



Meeting the Challenges of VRE

What can we do ???

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十大抗藥惡菌圍攻香港

已涉2死 或社區隱形傳播

【明報專訊】衛生防護中心首次披露，本港至少面對十大抗藥惡菌圍攻，全部均對「重炮」抗生素無效，當中3種更屬可在不同細菌「大洗牌」的抗藥基因。除早前公布的NDM-1基因抗藥菌外，去年中並曾已發現8家的IMP-4抗藥基因細菌結核，原來已涉2宗死亡。然而公立醫院是否有更多個案，衛生署根本掌握全局，不排除社區有「隱形傳播者」。

部分感染實後復發 種菌無人知

衛生防護中心發言人表示，部分感染實後復發，但部分感染則屬首次，且無症狀，可能已感染。中心發言人表示，部分感染實後復發，但部分感染則屬首次，且無症狀，可能已感染。

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專家：惡菌早現 監測進一步

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兩翁染腸道菌情況穩定

繼上周五前後有三名男病人感染抗萬古霉素腸道鏈球菌，明愛醫院內科及老人病房再有兩名男病人感染抗萬古霉素腸道鏈球菌。該兩名年齡分別七十及八十二歲的患者，現時情況穩定，正接受進一步觀察及隔離治療，新確診個案已呈報醫管局及衛生防護中心跟進。其餘十九名已進行測試的患者，仍等待化驗結果。


明愛內科及老人科病房3名病人為VRE帶菌者

明愛醫院內科及老人科病房自上月25日起，先後已有3名、年齡介乎75歲至88歲的男病人，確診為抗萬古霉素腸道鏈球菌(VRE)帶菌者。3名病人現時情況穩定，正接受進一步觀察及隔離治療。該院已按既定程序，為21名曾與患者有接觸，及正接受醫學監察的病人進行測試，現正等待結果。有關個案亦已呈報醫院管理局及衛生防護中心跟進。

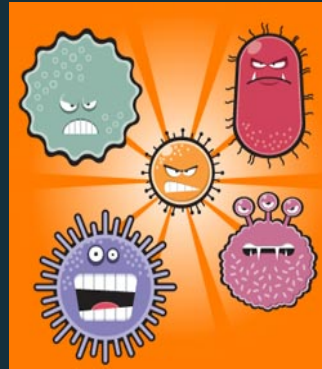
VRE in CMC



	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



What can we do for the VRE?



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 enterococcal species, *Enterococcus faecium* and *Enterococcus faecalis*
 - Neither more infectious nor more virulent than sensitive enterococci
 - Vancomycin Resistance (Van A, B, C, D, E)



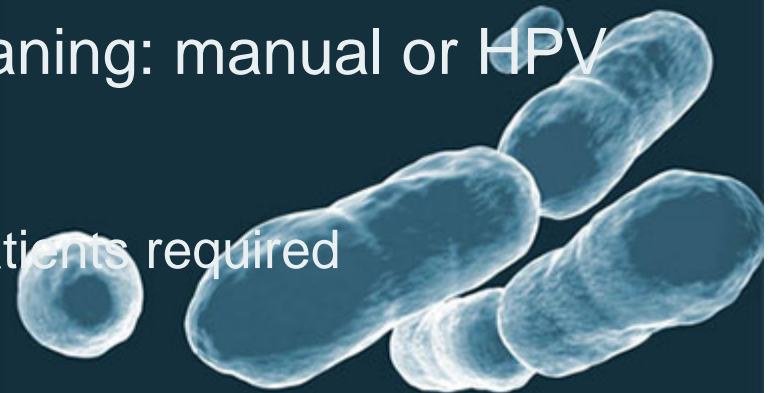
The emergence of VRE poses several problems:

- It is resistant to all commonly used antibiotics (penicillin, cephalosporins and other β -lactams, aminoglycosides and glycopeptides)
- 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 HPV
 - 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, CGAT
 - 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)

Home - Pharmacy Department - Microsoft Internet Explorer

Address: <http://pmh.home/sites/pharmacy/Pharmacy%20Webs/KWC%20Antibiotic%20Stewardship%20Program.aspx?PageView=Shared>

Pharmacy Department

Medication Safety | Pharm Services | PMH/KCH Formulary | GOPC Formulary | KWC ASP | Staff Area | Pharm SOP & Forms | TMH Services | Competency | Training

KWC Antibiotic Stewardship Program

Structure

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graph TD
    DJRG[Cluster DJRG  
(Endorse KWC Antibiotic Subcommittee proposal  
(cluster ASP))]
    ICASP[Directive of ASP  
(ICASP)]
    DTC[Hospital DTC  
(Implement hospital program)]
    KWC[KWC Antibiotic Subcommittee  
1. Propose cluster ASP  
2. Implement cluster program]

    DJRG --> ICASP
    DJRG --> DTC
    DJRG --> KWC
    ICASP --> KWC
    
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Education

- KWC Antibiotic Guideline for elective Orthopedic surgery Prophylaxis
- KWC Antibiotic Guideline for Surgical Prophylaxis
- Policy on Promoting Rational Use of Antibiotics – PMH Antibiotic Stewardships Program
- Policy on Antibiotic audit Form (Oct 2006)
- KWC Pocket Guide to Antimicrobial therapy 2007
- Policy on IV to PO Switch for Antibiotics with good oral bioavailability

SMAP (For M&G Department)

Type	Name
PDF	PMH MED SMAP Antibiotic Audit Form
Powerpoint	SMAP Pilot Trial MGR Powerpoint
Powerpoint	Smart Use Antibiotics Program

Reference Material

- KWC Pocket Guide to Antimicrobial therapy 2007
- Impact Guidelines
- Antibiotic Cost Table

KWC Antibiotics Newsletter

Type	Name
PDF	Antibiotics ABC Issue 1 (Penicillin Allergy)
PDF	Antibiotics ABC Issue 2 (Vancomycin)
PDF	Antibiotics ABC Issue 3 (ESBL)
PDF	Antibiotics ABC issue 4 (ICBL)
PDF	Antibiotics ABC issue 5 (IV to oral switch of antibiotic)
PDF	Antibiotics ABC issue 6 (Treatment of

KWC Form - ASP

Type	Name
PDF	KWC Antibiotic Audit Form (Oct 2005)
PDF	KWC Antibiotic Audit Form 2 (Oct 2005)
PDF	KWC IV to PO switch reminder form

Term of Reference

1. To establish, monitor and review policies, guidelines and procedures to ensure safe and cost-effective use of antibiotics.
2. To liaise with ICASP on implementation of the HA Antibiotic Stewardship Program.
3. To make recommendations to hospital DTC and KWC DURG in matters related to selection, clinical use and administration of antibiotics.
4. To develop programs and procedures for maximizing rational and

世界衛生日
World Health Day

7.4.2011

善用抗生素 保護生命

Safe Use of Antibiotics Save Lives



衛生署
Department of Health



衛生防護中心
Centre for Health Protection



醫院管理局
HOSPITAL
AUTHORITY

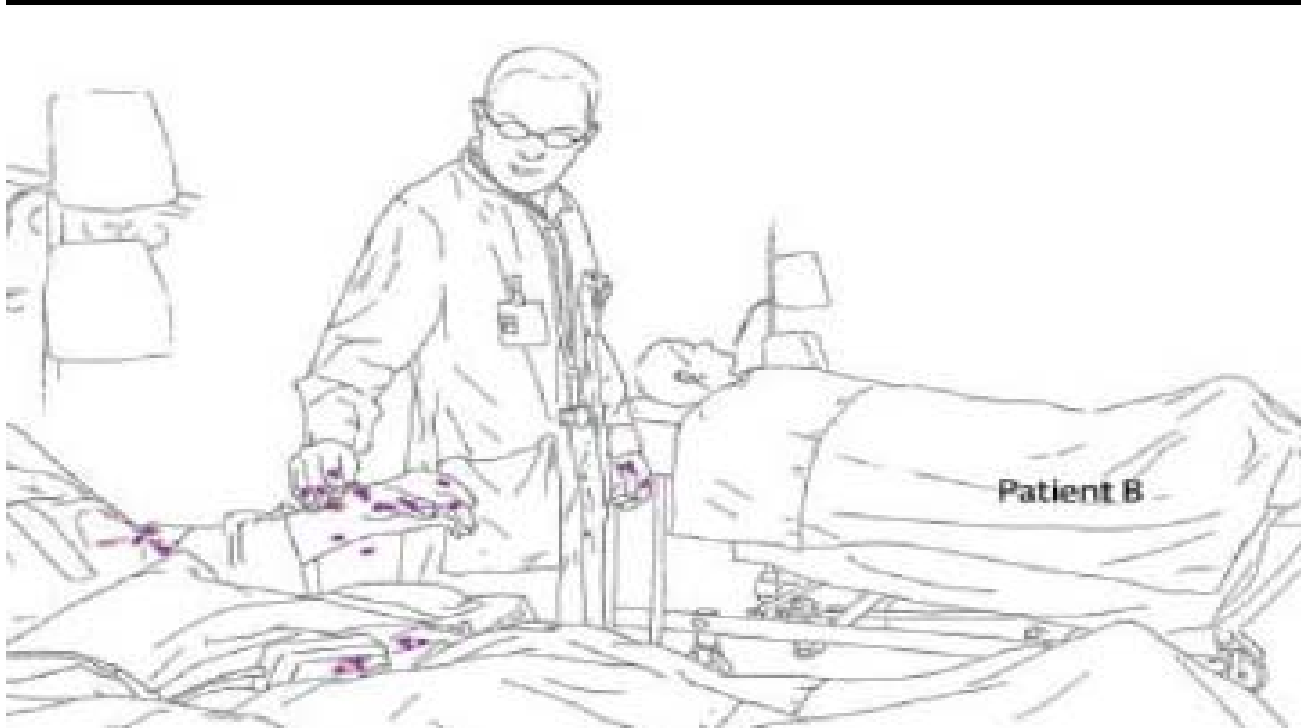
www.chp.gov.hk

Engineering Control – Contact Precautions



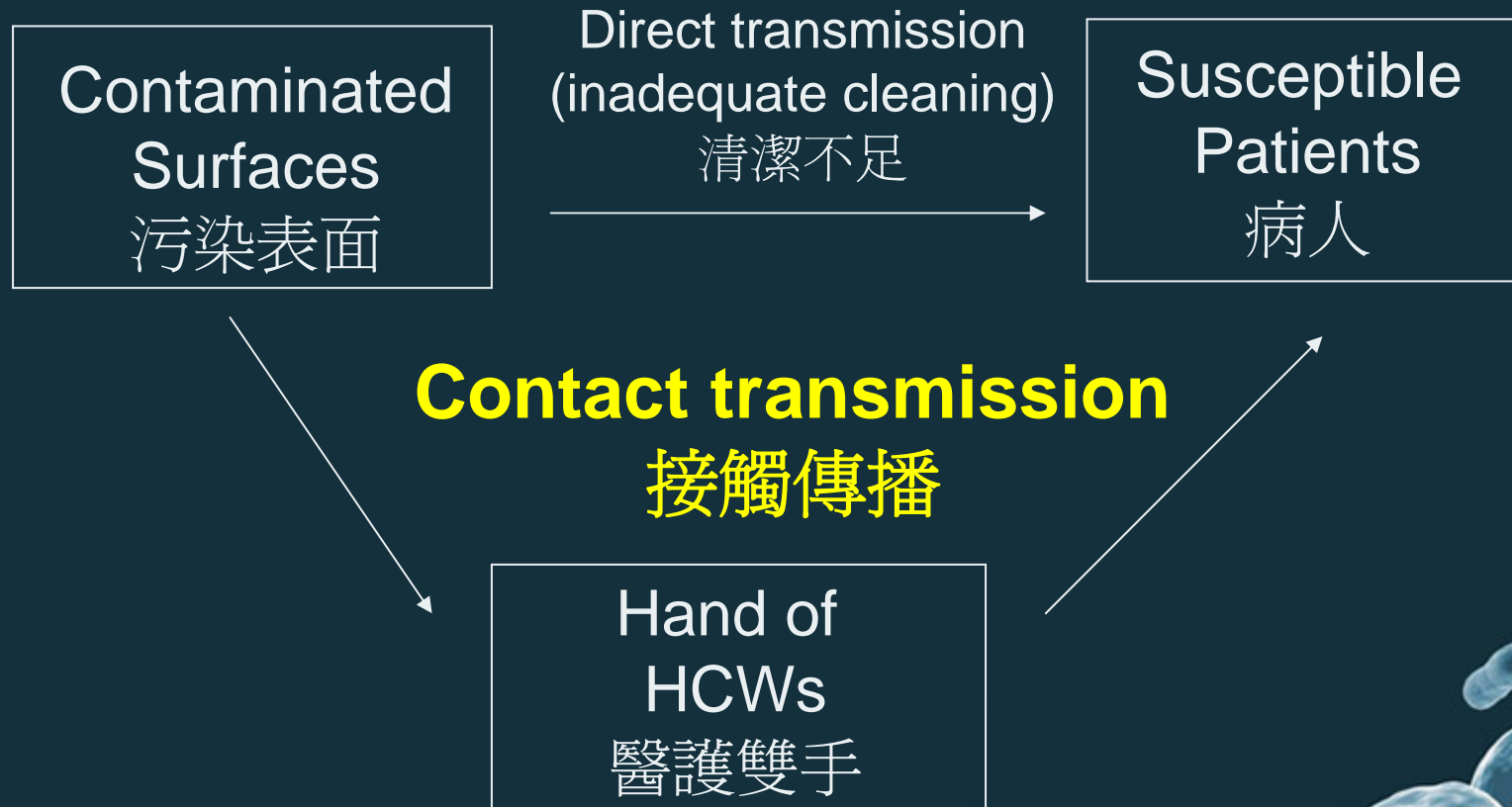
Direct contact with patient 直接與病人接觸
(hand or skin to skin contact)

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



Indirect Contacts



The Inanimate Environment Can Facilitate Transmission

X represents VRE culture positive sites



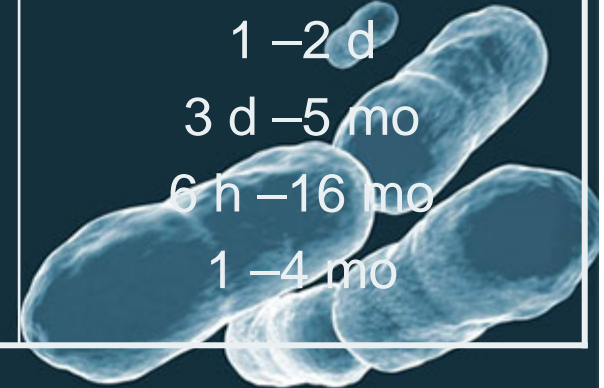
~ Contaminated surfaces increase cross-transmission ~

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

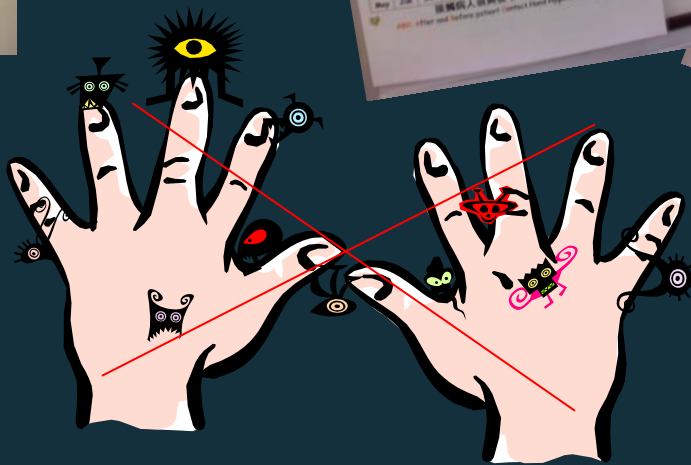
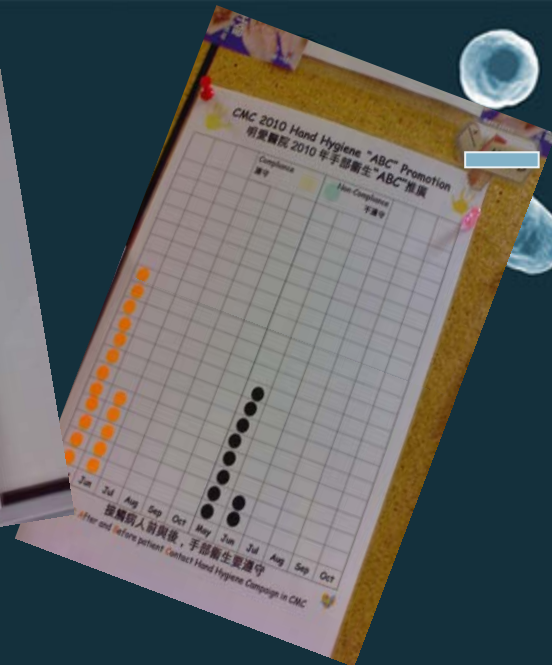
Contamination rates of HCW's hands with bacteria



Pathogen	Rate(%)	Duration on Hand	Duration on inanimate surface
<i>S. aureus</i>	10.5-78.3	> 150 min	1 –7 mo
MRSA	16.9	NA	1 –7 mo
VRE	41	60 min	5 d –4 mo
<i>C. diff</i>	14 –59	NA	1 d –5 mo
<i>E. coli</i>	NA	6 –90 min	2 h –16 mo
<i>Klebsiella spp</i>	17	2 h	2 h –30 mo
<i>S. marcescens</i>	15.4 -24	> 30 min	3 d –2 mo
<i>P. vulgaris</i>	NA	> 30 min	1 –2 d
<i>Acinetobacter spp</i>	3 -15	> 150 min	3 d –5 mo
<i>Pseudomonas spp</i>	1.3 –25	30 –80 min	6 h –16 mo
Yeast	23 -81	1 h	1 –4 mo

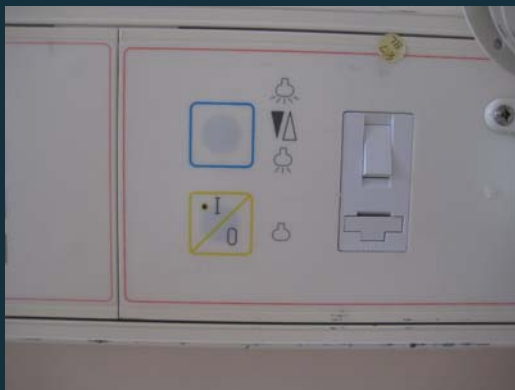


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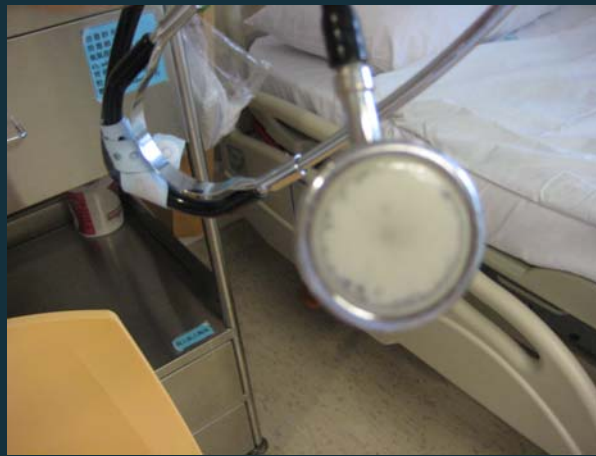


ABC Hand Hygiene Program:

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)



Thank you

