WETENSCHAPPELIJK INSTITUUT VOLKSGEZONDHEID
INSTITUT SCIENTIFIQUE DE SANTÉ PUBLIQUE

SURVEILLANCE BLOODSTREAM INFECTIONS in HOSPITAL ('SEP')

Revisions PROTOCOL & TOOL

SEP Workgroup meeting
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Changes in protocol

Proposed changes (1/5)
MBI-LCBI

- Insertion of ‘mucosal barrier injury lab-confirmed bloodstream infection’ (MBI-LCBI - CDC 2013, Quebec 2014)

- What?
  - Hematology, oncology, stem cell transplant patients
  - chemotherapy, or graft-versus host disease, may compromise the mucosal barriers => translocation gastrointestinal flora into bloodstream
  - Often CVC and no other source of infection identified =>central line associated bloodstream infection (CLABSI)
  - BUT, no impact of prevention measures

ICHE 2015 Feb;36(2): 71% of CLABSI in 2 onco units=MBI-LCBI, no significant impact on incidences

Definition MBI-LCBI (CDC2013-Quebec 2014)

- ≥1 blood culture (BC) with pathogen from intestinal flora* **OR** ≥2 BC with only viridans group streptococci

AND, at least 1 of following:

- Neutropenia (2 d <500 cells/mm^3)
- **OR** allogenic stem cell transplant (past 1y) with 1 of following:
  - a/ graft versus host disease (Grade III, IV)
  - b/ ≥1 l diarrhoea/24h (within 7 d before BC+)

**Bacteroides spp., Candida spp., Clostridium spp., Enterococcus spp., Fusobacterium spp., Peptostreptococcus spp., Prevotella spp., Veillonella spp.,* Enterobacteriaceae

Decision MBI-LCBI

	Workload	Usefulness national	Usefulness local
Addition MBI-LCBI	+	+/- ('CLABSI')	+

	Yes	No
Include?		
Optional?		
Integrate under 'digestive/abdominal'?		
Add as separate origin?		

MBI-LCBI

2.2 Porte d'entrée[12] suspectée de la septicémie

O CVC[13]	O Cathéter périphérique	O Autre cathéter, et assimilé[14]	O Manipulation invasive non-chirurgicale	O Inconnue
O Tractus urinaire	*si oui : patient sondé, ou ayant été sondé dans les 7 jours précédents*			*O Non* *O Oui* *O Inconnu*
O Pleuro-pulmonaire	*si oui : patient intubé, ou trachéotomisé*			
O Digestive / abdominale	**MBI-LCBI**	O Site opératoire *(inf. profonde ou organe ou espace)*	O Peau-tissus mous	O Autre
Porte d'entrée avec documentation microbiologique[15]			*O Non* *O Oui* *O Inconnu*	
CVC présent dans les 2 jours avant l'infection			*O Non* *O Oui* *O Inconnu*	

Under 'Digestive/abdominal'

OR

ADD as NEW suspected origin 'MBI-LCBI'

Proposed changes: **AMR** (2/5)

- **Antimicrobial resistance (AMR): current markers**
  - no changes in 'tracer phenotypes' (ECDC-PPS v4.3-2012, HAIICU v1.02, 2015)

	AB1	SIRU1	AB2	SIRU2	AB3	SIRU3	AB4	SIRU4
Staphylococcus aureus	**OXA**		**GLY**					
Enterococcus spp	AMP		**GLY**					
Enterobacteriaceae (E.coli, Klebsiella, Proteus, Serratia, Enterobacter, Citrobacter etc)	AMC		**C3G**		ESBL		**CAR**	
	AMC		**C3G**		ESBL		**CAR**	
Pseudomonas. aeruginosa	PIP		CAZ		**CAR**		COL	
Acinetobacter spp	**CAR**		COL		SUL			

En grisé: données requises (liste minimale); autres: optionnelles.

SIRU: S: sensible. I: intermédiaire R : résistant. U : inconnue
Codes antibiotiques : AMC: amoxicillin/clavulanate, AMP: ampicilline C3G: cephalosporin 3e generation (cefotaxim/ceftriaxone/ceftazidim), CAR = carbapenems (imipenem, meropenem, doripenem) CAZ: ceftazidim, COL: colistine, GLY : glycopeptides (vancomycin, teicoplanin ; Gly-R : VRE, ou VRSA). OXA : oxacilline. (Oxa-S : MSSA, OXA-R : MRSA), SUL: sulbactam, PIP: piperacillin/ticarcillin avec ou sans inhibiteur d'enzyme. ESBL: Extended Spectrum Beta-lactamase producing, Y:Yes=R, No=S, U: inconnu

  - Last year discussion on inclusion fluoroquinolones for Enterobacteriacea and CPE?

Antimicrobial resistance: proposed changes

- Suggestion TC-MDRO 26/03 (Prof. Glupzinsky*)
  - Align markers with EARS-net 2012: phenotypes

micro-organism	keep	add	drop
S. aureus	oxa	rifampicin fluoroquinolones linezolid	glycopeptides
Enterococ faecalis /faecium	ampi glycopeptides	Gentamicin high level linezolid (I+R)	
E. coli	amoxy/clavulanic acid nate C3G CAR	fluoroquinolones aminoglycosides	
K. pneumonia	C3G CAR	fluoroquinolones aminoglycosides	amoxy/clavulanic acid
Pseudomonas aeruginosa	piperacillin ceftazidime CAR	fluoroquinolones aminoglycosides	colistin
Acinobacter spp	CAR	doripenem fluoroquinolones aminoglycosides	colistin

ESBL and CPE optional

* national reference laboratory for Gram-negative MDRO, C3G: 3d generation cephalosporin, CAR: carbapenem, ESBL: extended spectrum ß lactamase, CPE: carbapenemase-producing Enterobacteriaceae

EARS-net & SEP surveillance

	EARS-net	SEP surveillance
Origin cultures	CSF+ BC	BC
Type infections	Health care associated + community	Hospital acquired (community optional)
Indicators	Proportions resistance (%)	Proportions resistance (%) Incidence

ADDING markers EARS-net to SEP surveillance

+ differentiate resistance in hospital acquired infections (community optional in SEP surveillance)

- workload for hospitals & duplication

EARS-Net: European Antimicrobial Resistance Surveillance network;
CSF: cerebrospinal fluid, BC: blood culture

Antimicrobial resistance

	Usefulness for SEP surveillance objectives	
	Local	**National**
Complete antibiogram	None	No
Current pre-specified markers	None	Yes
EARS-net markers	None	Added value if data already available through EARS-net?

AMR phenotypes in SEP surveillance - decisions:

- Keep existing AMR phenotype markers?
  - As it is?
  - Other changes ?
    - Add: CPE: optional?
    - Other?

- Adjust to EARS-net?
  - If yes: additions (including required vs optional)

Proposed changes (3/5)

Denominator data: estimation CLD via sampling

Central line days (CLD, SEP surveillance data, year 2014):

- 4 at hospital level
- 25 at ICU level

Time consuming +++

ESTIMATION CLD via sampling	CDC CLABSI protocol, 2015
Service/ speciality	ICU, step-down unit, wards
Sampling strategy	1x/week (random, but same day)

CLD: central line days; CLABSI: Central line associated bloodstream infection; ICU: intensive care unit

What's next?
Estimation of CLD via sampling

- Integration in the protocol :
  - Only ICU

- Consult Healthdata.be to facilitate this in tool

Proposed changes (4/5)
Denominator data: at ward level

Denominator data for non-ICU wards:
- Currently optional: patientdays, admissions, CVC-days
- Usefulness?

	What for?	Objective?	Usefulness
patient days	Denominator for incidence	Monitor outcome	No, absolute number sufficient
CVC-days	Device utilization ratio (DUR= patient days/CVC-days)	Monitor process	Yes

Proposed changes (5/5)
Process indicators & audit

Process indicator CLABSI:

- Quality indicator project 2013:
  - 1/3 hospitals report performing audit of central line processes

- Is there a need for ‘audit module?
  - Comparable with HH module, but
  - process indicator CVC procedures at insertion and maintenance (compliance with guidelines)
  - Optional
- If yes, is it the role of WIV-ISP to conceptualize this module?

Vision: surveillance as a tool for CLABSI prevention at *local level:* process indicators

Short term:

- Develop tool for monitoring CVC exposure

Long term:

- Develop checklist for good practice around CVC procedures (can be used by professionals)
- Develop tool for monitoring compliance with good practice guideline
  - (1) CVC insertion
  - (2) CVC maintenance

Identification du patient
Etiquette du patient ou
Nom, prénom, date de naissance

CHECK-LIST
« POSE D'UN CATHETER VEINEUX CENTRAL (CVC) OU AUTRE DISPOSITIF VASCULAIRE (DV) »

HAS
HAUTE AUTORITÉ DE SANTÉ

Identité visuelle
de l'établissement

Date : .....
Lieu et mise en place : .....
.....
URGENCE ❑ Oui ❑ Non

OPÉRATEUR
Nom : .....
Si junior, encadré par : .....
Check-list renseignée par : .....

TYPE DE MATÉRIEL
CVC ❑ CVC bioactif ❑
CVC tunnelisé ❑ Chambre implantable ❑
CVC Dialyse ❑ Autres (PICC, etc.) ❑

VOIE D'ABORD VASCULAIRE
Autres renseignements utiles

AVANT LA MISE EN PLACE

- Identité du patient vérifiée ❑ Oui ❑ Non
- Patient / famille informé ❑ Oui ❑ Non
- ***ÉVALUATION DES RISQUES*** ❑ Oui ❑ Non
  Risque hémorragique, allergie, contre-indications anatomique ou pathologique
- Choix argumenté du site d'insertion ❑ Oui ❑ Non
- Choix concerté du matériel ❑ Oui ❑ Non
- Préparation cutanée appropriée ❑ Oui ❑ Non
- Monitorage approprié ❑ Oui ❑ Non
- Vérification du matériel ❑ Oui ❑ Non
  Date de péremption, intégrité de l'emballage
- Échographie ❑ Oui ❑ Non

PENDANT LA MISE EN PLACE

- ***PROCÉDURES D'HYGIÈNE***
  - Détersion/désinfection avec antiseptique alcoolique ❑ Oui ❑ Non
  - Conditions d'asepsie chirurgicale ❑ Oui ❑ Non
- Vérifications per opératoires des matériels
  - Mécanique
    - Solidité des connexions ❑ Oui ❑ Non
  - Positionnelle
    - Extrémité du cathéter ❑ Oui ❑ Non
  - ***FONCTIONNELLE***
    - Reflux sanguin ❑ Oui ❑ Non
    - Système perméable ❑ Oui ❑ Non
- Vérification de la fixation du dispositif ❑ Oui ❑ Non
- Pose d'un pansement occlusif ❑ Oui ❑ Non
- Si utilisation différée, fermeture du dispositif
  - En accord avec la procédure locale ❑ Oui ❑ Non

APRÈS LA MISE EN PLACE

- ***CONTRÔLE CVC / DV***
  - Position du CVC vérifiée ❑ Oui ❑ Non
  - Recherche de complication ❑ Oui ❑ Non
- ***TRAÇABILITÉ / COMPTE RENDU*** ❑ Oui ❑ Non
  Matériel, technique, nombre de ponctions, incident
- Prescriptions pour le suivi après pose ❑ Oui ❑ Non
- Documents remis au patient ❑ Oui ❑ Non

COMMENTAIRE *(en cas de réponse négative)*

http://www.has-sante.fr/portail/jcms/c_1020563/fr/check-list-catheters-veineux-centraux

Based on 2011 CDC guideline for prevention of intravascular catheter-associated bloodstream infections: http://www.cdc.gov/hicpac/pdf/guidelines/bsi-guidelines-2011.pdf

For Clinicians:

Promptly remove unnecessary central lines

- ☐ Perform daily audits to assess whether each central line is still needed

Follow proper insertion practices

- ☐ Perform hand hygiene before insertion
- ☐ Adhere to aseptic technique
- ☐ Use maximal sterile barrier precautions (i.e., mask, cap, gown, sterile gloves, and sterile full-body drape)
- ☐ Perform skin antisepsis with >0.5% chlorhexidine with alcohol
- ☐ Choose the best site to minimize infections and mechanical complications
  - Avoid femoral site in adult patients
- ☐ Cover the site with sterile gauze or sterile, transparent, semipermeable dressings

http://www.cdc.gov/HAI/pdfs/bsi/checklist-for-CLABSI.pdf

DISCUSSIONS & DECISIONS

Decision 1: MBI-LCBI

	Yes	No
Include?		
Optional?		
Integrate under ‘digestive/abdominal’?		
Add as separate origin ‘MBI-LCBI’?		

Decision 2: antimicrobial resistance-choice markers phenotypes

	Yes	No
Do we keep existing AMR phenotypes?		
If yes, do we add CPE (optional)?		
Other changes?		
Do we adjust to EARS-net ?		
If yes compulsory versus optional?		

Decision denominators at ward level and inclusion process indicators

	Yes	No
Drop denominator ward?		
Is there need for "audit module"? (process indicators for monitoring compliance with CVC guidelines)		
Is it role of WIV-ISP to conceptualize "audit module"?		

Web platform:
Data collection
Feedback

Update web platform

Migration to Health data (2016)

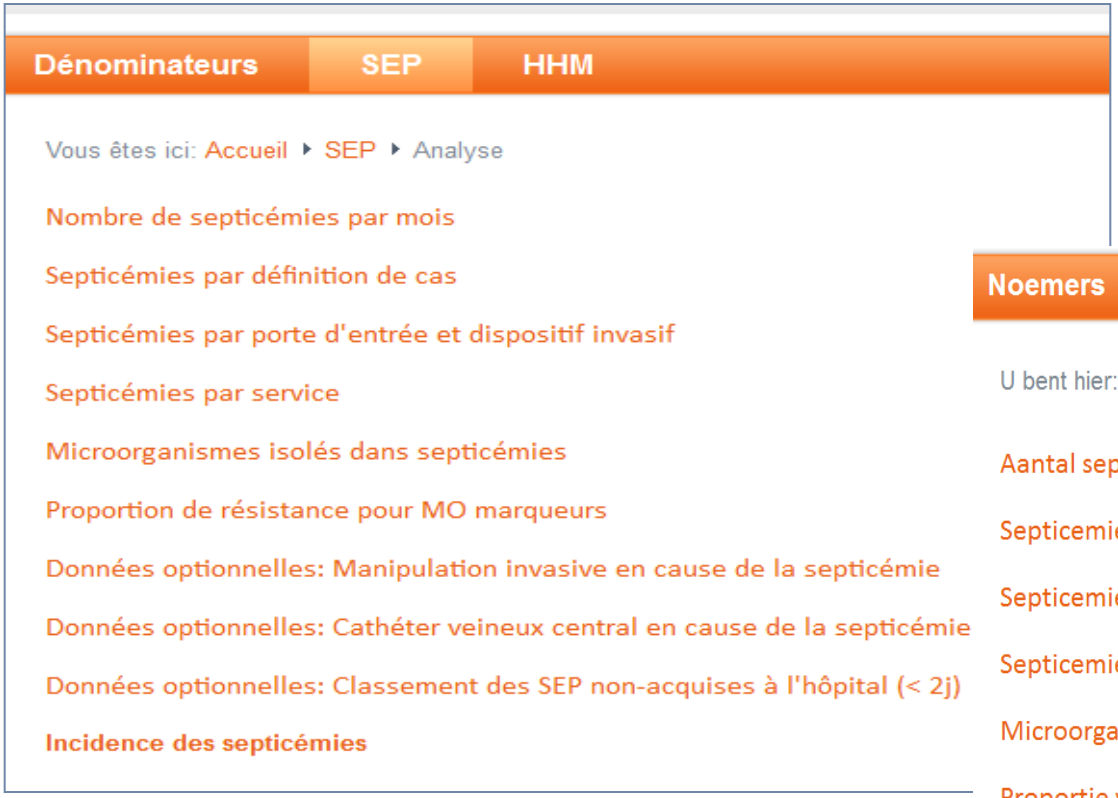
We have a dream…

- User friendly
- More flexible
- No duplications (denominators!!!)

Meanwhile: only minor changes to NSIHweb2

Data collection tool : feedback

Current options under ‘analysis’



+ annual trends in incidence

Analysis for measurement prevention: your suggestions for future feedback in healthdata.be

- What is useful for **monitoring local actions**?

	Yes	No
SEP/month (hospital / service level?)?		
Origin and association with devices?		
Wards to target?		
Causal microorganism?		
Resistance profile?		
Trends in incidence (hospital / service level?)		
Other?		

- What is useful in **real time**?
  - SEP/ month at hospital / service level?
  - Other?

What’s next?

What's next? (1)

- Publish annual report in July
  - **English** with detailed summary in Dutch and French
- Update protocol (~ICT/healthdata.be)
- Start revision data collection tool with healthdata.be

What's next? (2)

Write descriptive article for CLABSI special Noso-Info (July 2015)

Exploitation of RHM/MZG database for HA-SEP

RHM/MZG: résumé hospitalier minimal/ minimale ziekenhuisgegevens

Work in progress!

Many thank for your contributions!