMP-4抗 菜基因細菌悲渴、原来已涉2宗死亡·然 而公立醫院是否有更多個室,衛生署接 本不掌握全局、不排除計區有「酸形帶 蘭吉」。

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重购抗生费保救 可契细贫乏措

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意义的主义资本心理和能利与委员会需要的业力 成為方傳染成中心進發保護原用目。 A 推行学育主要 再在第12回戰, 把公司留任我们的這些不可以不必

十大抗藥蒸黃在本港情况

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> 100年10月至今保健1家・木祭 ##RINDM-1 U/THE COMP

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版·今年上半年104版·能去 CA-MRSA ! 無限期170元円14%。 あた要素中分離機 あたえ手切たを変形を言うの声波 刘治全抗感激励 STREET I LUNCA! 香苏ノ生物法智能信用等・協会大力 没方面未到的 油口来・公人間使日本モキ・? NURUPH (VRE) 十百世派省出现小埠垫

Test.

月25日起,先後已有3: 75歲至88歲的男病人 - CA T/ 霉素腸道鏈球菌(VRE)帶菌者。 -01 N#27 25 3名病人現時情況穩定 進一步觀察及隔離治療。該院已按既

I NTHON

確認為抗菌

現

行測試。

報醫院

定程序,加強感染控制措施,亦已根

據指引,為21名曾與患者有接觸·及

正接受醫學監察的病人進行

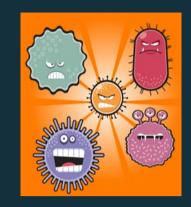
VRE in CMC



	Period	Clinical case	Carrier	Management
1.	Sept/Oct 10	2 (F)	3	Screening + Env dis
2.	Feb 11	2 (M)	5	Screening + Env dis
3.	June 11	1 (M)	NIL	Screening + Env dis
4.	June 11	1 (F)	NIL	Screening + Env dis
5.	July 11	1 (M)	3	Screening (renal pat) Env dis by HPV
6.	Aug 11	1 (M)	3	Screening + whole ward disinfection

* 10 affected wards had thorough cleaning & disinfection in March 2011

















Vancomycin Resistant Enterococci (VRE)

- Enterococci:
 - Gram +ve bacteria normally found in bowel and the female genito-urinary tract
 - Relatively low virulence
 - UTI or other infections
 - Exposed to antibiotics, drug-resistant strains survive and multiply → overgrowth of drug-resistant enterococci in the bowel
- VRE:
 - Vancomycin–resistant enterococal species,
 Enterococcus faecium and Enterococcus faecalis
 - Neither more infectious nor more virulent than sensitive enterococci
 - Vancomycin Resistance (Van A, B, C, D, E)

The emergence of VRE poses several problems:

- It is resistant to all commonly used antibiotics (penicillin, cephalosporins and other β-lactams, aminoglycosides and glycopetides)
- Has potential to transmit the vancomycin-resistance gene to gram +ve organisms such as Staph aureus.
- May cause outbreaks of infection in hospitals
- Survive in the environment (dry surface: 4D 7M)
- Persist for long periods in the GI tract of a colonized pat
- Associated with increased mortality in patients with neutropenia.

CMC Experiences



- VRE patients
 - Frequent admissions, antibiotics exposure, long hospitalization, OAHR
 - Foley's catheter in situ
 - With device CAPD / HD, ambulatory but with diarrhoea
- Easy spreading: same cubicle, with devices/drainage
- VRE Screening:
 - carriers detected at same cubicle (1st round)
 - Effective environmental cleaning: 2 exercises post cleaning (>40 samples -ve)
 - Recent renal ward outbreak, > 100 contacts, 3 carriers identified, no additional +ve cases found among causal contact
- Environmental and equipment cleaning: manual or HP
 - Huge task
 - Team works
 - HPV: 2 full days and evacuation of patients required

Fighting the battle:



- Prompt communication between ICT & Lab
- Immediate action:
 - Source isolation single room + CP
 - Collect information of source patient
 - DOA, pat movement, bed nos, procedures, previous history of admission, ? OAHR, pat's condition, antibiotics
 - Environment and equipment cleaning & disinfection
 - Contact tracing + VRE screening
 - Enforce IC practices: HH, environment cleaning & disinfection, designated equipment
- Communication
 - Internal: ICO, HCE, GMs, COS, DOM, case MO, WM, MRP, CGA
 - External: Lab, CICO, HA CCIDER, SEB/CHP outbreak, ICB/CHP – OAHR, other hospitals
 - Visitor: education & IC practices

Fighting the battle (cont'):

- Enhanced ICN ward round
 - Fu pat condition
 - Enforce IC practices: HH, environmental cleaning
 - Observe caring practices
- Co-ordinate VRE screening, CP for exposed patients until screening result -ve
- Alert system: CMS, MDRO
- Review the HA / local VRE guideline
- Data/information analysis: source of infection, epidemiology link
- Sporadic or clustering, ? HOCT meeting need

Strategies for Prevention and Control of MDROs

• Rational use of Antibiotics (慎用抗生素)

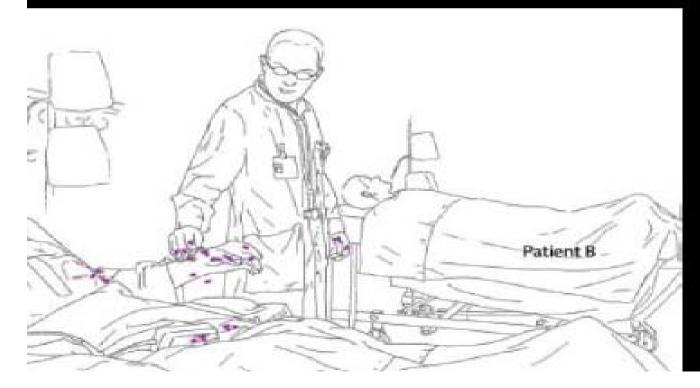
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Engineering Control – Contact Precautions

Direct contact with patient 直接與病人接觸 (hand or skin to skin contact)

Lancet Infect Dis. 2006 Oct;6(10):641-52.



Indirect contact (touch environmental surface) or patient care items in patient's environment) 間接接觸傳播 – 環境、病人儀器等

Contaminated Surfaces 污染表面 Direct transmission (inadequate cleaning) 清潔不足

Susceptible Patients 病人

Contact transmission

接觸傳播

Hand of HCWs 醫護雙手

BMC Infect Dis. 2006 Aug 16;6:130.

Indirect Contacts



The Inanimate Environment Can Facilitate Transmission



~ Contaminated surfaces increase cross-transmission ~

Abstract: The Risk of Hand and Glove Contamination after Contact with a VRE (+) Patient Environment. Hayden M, ICAAC, 2001, Chicago, IL.

Contamination rates of HCW's hands with bacteria

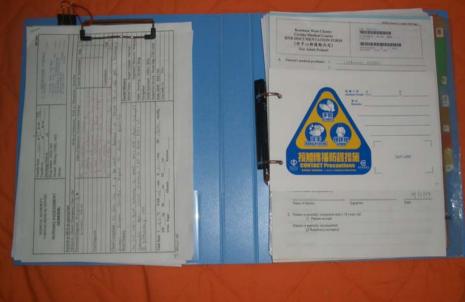
Pathogen	Rate(%)	Duration on Hand	Duration on inanimate surface
S. aureus	10.5-78.3	> 150 min	1 –7 mo
MRSA	16.9	NA	1 –7 mo
VRE	41	60 min	5 d –4 mo
C. diff	14 –59	NA	1 d –5 mo
E . coli	NA	6 –90 min	2 h –16 mo
Klebsiella spp	17	2 h	2 h –30 mo
S. marcescens	15.4 -24	> 30 min	3 d –2 mo
P. vulgaris	NA	> 30 min	1 –20
Acinetobacter spp	3 -15	> 150 min	3 d –5 mo
Pseudomonas spp	1.3 –25	30 –80 min	6 h - 16 no
Yeast	23 -81	1 h 🌑	1-4000

Clin Microbiol Rev. 2004 Oct;17(4):863-93.





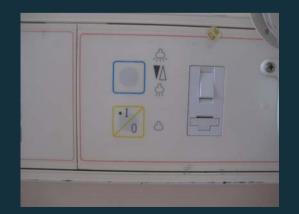






Frequent touch areas – enhance cleaning and disinfection









Designated equipment or be disinfected between use

















Learned Experiences













斬草除根大行動(8/3/11 to 29/3/11)

- Thorough cleaning/disinfection 10 affected wards
- Aim: remove VRE, MRSA etc
- Involved all parties: ICT, Central cleaning team, contract out cleaning team, ward staff, Laundry, hospital administration
- Cleaned all areas / equipment except ceiling and floor (patient areas, toilet, pantry, store rooms, admission rooms, medical/nursing staff rooms, all equipment, beds, lockers......
- Change all bed curtains, blankets etc
- ICN carried out hygienic audits

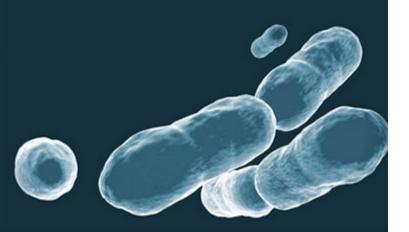
HPV bio-decontamination Exercise at Renal ward* (30&31 July 2011)

- Recent clustering involved two renal patients in July.
- HOCT meeting decided to carry out Hydrogen peroxide vapour bio-decontamination
- Site visit by expert team, ICT, FM, Engineering team, Central cleaning team
- Preparation meeting for different teams
- Vacated the renal ward and carried out HPV over week end.

Back to basic:



- IC is everyone's business
- Always remember to practice good hand hygiene
- Keep the environment clean



Our challenges (挑戰):

- Busy and crowded environment
- Shortage of manpower
- Inadequate isolation facilities
- Resources for IC measures
- Fragmented cleaning services in clinical areas
- Effectiveness of environmental cleaning and disinfection
- Human behavior
- Rational use of antibiotics
- Burden of workload on carry out CP
- Policy for OAHR

But those who are waiting for the Lord will have new strength; they will get wings like eagles: running, they will not be tired, and walking, they will have no weariness.

Bible (Isaiah 40:31)



