



Dirençli Gram-negatif Çomak Enfeksiyonları:
Yerel Sorunlar ve Çözüm Önerileri
Direncin Önlenmesi: Zorlu Koşullar İçin Çözüm Önerileri
**Tarama ? (Aktif Sürveyans Kültürleri) ve
İzolasyon Önlemleri**

Dr Gökhan Aygün

İÜC-Cerrahpaşa Tıp Fakültesi

Klinik mikrobiyoloji ve Enfeksiyon Hastalıkları AD

Kontrol önlemleri

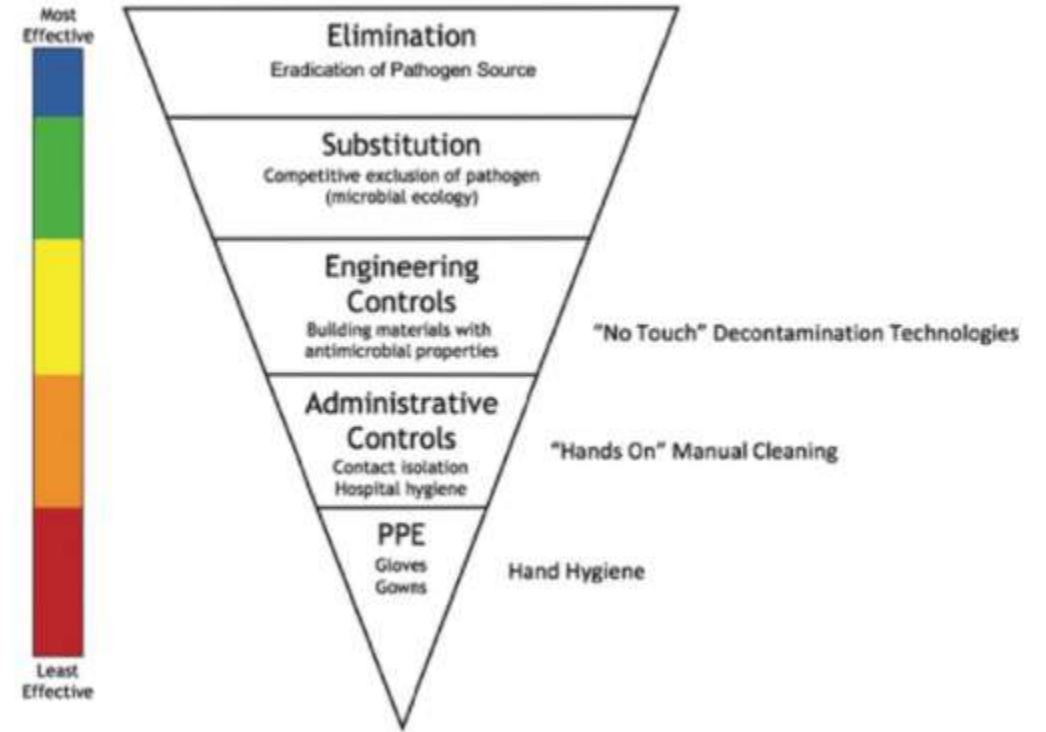
- Antibiyotik Baskısını kaldır !

* Antibiyotik yönetimi

- **Yayılımın Önlenmesi**

- Sürveyans
- Eğitim
- El hijyeni /doğru eldiven kullanımı
- Temas izolasyonu
- Çevre kontrolü
- Etkene Yönelik Önlemler...

SALGIN YAKLAŞIMI !!!



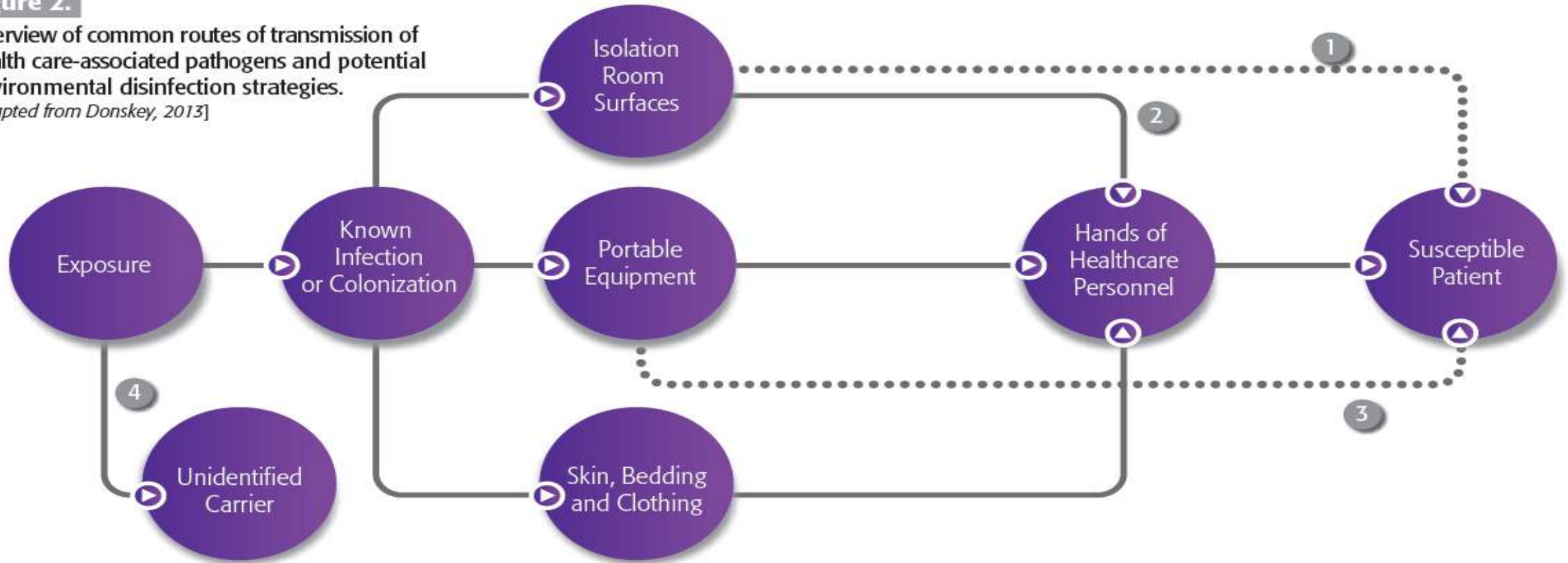
Hastane İnfeksiyonu Dinamiği

C.J. Donskey / American Journal of Infection Control 41 (2013) S12-S19

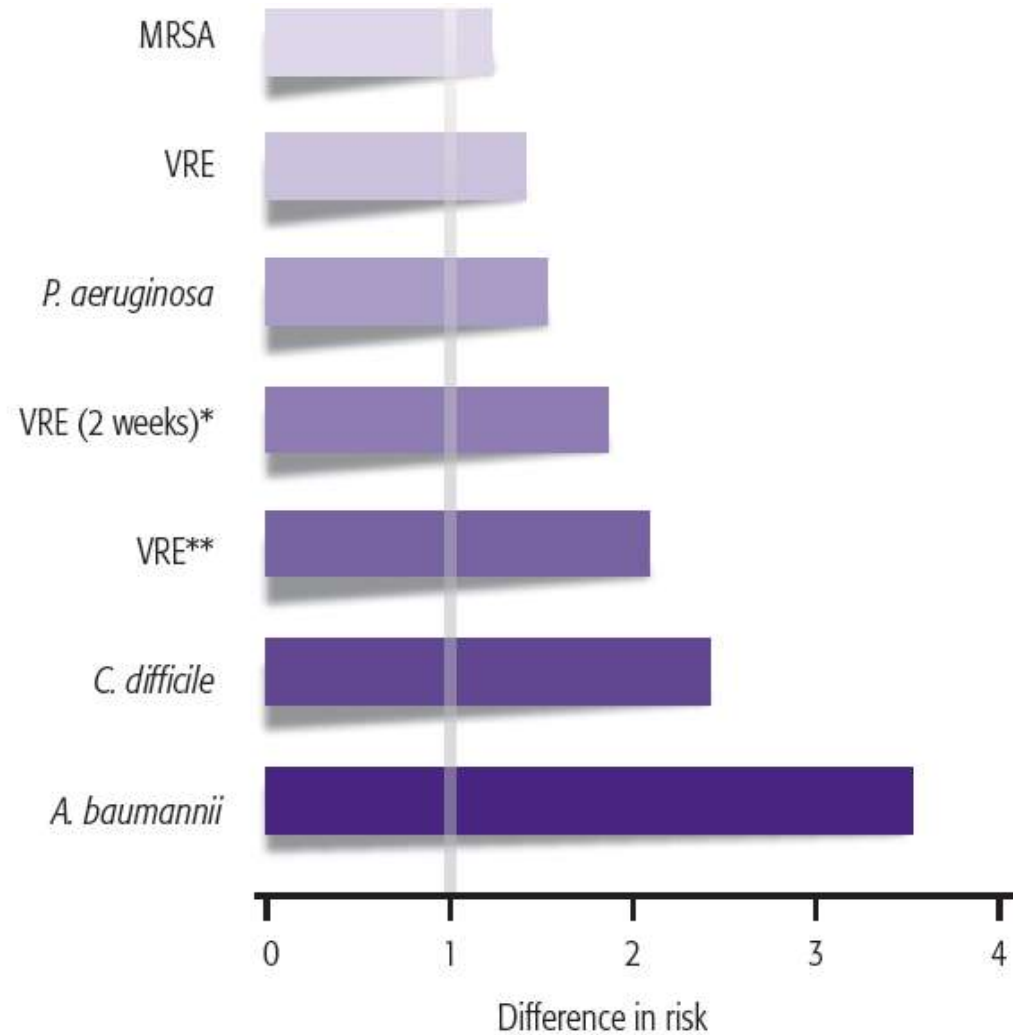
Figure 2.

Overview of common routes of transmission of health care-associated pathogens and potential environmental disinfection strategies.

[Adapted from Donskey, 2013]



Sorunlu Mikroorganizmalar

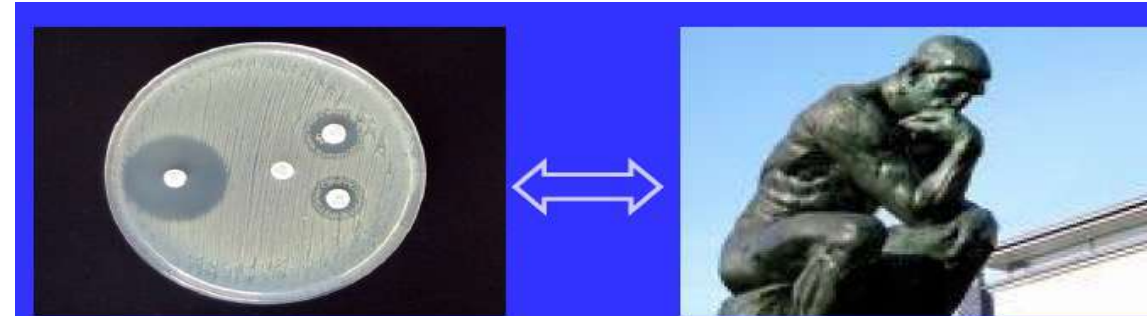


*Any patient infected or colonized with VRE in the two weeks prior to admission

KONTROL ÖNLEMLERİNDE TEMEL HEDEF

« Back to basics!! »

- Uygun bir altyapı (yatak sayısı, el hijyeni imkanları,...)
- Yeterli/deneyimli personel !!!
(hemşire / yardımcı sağlık elamanları özellikle önemli !!!)
- Devamlı etkileşim/eğitim/ motivasyon.





Practice Points

Severe COVID-19 and healthcare-associated infections on the ICU: time to remember the basics?

A. Sturdy^{a,*}, M. Basarab^a, M. Cotter^a, K. Hager^a, D. Shakespeare^a, N. Shah^b, P. Randall^b, D. Spray^b, A. Arnold^a

^a Department of Infection, St George's Hospital, London, UK

^b Adult Critical Care Directorate, St George's Hospital, London, UK

- Pandeminin ilk dönemi, Londra
- 1000 yataklı, 60 YBÜ yatağından 96 YBÜ yatağı ve buna ait yapısal, personel düzenlemesi....
- Önceki dönem: 1.04 GNÇ bakteriyemizi/ 1000 hasta günü
- Yeni dönem (16 gün içinde) 17.95 GNÇ bakteriyemi /1000 hasta günü
- NE yaptık biz !!!



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Environmental

Bed space	25.5 m ² [3]	Minimum 7 m ²	Lack of space for staff and equipment. PPE supplies not at each bed space. Inadequate environmental cleaning	Move to ward with larger bays and corridors. Alcohol hand gel available at each bed space
Handwashing facilities	One at each space [3]	One per bay of five or six patients	Insufficient availability to perform hand hygiene as often as required	

Staffing

ICU-trained nurse to patient ratio	1:1 [4]	1:4 to 1:6 plus variable number of non-ICU-trained staff	Limited time to change gloves or perform hand hygiene	Increase in ICU nurse to patient ratio. Re-emphasis of importance of line hygiene and care bundles. Ensuring proning teams changing aprons and using chlorine-based wipes to wipe gowns between patients. Enhanced infection control training for staff (see below)
Proning, vascular access and tracheostomy insertion	Proning and line insertion by resident ICU team	Dedicated proning, vascular access and tracheostomy teams moving between units	Sessional gown use with plastic 'over aprons' changed between patients. Large numbers of staff moving around units	



Practice Points

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PPE

Gowns

Plastic aprons for close contact (bare below the elbow). Single-use gowns if source isolating or performing procedure [5]

Sessional long-sleeved gowns, with plastic 'over aprons' for each patient

Same gown used to see all patients in session. Difficulty achieving adequate hand hygiene as not bare below the elbow

Training regarding PPE use, hand hygiene and aseptic non-touch technique. Consistent messaging regarding PPE use and areas to don and doff. Stopping practice of double gloving. Re-instigation of Hand Hygiene and Saving Lives audits

Gloves

Contact with sterile sites/mucous membranes/broken skin, procedures, any activities risking contact with body fluids [5]

Gloves when entering bay. Widespread use of double gloving and decontamination of gloves with alcohol gel

Potential use of same gloves between patients and within a single patient's care when should have been changed – falling short of WHO Five Moments [6]. Gelling of gloves between patients – providing inadequate hand hygiene [5,6]

CTF COVID-19 YBÜ'nde A.baumannii bakteriyemileri

- Pandemiden önce 13 yatak YBÜ
- Pandemi....Ameliyathaneler YBÜ oldu.....35yatak YBÜ
- Tüm servislerden hemşireler YBÜ hemşiresi
- 28 Mart-8 Mayıs 2020 arası 17 olguda (118 hasta)
A.baumannii bakteriyemisi (salgın?) !!!

2019 yılında aynı üniteye toplam 12 olguda (580 hastada) A.baumannii bakteriyemisi !



Eldivenlerden ve çevreden kültür

A.baumannii üremeleri

- İnfüzyon pompası
3/15
- Ortak bilgisayar tuşları
- Tezgah

Bacteria	n (%)
<i>Acinetobacter baumannii</i>	11(38)
Coagulase negative <i>Staphylococcus spp.</i>	5 (17)
<i>Enterococcus spp.</i>	4 (14)
Methicillin-resistant <i>Staphylococcus aureus</i>	3 (10)
No bacterial growth	16 (55)
Total	29

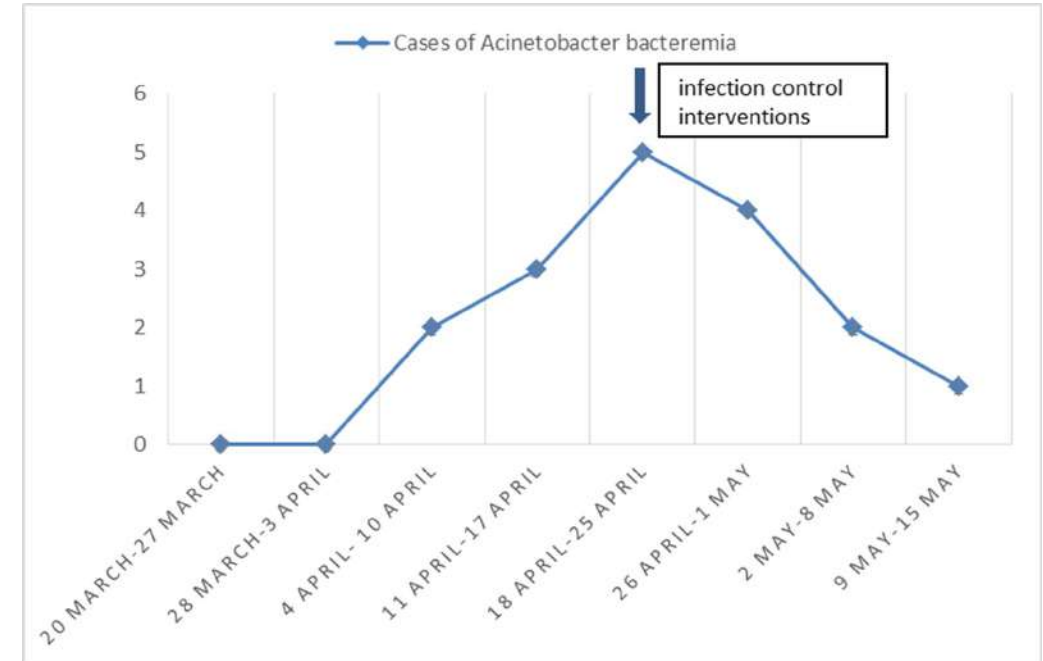
Original Article

The Bad Bug is Back: *Acinetobacter Baumannii* Bacteremia Outbreak during the COVID-19 Pandemic in an Intensive Care Unit

B Mete, AF Kurt, S Urkmez¹, O Demirkiran¹, G Can², GY Dumanli¹, S Bozbay¹, HY Arsu, B Otlu³, R Karaali, II Balkan, N Saltoglu, Y Dikmen¹, F Tabak, G Aygun⁴

Önlemler

- Kohort
- Geri bildirim (Eldiven sonuçları !)
- Eldiven çıkarılmasını denetleyen görevliler
- Çevre dezenfeksiyonu için daha fazla eleman ve takip sistemi
- Sık gözlemler ve tekrarlanan kültürler



Bulaşma yoluna yönelik önlemler

- Bulaşma yoluna ait önlemler
 - Temas önlemleri
 - Damlacık önlemleri
 - Hava yolu önlemleri

İzolasyon Önlemleri

HASTA TANIMLAYICI FİGÜRLER (Standart-Üst Seri)



Düşme Riski



Solunum
İzolasyonu



Temas
İzolasyonu



Damlacık
İzolasyonu



Temas Önlemleri

- Mikroorganizmaların **enfekte** ya da **kolonize** hastalardan doğrudan temas ya da dolaylı temasla (enfekte objelerle temas) bulaşmasını engellemek için kullanılır

ASK ve temas izolasyonu

- Ancak bir arada olursa etkin.

- Temas izolasyonu;

Risk tanımı ile

Tarama kültürleri ile

Klinik örneklerde üreme olduğunda (yetersiz saptama oranı!!!)

Temas Önlemleri

- Epidemiyolojik açıdan önemli
- Hızla yayılan enfeksiyon
- Doğrudan ve yakın ilişki
- ÇİD Gram-Negatifler !
 - A.baumannii ? (Hava yolu ??!)
 - P.Aeruginosa (KF hastaları) (Damlacık)



Air dispersal of multidrug-resistant *Acinetobacter baumannii*: implications for nosocomial transmission during the COVID-19 pandemic

S.-C. Wong^a, G.K.-M. Lam^a, J.H.-K. Chen^b, X. Li^b, F.T.-F. Ip^c, L.L.-H. Yuen^a, V.W.-M. Chan^a, C.H.-Y. AuYeung^a, S.Y.-C. So^b, P.-L. Ho^d, K.-Y. Yuen^d, V.C.-C. Cheng^{a,b,*}

Temas İzolasyonu

- Tek kişilik oda veya kohort uygulaması
- Hasta ile veya çevresindeki cansız yüzeylerle temas ederken steril olmayan temiz eldiven giyilmesi
- Hasta ile veya odasındaki yüzeylerle temasın fazla olmasının beklendiği durumlarda, odaya girerken eldivene ek olarak steril olmayan temiz bir önlük giyilmesi

Eldiven + önlük

Eldiven giymeden önce el hijyeni !

Temas İzolasyonu

- Eldiven ve önlüğün hasta odasını terk etmeden önce veya hasta başından ayrılırken çıkarılması
- El hijyeni
- Eldiven ve önlük çıkarılıp el hijyeni sağlandıktan sonra hastanın yakın çevresindeki yüzeylerle temas edilmemesi
- Odalar veya hastalar arasında eşya ve tıbbi malzeme transferinin önlenmesi

Temas izolasyonu ???

YBÜ her hastaya ?

ESBL için?

Clinical Infectious Diseases

MAJOR ARTICLE



Clinical Infectious Diseases® 2021;72(3):431–7

Acquisition of Antibiotic-Resistant Gram-negative Bacteria in the Benefits of Universal Glove and Gown (BUGG) Cluster Randomized Trial

Anthony D. Harris,¹ Daniel J. Morgan,^{2,3} Lisa Pineles,² Larry Magder,² Lyndsay M. O'Hara,² and J. Kristie Johnson⁴

¹University of Maryland School of Medicine, Baltimore, Maryland, USA, ²Department of Epidemiology and Public Health, University of Maryland School of Medicine, Baltimore, Maryland, USA,

³Veterans Affairs Maryland Health Care System, Baltimore, Maryland, USA, and ⁴Department of Pathology, University of Maryland School of Medicine, Baltimore, Maryland, USA

Background. The Benefits of Universal Glove and Gown (BUGG) cluster randomized trial found varying effects on methicillin-resistant *Staphylococcus aureus* and vancomycin-resistant *Enterococcus* and no increase in adverse events. The aim of this study was to assess whether the intervention decreases the acquisition of antibiotic-resistant gram-negative bacteria.

Methods. This was a secondary analysis of a randomized trial in 20 hospital intensive care units. The intervention consisted of healthcare workers wearing gloves and gowns when entering any patient room compared to standard care. The primary composite outcome was acquisition of any antibiotic-resistant gram-negative bacteria based on surveillance cultures.

Results. A total of 40 492 admission and discharge perianal swabs from 20 246 individual patient admissions were included in the primary outcome. For the primary outcome of acquisition of any antibiotic-resistant gram-negative bacteria, the intervention had a rate ratio (RR) of 0.90 [95% confidence interval (CI), .71–1.12; $P = .34$]. Effects on the secondary outcomes of individual bacteria acquisition were as follows: carbapenem-resistant Enterobacteriaceae (RR, 0.86 [95% CI, .60–1.24; $P = .43$], carbapenem-resistant *Acinetobacter* (RR, 0.81 [95% CI, .52–1.27; $P = .36$], carbapenem-resistant *Pseudomonas* (RR, 0.88 [95% CI, .55–1.42; $P = .62$], and extended-spectrum β -lactamase-producing bacteria (RR, 0.94 [95% CI, .71–1.24; $P = .67$].

Conclusions. Universal glove and gown use in the intensive care unit was associated with a non-statistically significant decrease in acquisition of antibiotic-resistant gram-negative bacteria. Individual hospitals should consider the intervention based on the importance of these organisms at their hospital, effect sizes, CIs, and cost of instituting the intervention.

Clinical Trials Registration. NCT01318213.

Keywords. antibiotic resistance; barrier precautions; contact precautions.

İstatistiksel olmasa da ÇİD bakteri yayılımında azalma olabiliyor.
Rutin öneri olarak uygun değil!

Zahar et al. BMC Infectious Diseases (2015) 15:512
DOI 10.1186/s12879-015-1244-x



RESEARCH ARTICLE

Open Access



About the usefulness of contact precautions for carriers of extended-spectrum beta-lactamase-producing *Escherichia coli*

Jean-Ralph Zahar^{1,2}, Laurent Poirel^{3,4*}, Claire Dupont³, Nicolas Fortineau³, Xavier Nassif² and Patrice Nordmann^{3,4,5}

Abstract

Background: Extended-spectrum β -lactamases producing *Escherichia coli* (ESBL-E) are increasingly identified in health care facilities. As previously done for the control of methicillin-resistant *Staphylococcus aureus*, many hospitals have established screening strategies for early identification of patients being carriers of ESBL producers in general and ESBL-E in particular, and have implemented contact precautions (CP) for infected and colonized patients.

Methods: The incidence of ESBL-E has been compared retrospectively between two French university hospitals (A and B) with different infection control policies over a 5-year long period of time (2006–2010).

Results: While hospital A only implemented standard precautions after identification of patients colonized with ESBL-E, hospital B recommended additional CP. During the period of the study, the ESBL-E incidence rate significantly increased in both hospitals, but no significant difference was observed between the two hospitals.

Conclusions: This observational study did not reveal that additional CP measures had a greater impact on the incidence of ESBL-E in hospital settings.

Temas izolasyonu ???



Review

Adverse effects of isolation in hospitalised patients: a systematic review

C. Abad^{a,b}, A. Fearday^{a,b}, N. Safdar^{a,b,*}

In conclusion, we find that although studies have shown that isolation may negatively impact patient psychological well-being, **patient safety and satisfaction**, and patient care, well-validated tools and larger studies are needed to examine this further. **Patient education at the time of isolation is a critical component of the process to reduce anxiety and distress.** Future studies to assess the adverse impact of isolation precautions should examine a broader array of safety indicators, in addition to the psychological aspects. As the problem of antibiotic-resistant bacteria in healthcare institutions continues to grow, isolation will remain and increase in importance as a critical infection control intervention to reduce nosocomial transmission of MDRO. Attention must be paid to the possible collateral damage of isolation, and adverse effects should be monitored closely.



State of the science review

An evaluation of interventions to improve outcomes for hospitalized patients in isolation: A systematic review

Sharon Kramer PhD^{a,b,*}, Olumuyiwa Omonaiye PhD^a, Robin Digby PhD^{a,b}, Debra Berry^{a,c}, Julie Considine PhD^{a,c}, Trisha Dunning PhD^{a,d}, Alison M Hutchinson PhD^{a,c}, Anastasia Hutchinson PhD^{a,f}, Elizabeth Manias PhD^a, Bodil Rasmussen PhD^{a,g}, Tracey Bucknall PhD^{a,b}

Highlights

- Hospitalized patients in isolation experience adverse mental health and physical outcomes.
- Music therapy and psychological interventions have been investigated but the quality the evidence is poor.
- Improved communication and increased contact between staff and patients and their families is needed, including regular monitoring of patient's mental wellbeing as part of standard care.
- Comprehensive multi-faceted interventions might be an appropriate and effective way to manage patients in isolation which needs to be investigated in high quality studies.

Aktif Sürveyans Kültürleri-AMAÇ

- Kolonize hastaları saptayıp bulaşmayı önlenmek
- Ampirik antibiyotik tedavisine katkı
- Enfeksiyon Kontrol Önlemlerine uyumu artırmak
- Salgınları daha erken saptamak
- Yönetimsel destek sağlamak
- Birimi ikna etmek

Aktif Sürveyans Kùltürleri- SORU (N)

- Ne zaman ? Hangi sıklıkta ?
- Hangi bakteri için?
- Hastanın neresinden ?
- Hangi yöntemle ?
- Salgında ya da her zaman ?
- Maliyet?
- Laboratuvar yükü ?
- Etik ?



Sürveyans/Tarama Kültürleri

- Yöntem: **Aktif** /Pasif/Modelleme
- Hedef: **Yüksek riskli bölümler!!!**
- *YBÜ, Hematoloji, transplant,...
(Hastane çapında fiyat-etkin değil!)
- Hedeflenmiş: Sadece riskli hastalar !
- Hedef mikroorganizma !/örnek yeri

ESBL, Carbapenem- or colistin- resistant organisms	Active infection site Perirectal or rectal alone or in combination with oropharyngeal, endotracheal, inguinal or wound	[27] [8]
<i>CRAB</i>	Rectum Skin Buccal mucosa Nares, oropharynx, groin, perianal area, wounds and device insertion site	[28] [29]
<i>Candida auris</i>	Skin, faeces, rectum	[30]

- Sıklık ? **Yatışta**
çıkarken/haftalık/haftada-2...
- Metod: konvansiyonel/kromojenik/
moleküler yöntemler
- Maliyet !!!
- Laboratuvar yükü !!!
- Etik ? (onay alınması!)

Maliyeti kim karşılar ?

To conclude, an ASC program for colonised patients may be beneficial depending on the targeted population, level of endemicity, the species of pathogen and the combination of multifaceted strategies. Multimodal infection control and prevention strategies are crucial for implementation in resource-limited settings. After discovering the culprit, it is a challenge to control MDR-GNB by containment or eradication and prevent cross-transmission. An ASC program should consider both the local epidemiology and cost-effectiveness based on the available resources in endemic MDR-GNB areas in the Asia-Pacific region.

Biswal M, Angrup A, Kanaujia R. Role of surveillance cultures in infection control. Indian J Med Microbiol 2020;38:277-83.

CDC –MDRO Prevention and Control

Etkili bir Aktif Sürveyans Kültürü programı için;

- Uygun kültür alımını sağlayacak sistem ve personel
- Mikrobiyoloji laboratuvarı (kapasite, besiyeri, personel,...)
- Sonuçların iletimi için bir sistem
- Pozitif kültür sonuçları ile yapılacak önlem ve eylemler (temas izolasyonu, kohort,...)
- Uyumun izlenmesi için bir sistem olmalıdır !

Management of Multidrug-Resistant Organisms In Healthcare Settings, 2006

Jane D. Siegel, MD; Emily Rhinehart, RN MPH CIC; Marguerite Jackson, PhD; Linda Chiarello, RN MS; the Healthcare Infection Control Practices Advisory Committee

ESCMID PUBLICATIONS

10.1111/1469-0691.12427

ESCMID guidelines for the management of the infection control measures to reduce transmission of multidrug-resistant Gram-negative bacteria in hospitalized patients

E. Tacconelli¹, M. A. Cataldo², S. J. Dancer³, G. De Angelis⁴, M. Falcone⁵, U. Frank⁶, G. Kahlmeter⁷, A. Pan^{8,9}, N. Petrosillo², J. Rodríguez-Baño^{10,11,12}, N. Singh¹³, M. Venditti⁵, D. S. Yokoe¹⁴ and B. Cookson¹⁵

Clin Microbiol Infect 2014; 20 (Suppl. 1): 1–55

Guidelines for the Prevention and Control of Multi-drug resistant organisms (MDRO) excluding MRSA in the healthcare setting

REVIEW

Controversies in guidelines for the control of multidrug-resistant Gram-negative bacteria in EU countries

J. A. Otter¹, N. T. Mutters², E. Tacconelli³, A. Gikas⁴ and A. H. Holmes^{1,5}

1) Imperial College Healthcare NHS Trust, London, UK, 2) Department of Infectious Diseases, Medical Microbiology and Hygiene, Heidelberg University Hospital, Heidelberg, 3) Division of Infectious Diseases, Department of Internal Medicine I, Tübingen University Hospital, Tübingen, Germany, 4) Department of Internal Medicine, Infectious Diseases Unit, University Hospital of Heraklion, Heraklion, Crete, Greece and 5) Imperial College London, UK

Abstract

The various guidelines that are available for multidrug-resistant Gram-negative bacteria are useful, and contain broad areas of agreement. However, there are also important areas of controversy between the guidelines in terms of the details of applying contact precautions, single-room isolation and active surveillance cultures, differences in the approach to environmental cleaning and disinfection, and whether or not to perform staff and patient cohorting, healthcare worker screening or patient decolonization. The evidence-base is extremely limited and further research is urgently required to inform an evidence-based approach to multidrug-resistant Gram-negative bacteria prevention and control.

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E. Tacconelli¹, M. A. Cataldo², S. J. Dancer³, G. De Angelis⁴, M. Falcone⁵, U. Frank⁶, G. Kahlmeter⁷, A. Pan^{8,9}, N. Petrosillo², J. Rodríguez-Baño^{10,11,12}, N. Singh¹³, M. Venditti⁵, D. S. Yokoe¹⁴ and B. Cookson¹⁵

Quality of evidence

High	We are very confident that the true effect lies close to that of the estimate of the effect
Moderate	We are moderately confident in the effect estimate: the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different
Low	Our confidence in the effect estimate is limited: the true effect may be substantially different from the estimate of the effect
Very low	We have very little confidence in the effect estimate: the true effect is likely to be substantially different from the estimate of effect

Strength of recommendations

Strong	Large differences between the desirable and undesirable consequences. High confidence in the magnitude of estimates of effect of the interventions on important outcomes
Conditional	Small net benefit and low certainty for that benefit. Great variability in values and preferences, or uncertainty in values and preferences. High cost of an intervention

Recommendations

Epidemic setting

Strong recommendation: Implement a programme of active screening culture at hospital admission followed by contact precautions to reduce the spread of extended-spectrum β -lactamase-producing Enterobacteriaceae, multidrug-resistant (MDR)-*Klebsiella pneumoniae*, MDR-*Acinetobacter baumannii* (moderate level of evidence); and MDR-*Pseudomonas aeruginosa* (very low level of evidence)

After evaluation of the evidence the authors of these guidelines agreed that the implementation of ASC should be suggested only as an additional measure and not included in the basic measures to control the spread of MDR-GNB in the endemic setting.

Yatış sırasında,

Tüm riskli hastalardan ya da riskli üniteye (YBÜ, hematoloji, transplantasyon,...) yatırılan tüm hastalardan,

Perianal/rektal +/- kateter girişi, lezyonu olan cilt bölgeleri, inguinal bölge,...

Haftalık ve çıkışta alınması olabilir.

Sonuçların SÇ/hastaya bildirilmesi etkinliği artırıyor

Controversies in guidelines for the control of multidrug-resistant Gram-negative bacteria in EU countries

European Society of Clinical Microbiology and Infectious Diseases, *CMI*, 21, 1057–1066

J. A. Otter¹, N. T. Mutters², E. Tacconelli³, A. Gikas⁴ and A. H. Holmes^{1,5}

Screening

Use alert code to identify promptly patients already known as colonized at hospital/ward admission and perform screening and pre-emptive contact precautions.

Implement a programme of ASC at hospital admission followed by contact precautions.

Screening cultures should use stool samples or swab samples from the rectum or peri-rectal area as well as samples from the inguinal area and manipulated sites, e.g. catheters and areas of broken skin such as wounds.

The frequency of screening cultures should be based on the local prevalence of the microorganism, patient colonization risk, and the case mix of the unit.

Consider performing ASC at the time of hospital admission for high-risk patients or for all patients in high-risk units such as cancer or ICU wards, according to local incidence or prevalence data.

Admission, discharge and weekly patient screening might also be considered to provide feedback to healthcare workers and to assess the effectiveness of interventions.

Periodic (e.g. weekly) ASC might be performed for patients remaining in the hospital at high risk for carriage of MDR-GNB because of ward type (ICU), prolonged antibiotic(s) therapy, underlying disease, long duration of stay, presence of devices and surgery.

Before transferring patients to other healthcare facilities (acute and non-acute care) ensure communication of status.

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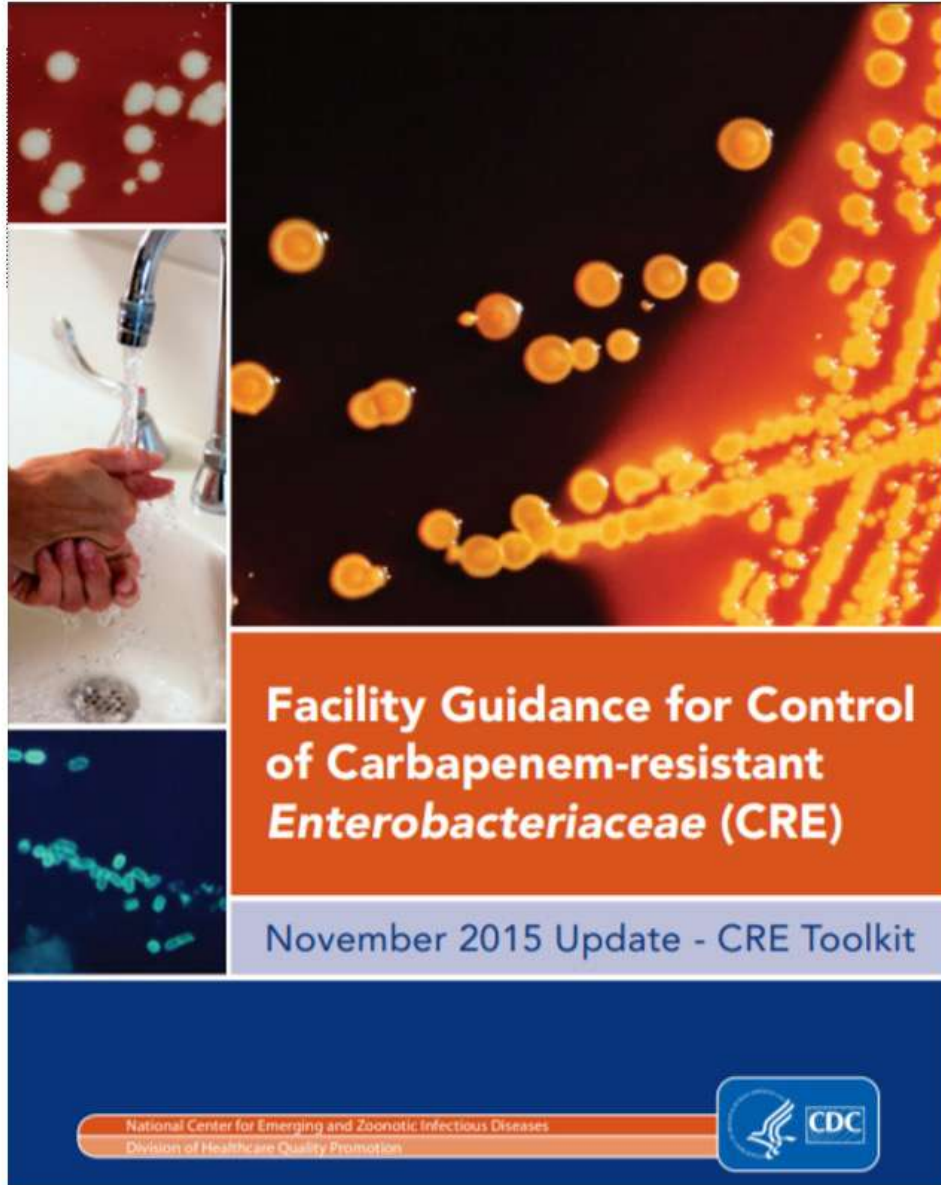
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[illegible]



Summary of Prevention Strategies For Acute and Long-Term Care Facilities

Please see text for details.

1. Hand Hygiene

- Promote hand hygiene
- Monitor hand hygiene adherence and provide feedback
- Ensure access to hand hygiene stations

2. Contact Precautions (CP)

- Educate and train healthcare personnel about CP including allowing time to practice donning and doffing
- Monitor CP adherence and provide feedback
- No recommendations for discontinuation of CP

Acute Care

- Place CRE colonized or infected patients on Contact Precautions (CP)
 - Empiric CP might be used for patients transferred from high-risk settings

Long-term Care

- Place CRE colonized or infected residents that are high-risk for transmission on CP (as described in text); for patients at lower risk for transmission use precautions based on type of care provided

3. Healthcare Personnel Education

4. Minimize Use of Invasive Devices

5. Timely Notification from Laboratory When CRE are Identified

6. Communication of CRE Status for Infected and Colonized Patients at Discharge and Transfer

- Identify known CRE patients at re-admission

7. Promotion of Antimicrobial Stewardship

8. Environmental Cleaning

9. Patient and Staff Cohorting

- When available cohort CRE colonized or infected patients and the staff that care for them even if patients are housed in single rooms
- If the number of single patient rooms is limited, reserve these rooms for patients with highest risk for transmission (e.g., incontinence)

10. Screening Contacts of CRE Patients

- Screen patient with epidemiologic links to unrecognized CRE colonized or infected patients

11. Active Surveillance Testing

- Screen high-risk patients at admission or at admission and periodically during their facility stay for CRE. Empiric CP can be considered while results of admission surveillance testing are pending

12. Chlorhexidine Bathing

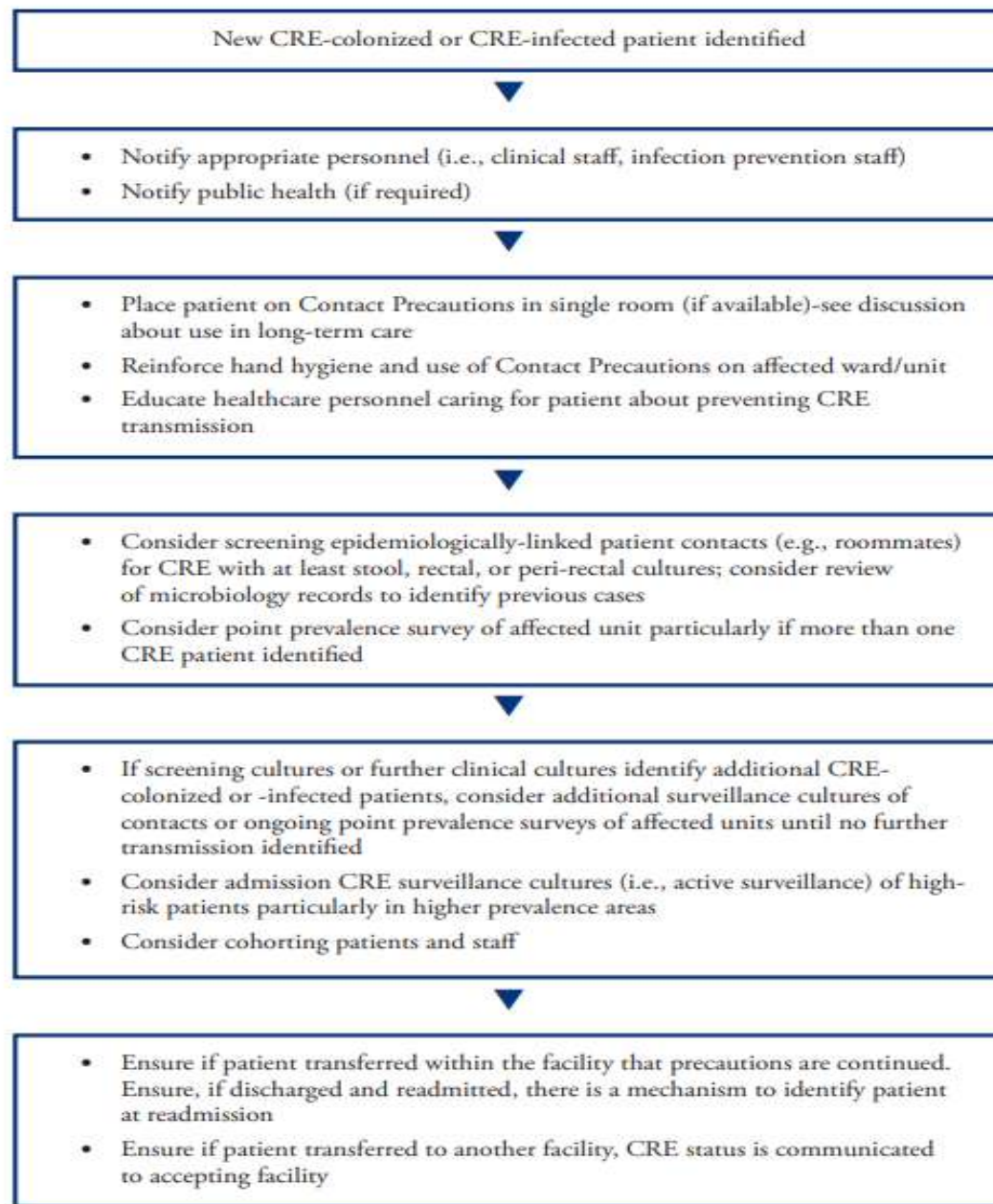
- Bathe patients with 2% chlorhexidine

Windows'u Etkinleştir

Windows'u etkinleştirmek için Ayarlar'a gidin



Figure 1: Facility Approach to Evaluation of Newly Recognized CP-CRE Colonized or Infected Patients



	CRE/ESBL	A.baumannii	P.aeruginosa
Kültür sonuçları (klinik, süveyans) erken sonuçlansın (<48 saat)	+++	+++	+++
Aktif süveyans	CRE (yüksek riskli birimler)	Salgında (YBÜ)	??? Sadece riskli üniteler (KF,Yanık, hematoloji,...
Yatışta risk değerlendirmesi	CRE +++	-/+	-/+
Riskli hastaları tarama	CRE +++ Sağlık çalışanı (-)	Sadece salgın! Sağlık çalışanı (-)	Sadece salgın! Sağlık çalışanı (-)
Tarama yeri	Rektal /dışkı	Cilt, katater girişi, solunum sekresyonları	Rektal/dışkı (?)

	CRE/ESBL	A.baumannii	P.aeruginosa
Daha önce kolonize/infekte olduğu bilinen hastanın yatışta taranması	+++	+++	+++
Serviste temaslıların düzenli olarak taranması	Salgında CRE (+++)	Salgında (+++)	+/-
İzolasyon önlemleri	Temas	Temas	Temas (KF +damlacık?)
Aynı fenotipik direnç varsa kohortlama	+++	+++	+
Sağlık çalışanı kohortlama	+++	+++	+++



World Health
Organization



Guidelines for the prevention and control of carbapenem-resistant Enterobacteriaceae, *Acinetobacter baumannii* and *Pseudomonas aeruginosa* in health care facilities

3.3 Recommendation 3: Surveillance of CRE-CRAB-CRPsA infection and surveillance cultures for asymptomatic CRE colonization

The panel recommends that:

- surveillance of CRE-CRAB-CRPsA infection(s) should be performed, and
- surveillance cultures for asymptomatic CRE colonization should also be performed, guided by local epidemiology and risk assessment. Populations to be considered for such surveillance include patients with previous CRE colonization, patient contacts of CRE colonized or infected patients and patients with a history of recent hospitalization in endemic CRE settings.

(Strong recommendation, very low quality of evidence)

3.5 Recommendation 5: Patient isolation

The panel recommends that patients colonized or infected with CRE-CRAB-CRPsA should be physically separated from non-colonized or non-infected patients using

- single room isolation; or
- cohorting patients with the same resistant pathogen.

(Strong recommendation, very low to low quality of evidence) ■

3.1 Recommendation 1: Implementation of multimodal infection prevention and control strategies

The panel recommends that multimodal IPC strategies should be implemented to prevent and control CRE-CRAB-CRPsA infection or colonization and that these should consist of at least the following:

- hand hygiene
- surveillance (particularly for CRE)
- contact precautions
- patient isolation (single room isolation or cohorting)
- environmental cleaning

(Strong recommendation, very low to low quality of evidence)

WHO 2017 rehberi /CDC

- KD Enterobacterales için veriler daha çok ve önerilir
- KDAB ve KDPA için veriler yetersiz
- KDE...Rektal/perianal sürüntü ve yatışta (tekrar?)

***Riskli ünitelerde (YBÜ, Hematoloji, transplantasyon)**

**** SALGIN**

*** Riskli hastalarda (KDE kolonizasyon bilgisi, KDE ile temas, KDE olan bir hastanede yatış, ünitelerdeki KDE gelişen hasta popülasyonu,...)

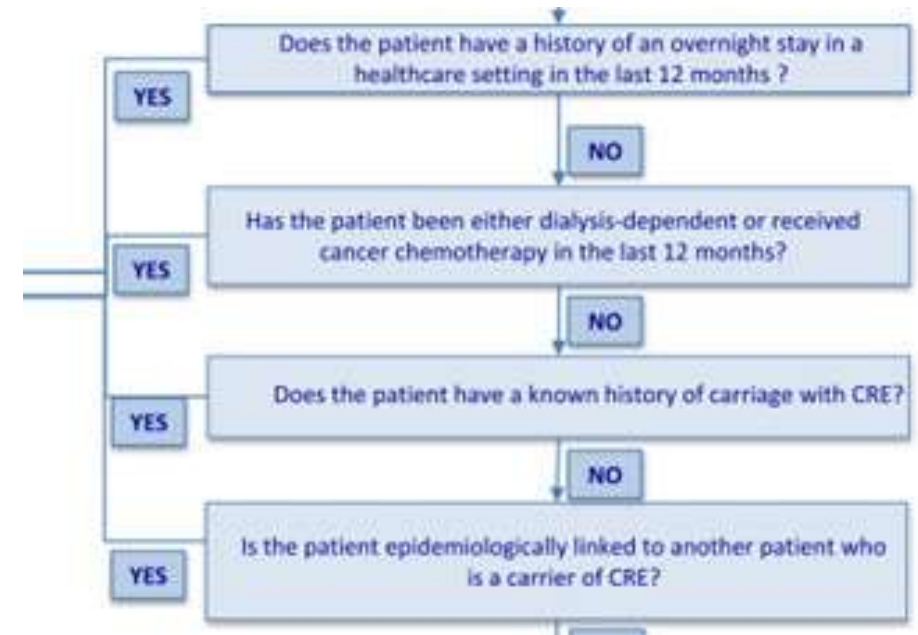
ECDCSEYAHAT (Endemik ülkelere)

GUIDELINES ARTICLE

Open Access

Infection prevention and control measures and tools for the prevention of entry of carbapenem-resistant *Enterobacteriaceae* into healthcare settings: guidance from the European Centre for Disease Prevention and Control

A. P. Magiorakos^{1*}, K. Burns², J. Rodríguez Baño³, M. Borg⁴, G. Daikos⁵, U. Dumpis⁶, J. C. Lucet⁷, M. L. Moro⁸, E. Tacconelli⁹, G. Skov Simonsen¹⁰, E. Szilágyi¹¹, A. Voss¹² and J. T. Weber¹³





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State of the Science Review

Effects of screening strategies to detect carbapenem-resistant gram-negative bacteria: A systematic review

Francisca Verdugo-Paiva DDS, MSc^a, Fernando Otaiza MD, MSc^b, Pablo Roson-Rodríguez MD, MSc^a, Ana María Rojas-Gómez DDS, MSc^a, Marcelo Galas BSc Microbiology^b, Nathalie El Omeiri PhD^b, Yackelin Fuentes MSc^b, Gabriel Rada MD^{a,c}, Pilar Ramón-Pardo MD, PhD^{b,*}

SONUÇ:

Bu konudaki çalışmaların kanıt değeri düşük.

Daha iyi kanıtlara ihtiyaç var.

Sürveyans kültürleri; çalışmalarda çok katmanlı uygulamalardan sadece birisi

Fakat bazı çalışmalarda etkinliği artıran faktör olarak dikkati çekiyor !

Table 2

Summary of findings table

Outcomes	Relative effect (95% CI)	Effect	Certainty of evidence (GRADE)	Key messages
screening strategies to prevent health care-associated infections				
Patients				
Intervention		Hospitalized patients Screening strategies to detect carbapenem-resistant gram-negative bacteria (CRE, CRAB, CRPA)		
Comparison		Standard of care (as defined by studies)		
Outcomes	Relative effect (95% CI)	Effect	Certainty of evidence (GRADE)	Key messages
	Patients/ studies			
All-cause mortality	– Interrupted time series 2 studies 27,30	One study assessing surveillance alone reported that no differences were observed on mortality rate in the ICU (pre-intervention period: 8.8%; post-intervention period: 9.0%). ³⁰ One study assessing surveillance as part of a multimodal intervention reported that no difference was observed on mortality risk. ²⁷	⊕⊕○○ ^{a,1,2} LOW	Screening strategy may result in little to no difference in the risk of all-cause mortality.
Length of hospital stay	– Interrupted time series 4 studies 26,27,28,30	One study assessing surveillance alone reported that no differences were observed in the length of ICU hospital stay (pre-intervention period: median 1 day (IQR=1–6); post-intervention period: median 1 day (IQR=1–6)). ³⁰ Three studies assessing surveillance as part of a multimodal intervention reported that no differences were observed in the length of hospital stay. ^{26,27,28}	⊕⊕○○ ^{a,1,2} LOW	Screening strategies may result in little to no difference in the length of hospital stay.
Carbapenem-resistant gram-negative bacteria infection	– Interrupted time series 8 studies 20,22,25,27,28,30,31,33	One study assessing surveillance alone reported an increase in infection by 13.04% every month (95% CI: 5.2–21.5) during the pre-intervention period and a decrease in the infection rate during the intervention period (monthly percent change, –3.57%; 95% CI –6.9 to –0.1). ³⁰ On the other hand, from 7 studies assessing surveillance as part of a multimodal intervention, 6 reported a significant reduction in the infection rate after the implementation of surveillance cultures.	⊕⊕○○ ^{a,1,2} LOW	Screening strategies may reduce the risk of carbapenem-resistant gram-negative bacteria infection.
Carbapenem-resistant gram-negative bacteria colonization	– Interrupted time series 9 studies 21,23,24,25,27,30,32,33,34	Two studies assessed surveillance alone. One study reported a decrease in the colonization rate during the intervention period (monthly percent change –3.02% (95% CI: –4.7 to –1.3)). ³⁰ Another study reported an increase in the CRE colonization rate from 1.0 per 1,000 admissions when the intervention was implemented to 2.7, but the proportion of positive screens remained at approximately 0.4% (range 0.2%–0.6%) throughout the study period. ²³ All the 7 studies assessing surveillance as part of a multimodal intervention reported a significant reduction in colonization rate after the implementation of surveillance cultures.	⊕⊕○○ ^{a,1,2} LOW	Screening strategies may reduce the risk of carbapenem-resistant gram-negative bacteria colonization.

GRADE, Grading of Recommendations Assessment, Development and Evaluation.

^aInterrupted time series (ITS) studies provide moderate quality evidence.¹⁵¹The certainty of the evidence was downgraded in one level for risk of bias since the studies showed bias regarding confounding factors, deviation from intended intervention and bias in selection of the reported result.²In several studies, active surveillance was implemented as part of a multimodal of interventions. We did not downgrade the certainty of the evidence for indirectness because their results were similar to those where active surveillance was implemented alone.

HEALTHCARE EPIDEMIOLOGY: Robert A. Weinstein, Section Editor

Control of Carbapenem-resistant Enterobacteriaceae, *Acinetobacter baumannii*, and *Pseudomonas aeruginosa* in Healthcare Facilities: A Systematic Review and Reanalysis of Quasi-experimental Studies

Sara Tomczyk,^{1,2} Veronica Zanichelli,³ M. Lindsay Grayson,^{4,5,6} Anthony Twyman,¹ Mohamed Abbas,³ Daniela Pires,^{3,7} Benedetta Allegranzi,¹ and Stephan Harbarth³

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(See the Editorial Commentary by Bleasdale on pages 885–6.)

Carbapenem-resistant Enterobacteriaceae (CRE), *Acinetobacter baumannii* (CRAB), and *Pseudomonas aeruginosa* (CRPsA) are a serious cause of healthcare-associated infections, although the evidence for their control remains uncertain. We conducted a systematic review and reanalysis to assess infection prevention and control (IPC) interventions on CRE-CRAB-CRPsA in inpatient healthcare facilities to inform World Health Organization guidelines. Six major databases and conference abstracts were searched. Before-and-after studies were reanalyzed as interrupted time series if possible. Effective practice and organization of care (EPOC) quality criteria were used. Seventy-six studies were identified, of which 17 (22%) were EPOC-compatible and interrupted time series analyses, assessing CRE (n = 11; 65%), CRAB (n = 5; 29%) and CRPsA (n = 3; 18%). IPC measures were often implemented using a multimodal approach (CRE: 10/11; CRAB: 4/5; CRPsA: 3/3). Among all CRE-CRAB-CRPsA EPOC studies, the most frequent intervention components included contact precautions (90%), active surveillance cultures (80%), monitoring, audit and feedback of measures (80%), patient isolation or cohorting (70%), hand hygiene (50%), and environmental cleaning (40%); nearly all studies with these interventions reported a significant reduction in slope and/or level. The quality of EPOC studies was very low to low.

Keywords. prevention and control; carbapenem resistance; Enterobacteriaceae; *Acinetobacter*; *Pseudomonas*.



Impact of active surveillance and infection control measures on carbapenem-resistant Gram-negative bacterial colonization and infections in intensive care

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E. Roilides^{a,c,*}

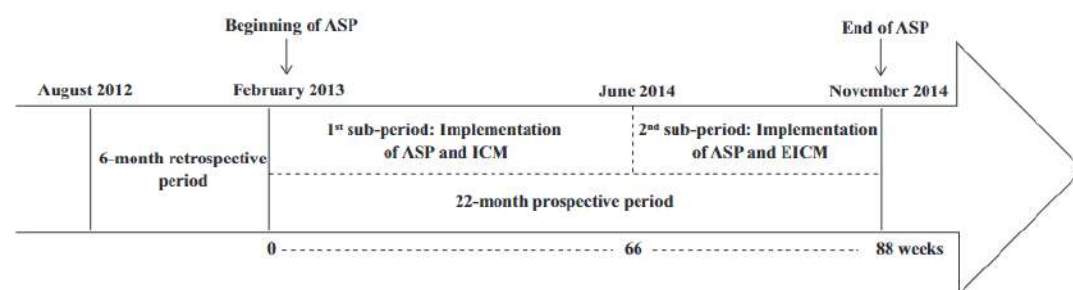
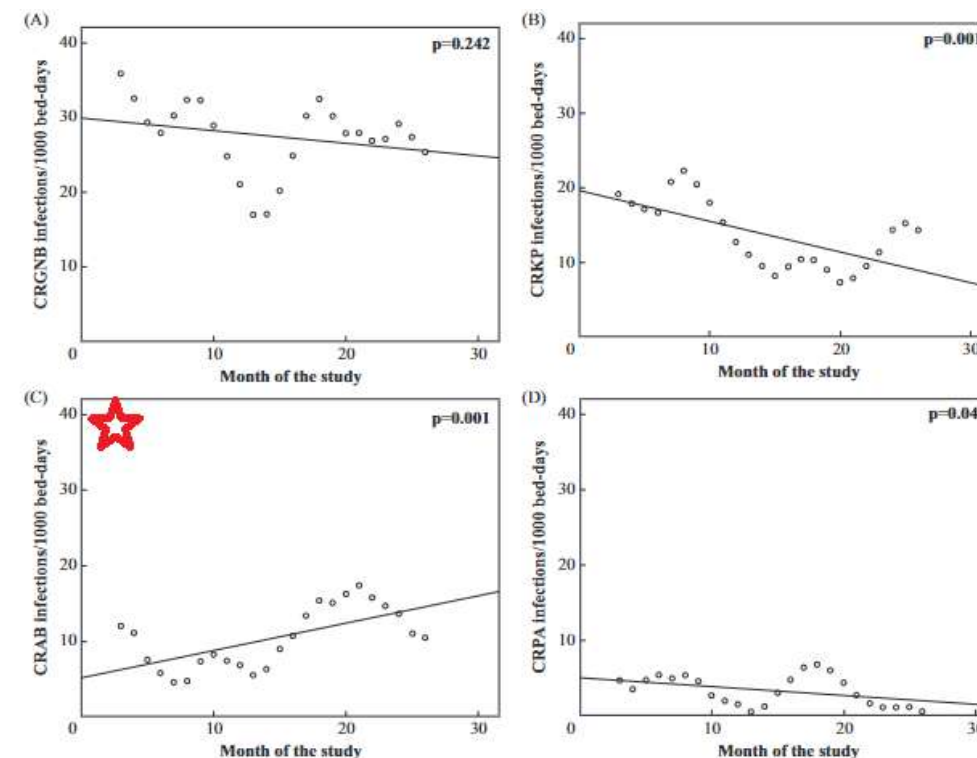


Figure 1. Timeline of the study and study periods. ASP, active surveillance programme; ICM, infection control measures; EICM, enhanced infection control measures.



Multidrug-Resistant Gram-Negative Bacteria

Infection Prevention and Control Update



John P. Mills, MD^{a,*}, Dror Marchaim, MD^{b,c}

PEARLS

- Performance of active surveillance for carbapenem-resistant Enterobacterales (CRE) among high-risk populations can facilitate early detection and cohorting of cases, limiting the risk of transmission
- Identifying high-risk populations based on local/regional epidemiology is crucial to determining what patients warrant active surveillance for CRE
- *Acinetobacter baumannii* is notorious for widespread environmental contamination. Enhanced environmental cleaning and use of novel “no-touch” technologies can reduce the risk of environmental persistence and potentially transmission
- Consider endoscopes and environmental water sources as potential reservoirs of multidrug-resistant Gram-negative bacteria (MDR-GNB) during outbreak investigations

PITFALLS

- Active surveillance for carbapenem-resistant *Pseudomonas aeruginosa* (CRPA) and carbapenem-resistant *A. baumannii* (CRAB) is challenging because of the low sensitivity of cultures from any single anatomic site. Multiple sites may need to be cultured to optimize detection.
- Reliance on phenotypic testing alone to detect carbapenem-resistant Enterobacterales (CRE) may fail to detect epidemiologically important resistance genes
- Cohorting patients colonized with different MDR-GNB can potentially result in patient-to-patient cross-transmission of genetic resistance elements
- Data do not support the use of contact precautions (CPs) for patients colonized with extended-spectrum β -lactamases-producing GNB. High utilization of CPs is associated with lower health care worker adherence.
- The use of colistin for selective digestive decontamination (SDD) has the potential to promote colistin resistance

Multidrug-Resistant Gram-Negative Bacteria

Infection Prevention and Control Update



John P. Mills, MD^{a,*}, Dror Marchaim, MD^{b,c}

Table 2
Epidemiologic and biological characteristics of colonization by MDR-GNB

	Anatomic Locations for Screening	Duration of Colonization	Risk for Transmission	Risk of Clinical Infection
ESBL & CRE	Rectum, inguinal, urine.	144 d 50% positivity rate by 3–6 mo, 25% by 6–24 mo in <i>K. pneumoniae</i> ¹⁶²	Health care acquisition/ community onset ratio 59/52 in <i>E. coli</i> ⁵⁰ ; 37/35 in <i>K. pneumoniae</i> ¹⁶³	44/520 (8.8%) ¹⁶⁴ and 42/464 (9%) ¹⁶⁵ in <i>K. pneumoniae</i>
CRAB	Rectum, respiratory tract, skin, urine ^{48,49}	20 mo ⁴⁸	Health care acquisition/ community onset ratio 32/16	Bacteremia in 108/200 (54%) ¹⁶⁶
CRPA	Rectum, oropharynx, urine, sputum		Health care acquisition/ community onset ratio 70/46 ¹⁶⁷	Clinical infection in 41/213 (19.2%)

SUMMARY

Antimicrobial resistance is a global iatrogenic complication of modern medical care. MDR-GNB are prevalent in most facilities, and their containment and treatment pose an enormous challenge. The authors' suggestions are as follows:

1. Active surveillance: screening to detect asymptomatic colonization
 - a. ESBL: not routinely recommended
 - b. CRE: establish populations who warrant screening based on local and regional CRE epidemiology. We also recommend using molecular assays to determine the presence and type of carbapenemases.
 - c. CRAB: should be considered in endemic ICUs, on admission to the unit, and periodically thereafter. Respiratory samples (only from ventilated patients) and skin samples (from wide areas using designated sponges or wipes according to established methodology) are the basic body sites to target.
 - d. CRPA: not routinely recommended

Multidrug-Resistant Gram-Negative Bacteria

Infection Prevention and Control Update



John P. Mills, MD^{a,*}, Dror Marchaim, MD^{b,c}

2. Containment

- a. HH is a core component in the prevention of MDR-GNB spread
- b. Contact isolation precautions
 - i. ESBL: not routinely recommended
 - ii. CRE: recommended for carbapenemase-producing and non-carbapenemase-producing CRE isolates
 - iii. *A. baumannii*: recommended for all CRAB. Consider use for carbapenem-susceptible isolates in outbreaks or endemic settings
 - iv. CRPA: recommended for all carriers
- c. Cohorting with dedicated staff
 - i. Avoid "united cohort units" for more than a single MDR-GNB
 - ii. ESBL: not routinely recommended
 - iii. CRE: recommended for carbapenemase-producing CRE during epidemic spread and in hyperendemic regions.
 - iv. CRAB: not routinely recommended, unless during outbreaks or high endemic states in ICU settings or LTACs.
 - v. CRPA: not routinely recommended, unless during outbreaks.

	Klasik Yöntem CDC-MEM	Kromojenik besiyeri	Moleküler testler
Duyarlılık	Düşük	Besiyerine bağlı	Yüksek
Zaman	48-72 saat	24-48 saat	1-4 saat
Fiyat	+	++	+++
Fiyat-Etkinlik	+	+	+++ İzolasyon süresini kısaltmak total maliyetler yönünden avantajlı
Avantaj	Özel donanım gerekmez Ucuz Tüm dirençlileri saptar	Kolay değerlendirme Duyarlılığı iyi	Duyarlı, Hızlı Fiyat-etkin Hasta başı olabilir Tedaviye yön verebilir (KPC/OXA/NDM)
Dezavantaj	Sonuç uzun sürede Zor Duyarlılık düşük	Direnç mekanizmasına bağımlı	Sadece tanımlanan direnç genleri Altyapı ve maliyet sorun

CDC. 2008. http://www.cdc.gov/HAI/pdfs/labSettings/Klebsiella_or_Ecoli.pdf.

Giani T., J Hosp Infect. 2012 Jun;81(2):119–22.

Papadimitriou-Olivgeris M, Eur J Clin Microbiol Infect Dis. 2014 Jan;33(1):35–40.

Lau AF, J Clin Microbiol. 2015 Dec;53(12):3729–37.

Ampirik tedavi kolonizasyonla belirlenebilir mi?

- Kolonizasyon bilgisi ya da riskleri ile seçim öneriliyor!
- Kolonizasyon varlığı ? (Rutin araştırma ?)

VAP olgularında en az haftada iki solunum kültürü ile sürveyans etkeni saptamakta % 70 duyarlı, % 80 spesifik ?

Rektal kolonizasyon bakteriyemi ilişkisi???

(Risk gruplarında belirleyici faktör)

**Reducing Antibiotic Use in the ICU:
A Time-Based Approach to Rational
Antimicrobial Use**

P. O. Depuydt, L. De Bus, and J. J. De Waele

COLONIZATION STATUS AND APPROPRIATE ANTIBIOTIC THERAPY FOR NOSOCOMIAL BACTEREMIA CAUSED BY ANTIBIOTIC-RESISTANT GRAM-NEGATIVE BACTERIA IN AN INTENSIVE CARE UNIT

Stijn Blot, PhD; Pieter Depuydt, MD; Dirk Vogelaers, PhD; Johan Decruyenaere, DSc; Jan De Waele, MD; Eric Hoste, PhD; Renaat Peleman, PhD; Geert Claeys, PhD; Gerda Verschraegen, MD; Francis Colardyn, MD; Koenraad Vandewoude, MD

ABSTRACT

OBJECTIVE: Timely initiation of antibiotic therapy is crucial for severe infection. Appropriate antibiotic therapy is often delayed for nosocomial infections caused by antibiotic-resistant bacteria. The relationship between knowledge of colonization caused by antibiotic-resistant gram-negative bacteria (ABR-GNB) and rate of appropriate initial antibiotic therapy for subsequent bacteremia was evaluated.

DESIGN: Retrospective cohort study.

SETTING: Fifty-four-bed intensive care unit (ICU) of a university hospital. In this unit, colonization surveillance is performed through routine site-specific surveillance cultures (urine, mouth, trachea, and anus). Additional cultures are performed when presumed clinically relevant.

PATIENTS: ICU patients with nosocomial bacteremia caused by ABR-GNB.

RESULTS: Infectious and microbiological characteristics and rates of appropriate antibiotic therapy were compared be-

tween patients with and without colonization prior to bacteremia. Prior colonization was defined as the presence (detected ≥ 2 days before the onset of bacteremia) of the same ABR-GNB in colonization and subsequent blood cultures. During the study period, 157 episodes of bacteremia caused by ABR-GNB were suitable for evaluation. One hundred seventeen episodes of bacteremia (74.5%) were preceded by colonization. Appropriate empiric antibiotic therapy (started within 24 hours) was administered for 74.4% of these episodes versus 55.0% of the episodes that occurred without prior colonization. Appropriate therapy was administered within 48 hours for all episodes preceded by colonization versus 90.0% of episodes without prior colonization.

CONCLUSION: Knowledge of colonization status prior to infection is associated with higher rates of appropriate therapy for patients with bacteremia caused by ABR-GNB (*Infect Control Hosp Epidemiol* 2005;26:575-579).

Characteristic	Episodes With Prior Colonization (n = 117)	Episodes Without Prior Colonization (n = 40)	P*
Microorganism			.077
<i>Enterobacter</i> species	38 (32.5%)	13 (32.5%)	
<i>Acinetobacter</i> species	30 (25.6%)	8 (20.0%)	
<i>Pseudomonas aeruginosa</i>	27 (23.1%)	8 (20.0%)	
<i>Klebsiella</i> species	14 (12.0%)	1 (2.5%)	
<i>Escherichia coli</i>	3 (2.6%)	1 (2.5%)	
<i>Serratia marcescens</i>	1 (0.9%)	3 (7.5%)	
<i>Stenotrophomonas maltophilia</i>	1 (0.9%)	2 (5.0%)	
<i>Citrobacter</i> species	2 (1.8%)	2 (5.0%)	
<i>Sphingobacterium meningosepticum</i>	1 (0.9%)	2 (5.0%)	
Source of bacteremia			.120
Unknown (primary bacteremia)	24 (20.5%)	18 (45.0%)	
Lung	31 (26.5%)	6 (15.0%)	
Intra-abdominal infection	23 (19.7%)	9 (22.5%)	
Central venous catheter	15 (12.8%)	5 (12.5%)	
Urinary tract	18 (15.4%)	6 (15.0%)	
Wound	15 (12.8%)	3 (7.5%)	
Sinus	3 (2.6%)	0	
Thrombophlebitis	2 (1.8%)	0	
> 1 source of bacteremia	13 (11.1%)	6 (15.0%)	
Median length of hospitalization before onset of bacteremia, d (range)	29 (17-54)	19 (10-38)	.006
Median length of ICU stay before onset of bacteremia, d (range)	23 (11-47)	8 (3-19)	< .001
Median APACHE II score at ICU admission (range)	26 (19-32)	23 (14-26)	.018
Appropriate empiric therapy (< 24 hours)	87 (74.4%)	22 (55.0%)	.029
Appropriate therapy within 48 h	117 (100%)	36 (90.0%)	.004

ICU = intensive care unit; APACHE = Acute Physiology and Chronic Health Evaluation.

*Calculated using the Mann-Whitney U test for continuous variables, chi-square test for categorical variables, and a pooled chi-square test for differences in bacteria and sources of bacteremia.

RESEARCH

Open Access

Active surveillance of carbapenem-resistant gram-negative bacteria to guide antibiotic therapy: a single-center prospective observational study

Qiqiang Liang, Juan Chen, Yongshan Xu, Yibing Chen and Man Huang*

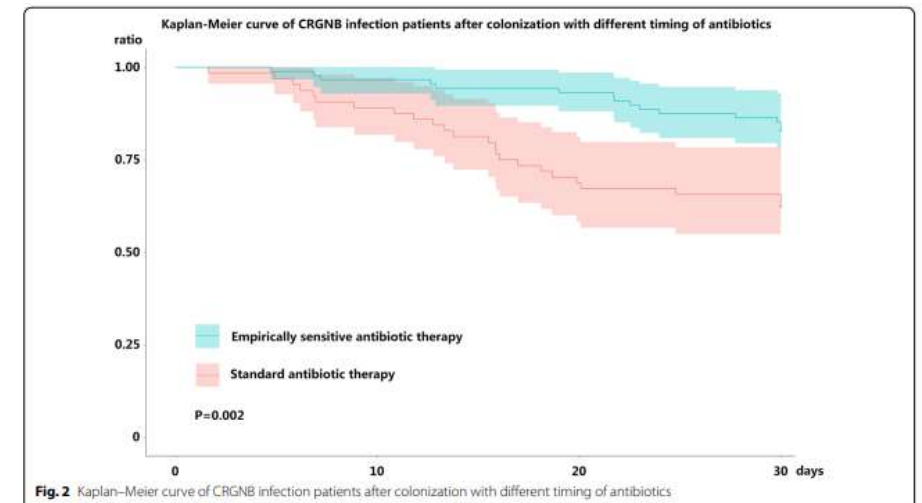


Table 2 High-risk factors of infection after colonization in multivariate regression analysis

Variable	P	OR (95%CI)
CRKP colonization	<0.001	3.27 (1.80–5.95)
CRPA colonization	<0.001	2.97 (1.63–5.40)
Another department history	0.029	1.78 (1.06–2.97)
Invasive operation	<0.001	6.22 (2.57–15.03)
Carbapenems history	<0.001	5.48 (3.27–9.19)
Immunocompromise	<0.001	7.07 (3.90–12.80)

CRKP: carbapenem-resistant *Klebsiella pneumoniae*; CRPA: carbapenem-resistant *Pseudomonas aeruginosa*; OR: odds ratio; CI: confidence interval

- 4 yıl, prospektif, tek merkez, gözlemsel
- Risk: 7 günden fazla hastane yatışı, daha kısa süre yatsa da KD-GNÇ ile temaslı, bakım evi, KD-GNÇ saptanan bir merkezde kısa süreli kalan hastalar
- Rektal, boğaz/ETA, inguinal sürüntü
- KD-GNÇ (KP, PA)



Kolonizasyon.....infeksiyon ?

Antimicrobial Agents and
Chemotherapy Volume 62, Issue 1 Jan 2018

Risk Factors and Outcomes Associated with Multidrug-Resistant *Acinetobacter baumannii* upon Intensive Care Unit Admission

Natalia Blanco,^a Anthony D. Harris,^a Clare Rock,^b J. Kristie Johnson,^c Lisa Pineles,^a Robert A. Bonomo,^{d,e,f} Arjun Srinivasan,^g Melinda M. Pettigrew,^h Kerri A. Thom,^a for the CDC Epicenters Program

ABSTRACT Multidrug-resistant (MDR) *Acinetobacter baumannii*, associated with broad-spectrum antibiotic use, is an important nosocomial pathogen associated with morbidity and mortality. This study aimed to investigate the prevalence of MDR *A. baumannii* perirectal colonization among adult patients upon admission to the intensive care unit (ICU) over a 5-year period and to identify risk factors and outcomes associated with colonization. A retrospective cohort analysis of patients admitted to the medical intensive care unit (MICU) and surgical intensive care unit (SICU) at the University of Maryland Medical Center from May 2005 to September 2009 was performed using perirectal surveillance cultures on admission. Poisson and logistic models were performed to identify associated risk factors and outcomes. Four percent of the cohort were positive for MDR *A. baumannii* at ICU admission. Among patients admitted to the MICU, those positive for MDR *A. baumannii* at admission were more likely to be older, to have received antibiotics before ICU admission, and to have shorter length of stay in the hospital prior to ICU admission. Among patients admitted to the SICU, those colonized were more likely to have at least one previous admission to our hospital. Patients positive for MDR *A. baumannii* at ICU admission were 15.2 times more likely to develop a subsequent positive clinical culture for *A. baumannii* and 1.4 times more likely to die during the current hospitalization. Risk factors associated with MDR *A. baumannii* colonization differ by ICU type. Colonization acts as a marker of disease severity and of risk of developing a subsequent *Acinetobacter* infection and of dying during hospitalization. Therefore, active surveillance could guide empirical antibiotic selection and inform infection control practices.

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DOI 10.1007/s00134-012-2759-x

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Value of lower respiratory tract surveillance cultures to predict bacterial pathogens in ventilator-associated pneumonia: systematic review and diagnostic test accuracy meta-analysis

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Abstract Purpose: In ventilator-associated pneumonia (VAP), early appropriate antimicrobial therapy may be hampered by involvement of multidrug-resistant (MDR) pathogens. **Methods:** A systematic review and diagnostic test accuracy meta-analysis were performed to analyse whether lower respiratory tract surveillance cultures accurately predict the causative pathogens of subsequent VAP in adult patients. Selection and assessment of eligibility were performed by three investigators by mutual consideration. Of the 525 studies retrieved, 14 were eligible for inclusion (all in English; published since 1994), accounting for 791 VAP episodes. The following data were collected: study and population characteristics; in- and exclusion criteria; diagnostic criteria for VAP; microbiological workup of surveillance and diagnostic VAP cultures. Sub-analyses were conducted for VAP caused by *Staphylococcus aureus*, *Pseudomonas* spp., and *Acinetobacter* spp., MDR microorganisms, frequency of sampling, and consideration of all versus the most recent surveillance cultures. **Results:** The meta-analysis

showed a high accuracy of surveillance cultures, with pooled sensitivities up to 0.75 and specificities up to 0.92 in culture-positive VAP. The area under the curve (AUC) of the hierarchical summary receiver-operating characteristic curve demonstrates moderate accuracy (AUC: 0.90) in predicting multidrug resistance. A sampling frequency of >2/week (sensitivity 0.79; specificity 0.96) and consideration of only the most recent surveillance culture (sensitivity 0.78; specificity 0.96) are associated with a higher accuracy of prediction.

Conclusions: This study provides evidence for the benefit of surveillance cultures in predicting MDR bacterial pathogens in VAP. However, clinical and statistical heterogeneity, limited samples sizes, and bias remain important limitations of this meta-analysis.

Keywords Ventilator-associated pneumonia · VAP · Surveillance cultures · Diagnostic test accuracy meta-analysis · Multidrug resistance

Kolonizasyon.....Ampirik tedavi

- Tüm tedavi rehberleri
- YBÜ, FN, Hematolojik malignite, transplantasyon.....

kolonizasyon bilgisinin ampirik antibiyotik tedavisinde önemli olduğunu söylüyor !

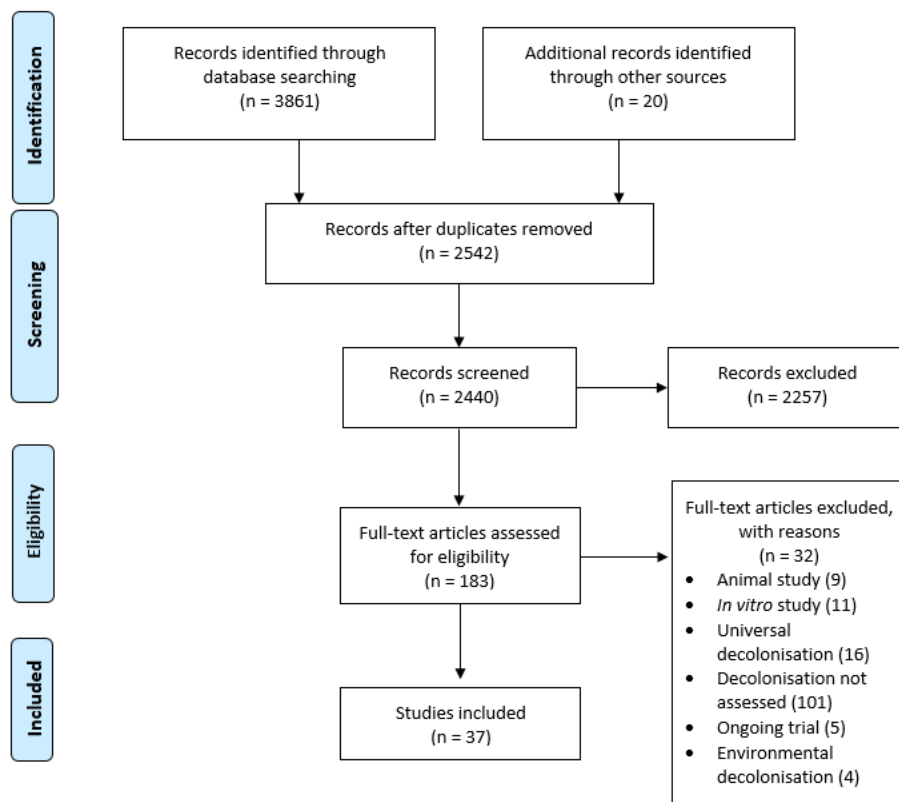
- Sırf bu amaçla sürveyans kültürü alınması önerisi yok !!!



Guidelines

ESCMID-EUCIC clinical guidelines on decolonization of multidrug-resistant Gram-negative bacteria carriers

E. Tacconelli ^{1,2,*}, F. Mazzaferri ², A.M. de Smet ³, D. Bragantini ², P. Eggimann ⁴,
B.D. Huttner ^{5,6}, E.J. Kuijper ⁷, J.-C. Lucet ^{8,9}, N.T. Mutters ^{10,11}, M. Sanguinetti ¹²,
M.J. Schwaber ^{13,14}, M. Souli ^{15,16}, J. Torre-Cisneros ¹⁷, J.R. Price ¹⁸, J. Rodríguez-Baño ¹⁹



Key points

- The panel does not recommend routine decolonization of MDR-GNB carriers.
- The effectiveness and long-term side effects of decolonization of 3GCephRE and CRE in high-risk populations (e.g. ICU, neutropenic and transplant populations) needs to be evaluated with RCTs with proper design and sample size calculation.



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Characteristics and results of nine studies on faecal microbiota transplantation

Author, year [ref.]	Population	Target bacteria	Study design	Time-point after EoT	Successful eradication
Bilinski, 2017 [72]	Haematological malignancy	3GCephRE	Case series	1 week	12/13
				1 month	12/13
Bilinski, 2017 [72]	Haematological malignancy	CRE	Case series	1 week	12/20
				1 month	12/16
Bilinski, 2016 [74]	Haematological malignancy	3GCephRE	Case report	1 week	1/1
				1 month	1/1
Bilinski, 2016 [74]	Haematological malignancy	CRE	Case report	1 week	1/1
				1 month	1/1
Davido, 2017 [73]	Mixed population	CRE	Case series	1 month	2/6
				3 months	2/6
Friedman-Moraco, 2014 [78]	Haematological malignancy	CRE	Case report	EoT	1/1
Garcia-Fernandez, 2016 [75]	Mixed population	CRE	Case report	EoT	1/1
				6 months	1/1
Lagier, 2013 [77]	Mixed population	CRE	Case report	1 week	1/1
Ponte, 2017 [76]	Mixed population	CRE	Case report	1 month	1/1

Abbreviations: CRE, carbapenem-resistant Enterobacteriaceae; EoT, end of treatment; 3GCephRE, third-generation cephalosporin-resistant Enterobacteriaceae.

ETIK ?

HEALTHCARE EPIDEMIOLOGY

INVITED ARTICLE

Robert A. Weinstein, Section Editor

Active Surveillance Cultures and Contact Precautions for Control of Multidrug-Resistant Organisms: Ethical Considerations

Roberto P. Santos,¹ Thomas W. Mayo,² and Jane D. Siegel¹

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Infection control personnel are required to develop institutional guidelines for prevention of transmission of multidrug-resistant organisms, especially methicillin-resistant *Staphylococcus aureus*, within health care settings. Such guidelines include performance of active surveillance cultures for patients after admission to health care facilities or to high-risk-patient care units, to detect colonization with target multidrug-resistant organisms. Patients who are colonized with these potential pathogens are placed under contact precautions to prevent transmission to other patients. Such screening programs are labor and resource intensive and raise the following ethical considerations: (1) autonomy versus communitarianism, (2) indication for informed consent for obtainment of active surveillance cultures, and (3) identification of the appropriate payer. Relevant infection control, public health, and ethical principles are reviewed in an effort to provide guidance for ethical decision making when designing a multidrug-resistant organism control program that includes active surveillance cultures and contact precautions. We conclude that a program of active surveillance cultures and contact precautions is part of standard medical care that requires patient education but not a specific informed consent and that the cost for such programs should be assigned to the health care institution, not the individual patient.

Sonuç

- Aktif Sürveyans Kültürleri Enfeksiyon Kontrol Programı içinde yer alacak bir bileşen olarak birlikte planlanmalıdır.
- Salgın varlığında son derece faydalıdır !
- KD-Enterobacterales için etkinliği daha iyidir
- KD PA ve KDAB için yeni verilerle desteklenmelidir
- Genel ve güçlü bir öneri haline gelmesi için kanıt gücü yüksek çalışmalara ihtiyaç var !
- Riskli hastalarda (Hematoloji, Transplantasyon...) ampirik antibiyotik seçiminde faydalıdır.

Gereksiz Taramalardan Kaçınalım!

- Gırgır Dergisi”nin yaratıcısı, bugün Türkiye’de yaşayan birçok karikatür sanatçısının hocası olan Oğuz Aral, öğrencilerine hep “Çocuklar, gereksiz taramalardan kaçının” dermiş.

