

Screening for = finding MDRO?

13.09.23 SSHH/ SSI Congress

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Background: Base of our screening policy

In vast admission screening (clinical risk approach)

based on very helpful Swissnoso Guidelines

+ ***C. auris*** if ICU abroad

+ **VRE sentinella screening** on ICU and hematooncology wards due to prior outbreak 2017

Prävention und Kontrolle von multiresistenten Erregern (MRE) im Nicht-Ausbruch-Setting

Version 1.0, Oktober 2021

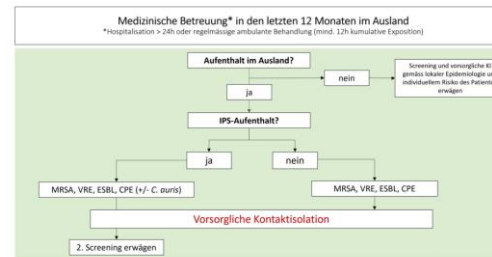
Abbildung 2: Lokalisation der Abstriche für Screening auf multiresistente Erreger

Lokalisation der Abstriche auf multiresistente Erreger

Lokalisation	MRSA	VRE	ESBL	CPE	<i>C. auris</i>
Nase	X				(X)
Rachen	X				
Axilla/Leisten	X				X
Wunden, sezernierend oder nassend	X	X	X	X	(X)
Urin (bei einliegendem Katheter)	X	X	X	X	(X)
Rektal		X	X	X	(X)
Trachealsekret (wenn intubiert, tracheotomiert)	X	(X)	(X)	X	

X empfohlen
(X) Nachweis möglich, Lokalisation jedoch optional

Abbildung 1: Schema Eintrittsscreening und vorsorgliche Isolation



- Details, z.B. im Falle eines bekannten Ausbruchs oder zu den Risikoberechnungen, sind in den entsprechenden Kapiteln über die einzelnen Erreger zu finden
- Das lokale Epidemiologie sollte immer berücksichtigt werden
- *C. auris*: separate Empfehlung in Bearbeitung, siehe auch Swiss Med Wkly, 2020;150:w202097, <https://doi.org/10.4555/SMW.2020.20207>

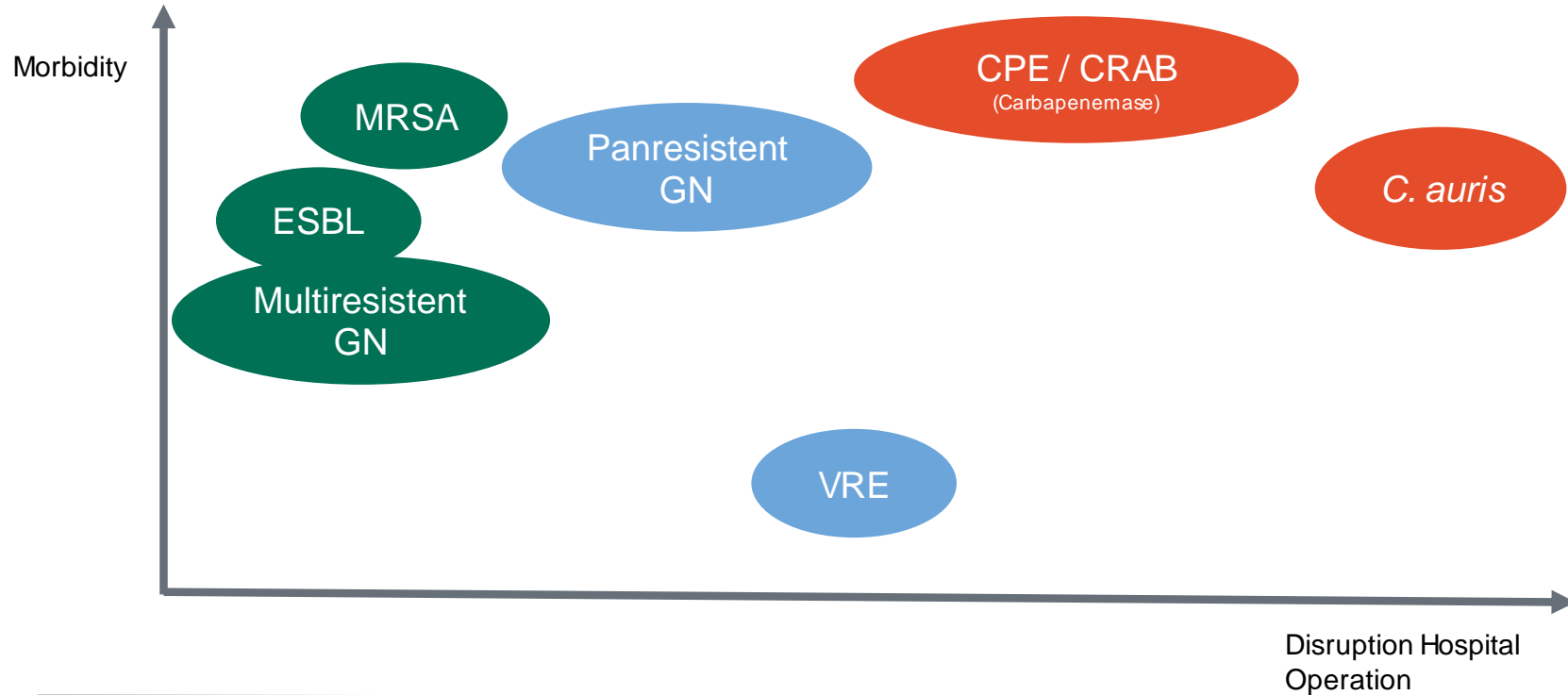
Exemplary yield admission screening

Group	Percent
CPE / CRAB	10%
Panresistant GN, other	3%
<i>Candida auris</i>	1%
MRSA	0%
VRE	1%
ESBL	10%
Multiresistant GN, other	4%
Any MDRO	30%

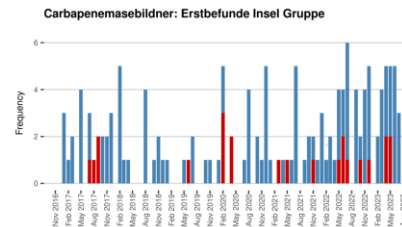
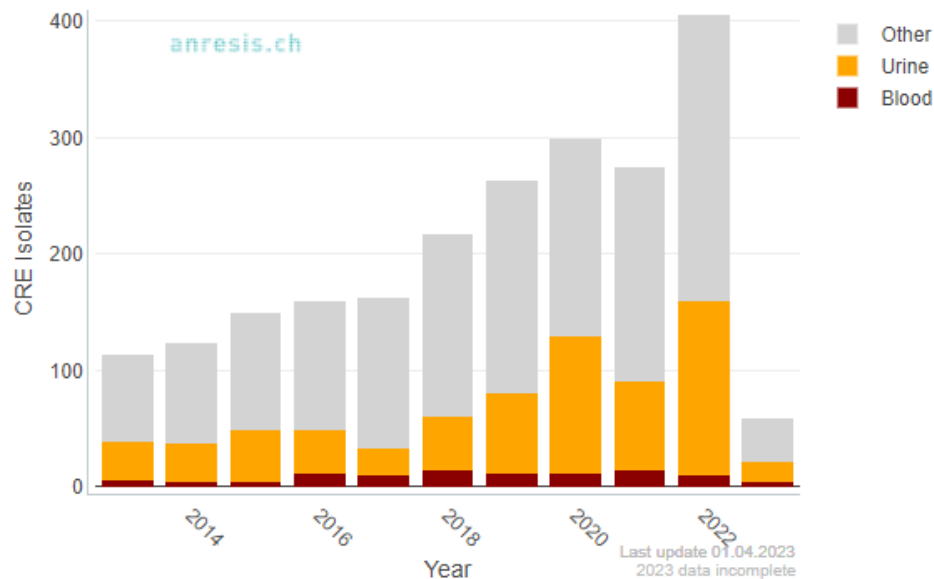
6 months range until 05/23

Insel Gruppe, internal data - unpublished

MDRO – Varying impact



CPE: Increasing detection in screening and clinical samples in CH

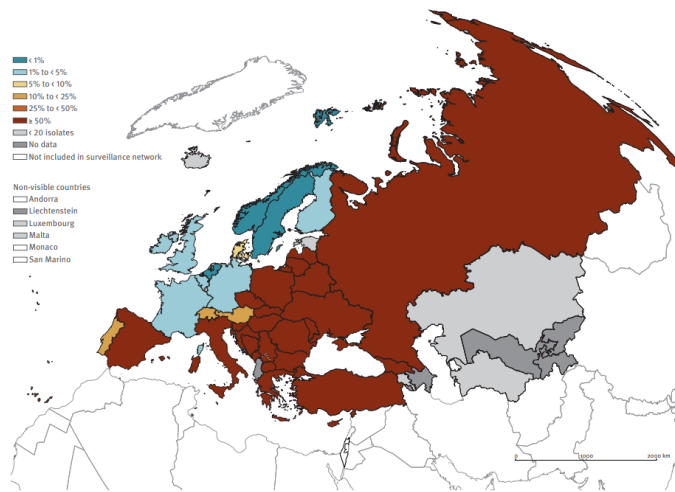


+CRAB: «New» kid in town – war in Ukraine

Total number of invasive isolates tested (n) and percentage of isolates with resistance phenotype (%)^a, by bacterial species and antimicrobial group/agent, Ukraine, 2017–2021

Bacterial species	Antimicrobial group/agent	2017		2018		2019		2020		2021		Trend 2017–2021 ^b
		n	%	n	%	n	%	n	%	n	%	
<i>Acinetobacter</i> spp.	Carbapenem (imipenem/meropenem) resistance	30	40.0	28	75.0 ^c	44	72.7	52	76.9	135	73.3	NA

Fig. 7 *Acinetobacter* species. Percentage of invasive isolates with resistance to carbapenems (imipenem/meropenem), by country, WHO European Region, 2021



Note: Data for Serbia and Kosovo (all references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999)) were combined for this map. Data for the United Kingdom for 2021 includes England, Scotland and Northern Ireland. Data sources: 2021 data from the Central Asian and European Surveillance of Antimicrobial Resistance (CAESAR), ©WHO 2021. All rights reserved) and 2021 data from the European Antimicrobial Resistance Surveillance Network (EARS-Net, ©ECDC 2021). Map production: ©WHO.

RAPID COMMUNICATION

Large increase in bloodstream infections with carbapenem-resistant *Acinetobacter* species during the first 2 years of the COVID-19 pandemic, EU/EEA, 2020 and 2021

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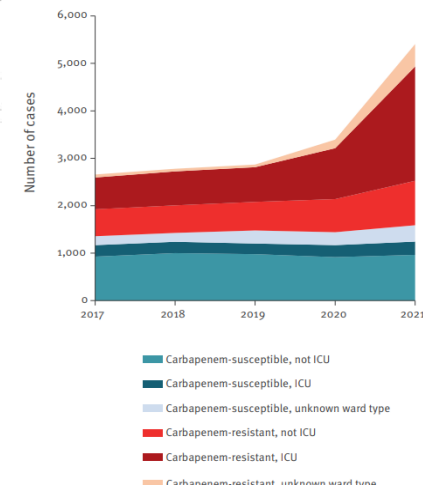
Citation style for this article:

Kloross P, Gagliotti C, Merki H, Plachouras D, Monnet D, Diaz H, Högberg L, EARS-Net Study Group. Large increase in bloodstream infections with carbapenem-resistant *Acinetobacter* species during the first 2 years of the COVID-19 pandemic, EU/EEA, 2020 and 2021. Euro Surveill. 2022;27(46):22000002. <https://doi.org/10.2807/1560-7917.ES.2022.27.46-200002>

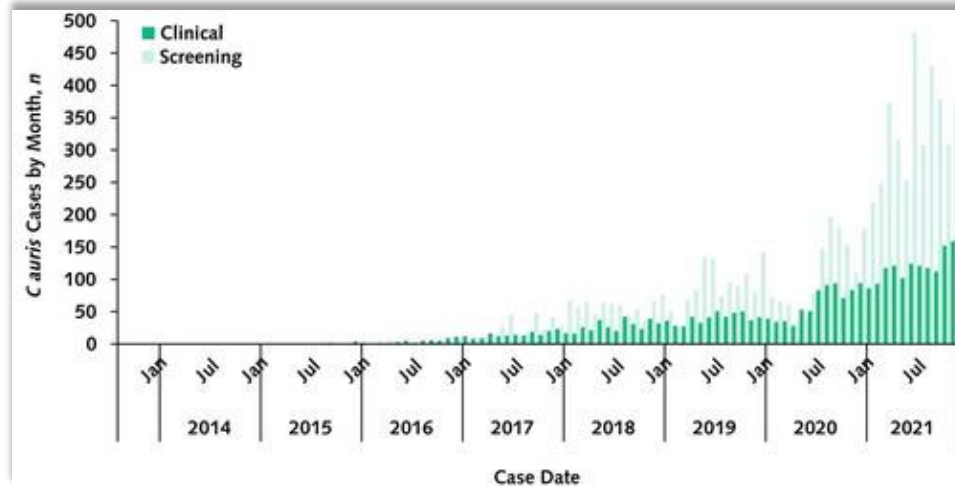
ECDC Antimicrobial resistance surveillance in Europe 2023 – 2021 data

FIGURE 1

Acinetobacter species bloodstream infections reported by laboratories that continuously reported data to EARS-Net, by carbapenem susceptibility testing result and type of patient ward, EU/EEA, 2017–2021 (n = 16,626)



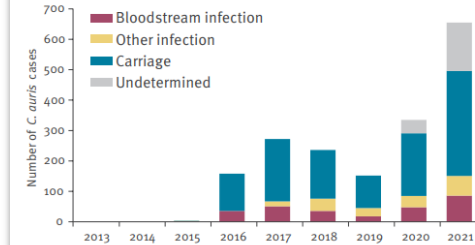
Candida auris: Increasing detection worldwide, example USA/EU



USA - Ann Intern Med.2023;176:489-495

FIGURE 1

Reported cases of *Candida auris* infection or carriage, EU/EEA, 2013–2021 (n = 1,812)^a

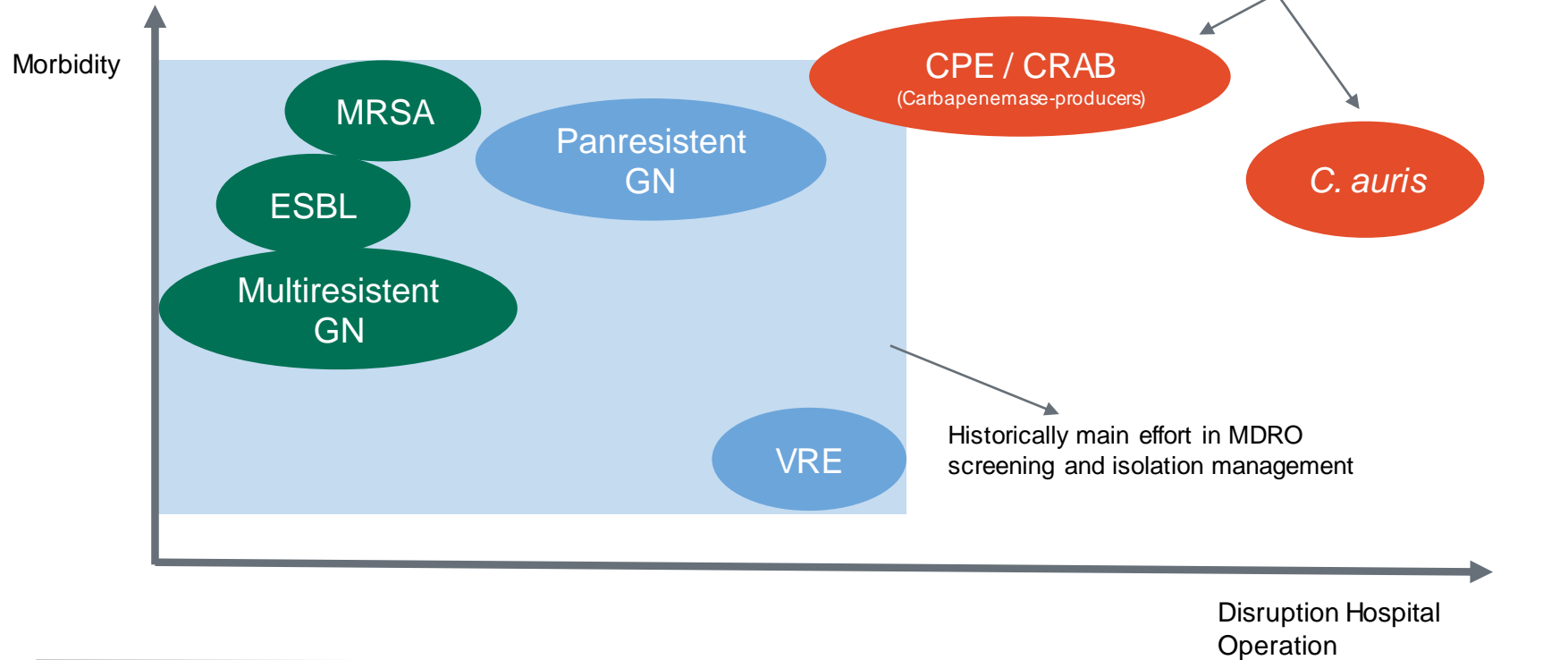


EEA: European Economic Area; EU: European Union.

^a Data reported by the United Kingdom until 2019 were excluded to ensure comparability over time by including the same set of countries. For this reason, the absolute case numbers differ from the number of cases reported for 2013–2019 in previous reports [1,2].

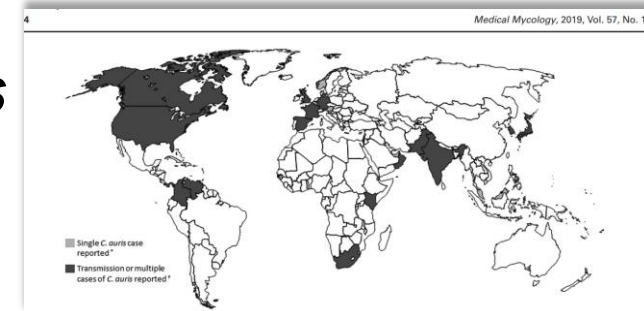
Euro Surveill. 2022;27(46):pii=2200846.
doi.org/10.2807/1560-7917.ES.2022.27.46.2200846

MDRO – Varying impact



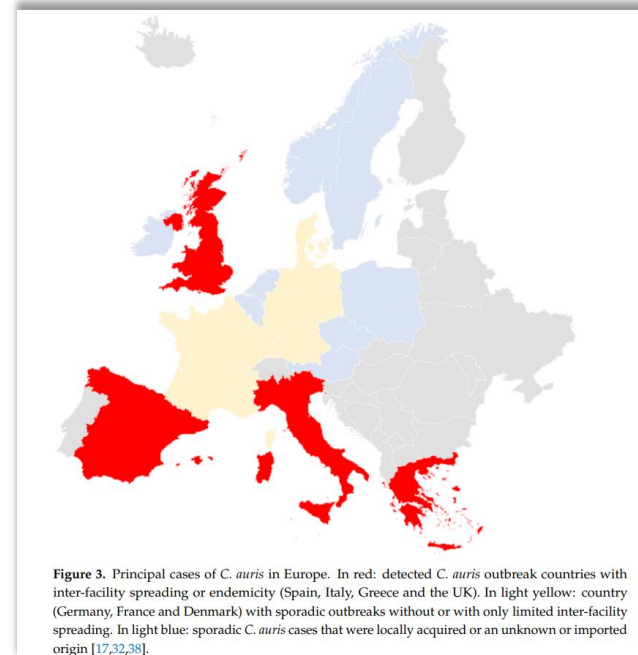
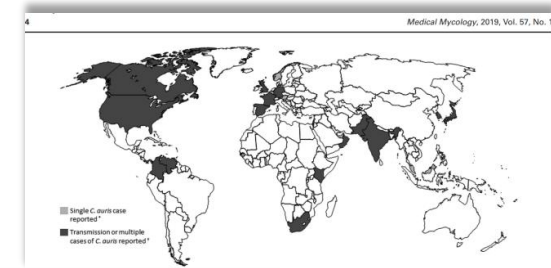
1. Adaption to emergence of *C. auris*

- 2022 + admission screening for all hospital stays in Italy



1. Adaption to emergence of *C. auris*

- 2023 (*planned*) + **admission screening** for all hospital stays in Spain / Greece



Candida auris as an Emergent Public Health Problem: A Current Update on European Outbreaks and Cases. Healthcare 2023, 11, 425.

doi.org/10.3390/healthcare11030425

Figure 3. Principal cases of *C. auris* in Europe. In red: detected *C. auris* outbreak countries with inter-facility spreading or endemicity (Spain, Italy, Greece and the UK). In light yellow: country (Germany, France and Denmark) with sporadic outbreaks without or with only limited inter-facility spreading. In light blue: sporadic *C. auris* cases that were locally acquired or an unknown or imported origin [17,32,38].

2. Screening for CRAB: Location?

Table 1. CRAB Screening Yield Among 201 Patients Positive for CRAB by Body Site

Body Site	No. Sampled	No. Positive	Yield, % (95% CI)
Buccal mucosa	136	85	62.5 (54–71)
Tracheal aspirate	110	54	49.1 (39–59)
Skin	197	181	91.9 (87–95)
Rectum	169	80	47.3 (40–55)
Buccal mucosa + skin	136	135	99.3 (96–100)
Buccal mucosa + rectum	107	74	69.2 (59–78)
Skin + rectum	165	159	96.4 (92–99)
Sputum + rectum	99	62	62.6 (52–72)
Sputum + skin	106	101	95.3 (89–98)

Note. CRAB, carbapenem-resistant *A. baumannii*; CI, confidence interval.



**Rectal swab:
Yield of just
47%**

+skin: 96%

2. Screening for CRAB: Location?

**Rectal swab:
Yield of just
47%**

+skin: 96%

Collection method	Site	No. of patients	% sensitivity	
			1 hr	24 hr
Sponge	Forehead	21	19.0	71.4
	Upper arm	21	33.3	81.0
	Thigh	21	23.8	85.7
Swab	Forehead	21	4.8	28.6
	Nostrils	21	42.9	47.6
	Buccal mucosa	21	61.9	71.4
	Antecubital fossa	21	0	28.6
	Axilla	21	23.8	38.1
	Groin	21	14.3	42.9
	Toe web	20	15.0	20.0

Sponges best,

if not available **addition of groin swab**
second best choice

JOURNAL OF CLINICAL MICROBIOLOGY, Jan. 2011, p. 154–158
0095-1137/11/\$12.00 doi:10.1128/JCM.01043-10
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Screening for *Acinetobacter baumannii* Colonization by Use of Sponges⁷

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3. Sentinella screening ICU

Experience of «**silent outbreak**» with VRE (typical for VRE and CRAB)

Rationale: Detection of MDRO before potential (silent) spread over several units

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3. Sentinella screening ICU

No extensive literature on effectiveness, but implemented some hospitals as biweekly or monthly screening.

- **2023 Implemented in ICU**, no experience / yield to report yet

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MDRO Screening in real life

Swissnoso guideline good base for clinical risk approach

Carba: Rectal swabs are «optimized» vor CPE, consider adding groin swab to increase sensitivity for CRAB detection

Adapt to emergence of MDRO, screen literature regularly (or associate to university center)

Sentinella screening ICU?

Vielen Dank für die Aufmerksamkeit.

