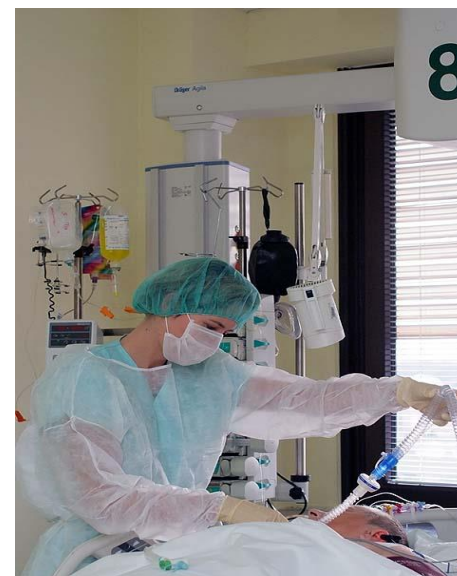


Novinky v evropské incidenční surveillance HAI-Net

Vlastimil Jindrák

Národní referenční centrum pro infekce spojené se zdravotní péčí
Státní zdravotní ústav



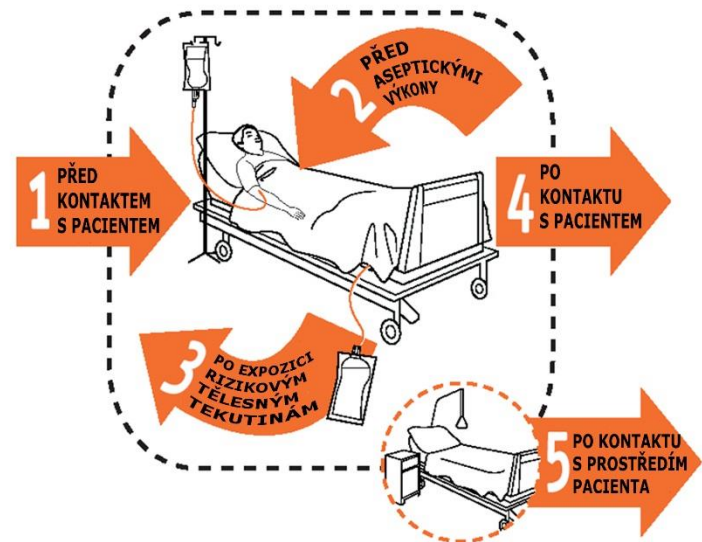
World Hand Hygiene Day – 5.5. 2015

Světový den hygieny rukou...

„Save lives, clean your hands“

„Chraňme životy čistýma rukama“

5 základních situací pro HYGIENU RUKOU



HYGIENA RUKOU - nákladově nejefektivnější postup v prevenci infekcí

Zpracováno podle materiálů WHO - www.who.int

ECDC: Relevantní informační zdroje ARHAI programu

online resources for prevention and control of AMR and HAI



Portal Home > English > Health Topics > Healthcare-associated infections > Directory: Guidance on prevention and control

Directory of online resources for prevention and control of antimicrobial resistance and healthcare-associated infections

The directory lists guidance on prevention and control of antimicrobial resistance and healthcare-associated infections, which are available online. They were published by ECDC, EU/EEA Member States, international and national agencies and professional societies to support healthcare professionals, hospital administrators and public health professionals.

ECDC welcomes suggestions and further information on existing guidance. Comments can be provided to: arhai@ecdc.europa.eu.

Carbapenem-resistant *Enterobacteriaceae* (CRE) Directory



Meticillin-resistant *Staphylococcus aureus* (MRSA) Directory



Clostridium difficile infection (CDI) Directory



Organisation of infection prevention and control Directory



Evropská surveillance organizovaná ECDC (ARHAI program) začlenění Evropské sítě surveillance CDI (ECDIS-Net)

ARHAI program:

EARS-Net: European antimicrobial resistance surveillance network

ESAC-Net: European antimicrobial consumption surveillance network

HAI-Net: European HAI surveillance network

PPS (point prevalence surveys)

SSI component (surgical site infections)

ICU component (intensive care units)

HALT (long term care facilities)

ECDIS-Net: European *Clostridium difficile* infection surveillance network



HAI-Net incidence surveillance - ICU component

nový protokol pro pilotní studii 2015

ECDC TECHNICAL DOCUMENT

Surveillance of healthcare-associated infections and prevention indicators in European intensive care units

HAI-Net ICU protocol, version 2.0 (pilot study)

The current HAI-Net ICU protocol v2.0 is the pilot study version of the new HAI-Net ICU protocol and is not published as a standalone document. An updated version of the current protocol will be published after the pilot study which ends on 30 September 2015.



HAI-Net incidence surveillance - ICU component

nový protokol pro pilotní studii 2015 – výsledkové indikátory

Indicator	Definition	Light	Standard
Bloodstream infection			
Incidence density of healthcare-associated bloodstream infection in the ICU	# BSI (of all origin) >D2*1000/n of patient-days	X	X
Pathogen-specific bloodstream infection incidence rate	# BSI (of all origin, by pathogen) >D2*1000/n of patient-days	X	X
Standardised bloodstream infection ratio	Observed n of patients with BSI/Expected n of patients with bloodstream infection	-	X
Stratification of device-adjusted infection rates	Infection rates by ICU type	X	X
	Infection rates by risk factors	-	X
Pneumonia			
Incidence density of healthcare-associated pneumonia (clinical + microbiologically confirmed) in the ICU	# pneumonia (of all origin) >D2*1000/n of patient-days	X	X
% microbiologically confirmed pneumonia	# PN with microbiologically documentation by semi-quantitative (BAL,PB...) or quantitative culture of endotracheal aspirate/total PN	X	X
Pathogen-specific pneumonia incidence rate	# pneumonia (of all origin, by pathogen) >D2*1000/n of patient-days	X	X
Intubator-associated pneumonia rate in the ICU	# device-associated pneumonia*1000/n of intubation days	-	X
Standardised pneumonia ratio	Observed n of patients with pneumonia/Expected n of patients with pneumonia	-	X
Stratification of infection rates	Infection rates by ICU-type	X	X
	Infection rates by risk factors	-	X



HAI-Net incidence surveillance - ICU component

nový protokol pro pilotní studii 2015 – výsledkové indikátory - pokračování

Indicator	Definition	Light	Standard
Urinary tract infections			
Incidence density of healthcare-associated UTI in the ICU	# UTI >D2*1000/n of patient-days	X	X
Pathogen-specific UTI incidence rate	# UTI (of all origin, by pathogen) >D2*1000/n of patient-days	X	X
Catheter-associated UTI rate in the ICU	# device-associated UTI*1000/n of urinary catheter days	-	X
Stratification of infection rates	Infection rates by risk factors	X	X
Catheter Infections			
Incidence density of catheter infections in the ICU	# catheter-associated infections*1000/n of central line days (catheter-total)	-	X
Antimicrobial use in the ICU			
Antimicrobial treatment utilisation rate	N of antibiotic treatment days/N of patient-days	-	X
Ratio documented treatment/empiric treatment	N of documented AB treatment days/N of empiric AB treatment days	-	X
Stratified AM use	N of antibiotic treatment days/N of patient-days by risk factors	-	X
Device use in the ICU			
Central line utilisation rate	N of central line days/N of patient-days	-	X
Intubation utilisation rate	N of days with intubation/N of patient-days	-	X
Urinary catheter utilisation rate	N of urinary catheter days/N of patient-days	-	X



HAI-Net incidence surveillance - ICU component

nový protokol pro pilotní studii 2015 – strukturální a procesní indikátory

Hand hygiene: Consumption of alcohol-based hand rub solution

Definition

Number of liters of alcohol-based hand rub consumed during the previous year x 1000 / number of patient-days in the ICU during the previous year

ICU staffing: staff to patient ratio

Definition

Sum of the number of registered nurse hours and number of nursing assistant hours in the ICU over a period of 7 days * 100 / number of patient-days in 7 days * 24 hours

Antimicrobial stewardship: Re-assess antimicrobial therapy after 48-72 hours

Definition

Number of antimicrobial therapies that were started more than 3 days ago and were re-assessed within 72 hours after start of the antimicrobial * 100 / Total number of audited antimicrobial therapies that were started more than 3 days ago



HAI-Net incidence surveillance - ICU component

nový protokol pro pilotní studii 2015 – strukturální a procesní indikátory

Intubation: Cuff pressure

Definition

Number of intubation days (days of patients with intubation) during which the endotracheal cuff pressure was verified and maintained between 20 and 30 cm H₂O (and documented in the patient file) at least twice per day * 100 / total number of observed intubation days.

Intubation: Oral decontamination

Definition

Number of intubation days (days of patients with intubation) during which oral decontamination with oral antiseptics has been performed (and documented in the patient file) at least twice per day * 100 / total number of observed intubation days.

Intubation: Patient position

Definition

Number of days of patients with intubation during which the patient's position was not supine (= was either prone or recumbent) * 100 / total number of observed intubation days.

CVC: Catheter dressing observation

Definition

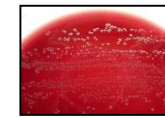
Number of days of patients with a central vascular catheter during which the dressing of the CVC was not loose, damp or visibly soiled * 100 / total number of observed CVC days.



HAI-Net incidence surveillance - ICU component

hodnocení atributivní mortality

- **požadavek Evropské komise motivovaný také politicky**
- **metodicky velmi problematický úkol** (zejména v kontinuálním uspořádání)
- **vznikla pracovní skupina v rámci HAI-Net** (ICU komponenta)



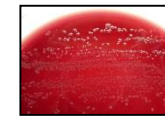
Evropská metodika surveillance CDI

ECDIS-Net: definitivní protokol

ECDC TECHNICAL DOCUMENT

European surveillance of *Clostridium difficile* infections

Surveillance protocol version 2.1

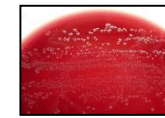


Cíle evropské surveillace CDI

Objectives of CDI surveillance in the EU

The objectives of the surveillance of *C. difficile* infections are:

- to estimate the incidence of *Clostridium difficile* infections in European acute care hospitals;
 - to assess the burden of CDI (including recurrent CDI cases) in European acute care hospitals;
 - to provide participating hospitals with a standardised tool to measure and compare their own incidence rates with those observed in other participating hospitals;
 - to assess adverse outcomes of CDI including death;
 - to describe the epidemiology of *C. difficile* at the local, national and European level, in terms of factors such as antibiotic susceptibility, PCR ribotype, presence of TcdA, TcdB and binary toxin, morbidity and mortality of infection, and the detection of new/emerging types.
-
- odhad **incidence** CDI v evropských nemocnicích
 - určení **zátěže** CDI pro evropské nemocnice
 - **standardizované lokální sledování** a mezinemocniční porovnávání
 - hodnocení **důsledků** CDI včetně **mortality**
 - **epidemiologická charakteristika** CDI (lokální, národní a evropská úroveň)



Evropská metodika surveillance CDI

definice případu

Definition of *Clostridium difficile* infection (CDI)

A case of *Clostridium difficile* infection (previously also referred to as *Clostridium difficile* associated diarrhoea, or CDAD) must meet **at least one** of the following criteria [1]:

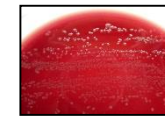
- diarrhoeal stools or toxic megacolon AND a positive laboratory assay for *C. difficile* toxin A and/or B in stools or a toxin-producing *C. difficile* organism detected in stool via culture or other means e.g. a positive PCR result; AND/OR
- pseudomembranous colitis revealed by lower gastro-intestinal endoscopy; AND/OR
- colonic histopathology characteristic of *C. difficile* infection (with or without diarrhoea) on a specimen obtained during endoscopy, colectomy or autopsy.

Recurrent CDI cases

In clinical practice, it is not possible to differentiate between a relapse involving the same strain and re-infection with a different strain. The term 'recurrence' is used as a designation for both.

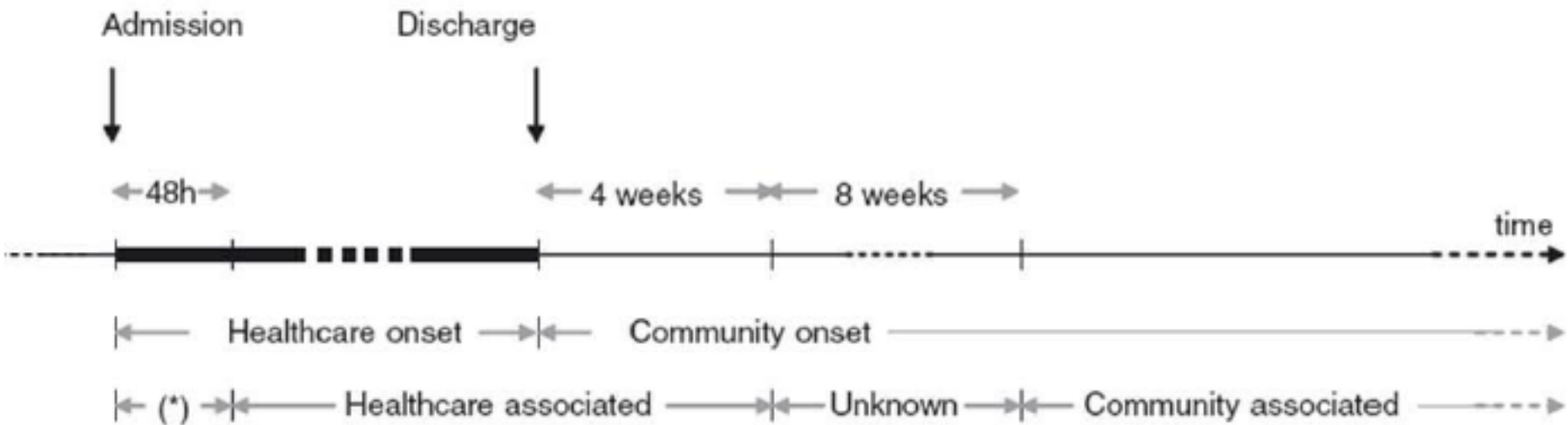
Recurrent CDI cases are patients meeting the CDI case definition with an episode of CDI (return of diarrhoeal stools with a positive laboratory test after the end of treatment) >2 weeks and ≤8 weeks following the onset of a previous episode.

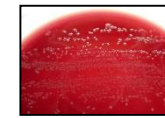
Note: CDI cases with symptom onset >8 weeks after the onset of a previous episode are included as new CDI cases.



Evropská metodika surveillance CDI

původ případů (epidemiologická klasifikace)

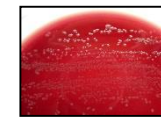




Evropská metodika surveillance CDI

uspořádání a rozsah

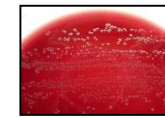
- **modulární uspořádání** (minimal, light, enhanced protocol)
- **celonemocniční zaměření** (lůžková, ambulantní i dlouhodobá péče)
- **kontinuální** (celoroční) nebo **periodická surveillance** (4. nebo 1 čtvrtletí)
- **nozokomiální, komunitní a neurčené případy**
- **hodnocení důsledků** (mortalita)



Evropská metodika surveillance CDI

moduly a jejich protokoly

	Minimal Protocol	Light Protocol	Enhanced Protocol	Form
Collected information	<ul style="list-style-type: none"> • Minimum CDI surveillance (aggregated numerator data) • Aggregated hospital data for each hospital (denominator data) 	<ul style="list-style-type: none"> • Minimum CDI surveillance (aggregated numerator data) • Aggregated hospital data for each hospital (denominator data) 	<ul style="list-style-type: none"> • Minimum CDI surveillance (aggregated numerator data) • Aggregated hospital data for each hospital (denominator data) 	<ul style="list-style-type: none"> • Form H (aggregated numerator data)
		<ul style="list-style-type: none"> • Information on each CDI case (numerator data) 	<ul style="list-style-type: none"> • Information on each CDI case (numerator data) 	<ul style="list-style-type: none"> • Form C (case-based numerator data)
			<ul style="list-style-type: none"> • Additional cases data (enhanced numerator data) • Microbiological data (strain typing, characterisation and susceptibility testing for the first 10 consecutively detected cases in each participating healthcare facility) 	<ul style="list-style-type: none"> • Form E (one form for each case and <i>C. difficile</i> strain) • Form M (one form for each strain)



Predikce počtu případů CDI – ECDIS-Net

predikce uvedená v protokolu ECDIS-Net a ve výstupech PPS 2012

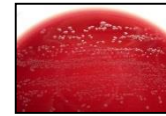
studie ECDC 2005 (incidence / 10 000 o.d. a nemocnici): **2,45** (0,13-7.1)

studie ECDC 2008 (incidence / 10 000 o.d. a nemocnici): **4,10** (0,0-36.3)

nemocnice s 300 lůžky má průměrně 7 případů CDI za čtvrtletí (28 za rok)

souhrnné výsledky PPS 2012:

	All HAIs, Number	All HAIs, %	Pneumonia/ Lower respiratory tract	Surgical site infections	Urinary tract infections	Bloodstream infections	Gastro- intestinal tract infections
Anaerobic bacilli	658	6.5	0.1	2.5	0.0	1.2	62.3
<i>Bacteroides</i> spp.	46	0.5	0.1	1.1	0.0	0.7	0.3
<i>Clostridium difficile</i>	548	5.4	0.0	0.1	0.0	0.0	61.3



Predikce počtu případů v ČR - EPIDAT

pasivní hlášení

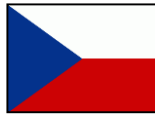
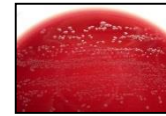
administrativní hlášení případů orgánům ochrany veřejného zdraví

- **chybí definice případů**
- **chybí metodika a standardní protokol**
- **chybí vazba na nemocnice** (registrace podle bydliště pacienta)
- **chybí klasifikace případů** (komunitní, nozokomiální)
- **chybí denominátory** (pouze registrace absolutních počtů)
- **výstupy nelze spolehlivě interpretovat, hodnotit ani využívat**

Data 2014:	kampylobakteriózy	20 902 případů
	salmonelózy	13 633 případů
	CDI (neoficiálně)	4-5tis. případů

Predikce případů CDI v ČR za rok

cca 8 - 10 000?



Surveillance CDI v České republice

koordinace systému a implementace evropského protokolu

Epidemiologická agenda surveillance

Laboratorní metody a typizace

CEM-SZÚ (NRC-HAI)

ÚLM FN v Motole (NRL)

- **studie proveditelnosti** 4. čtvrtletí 2015 (vybraná pracoviště)
- **pilotní surveillance** 1. čtvrtletí 2016 (připravená pracoviště)
- **rutinní surveillance** v průběhu 2016 (plošně minimální modul)

Technické zajištění evropské surveillace HAI a CDI informační technologie

IT aplikace HELICSwin.NET:

- **freeware** (poskytuje zdarma ECDC, možnost překladu do národních jazyků)
- **použití na lokální i národní úrovni** (pořizování i vyhodnocování dat)
- **kompatibilita s TESSy databází** (snadný reporting do ECDC)
- **integrace komponent HAI-Net** (PPS, ICU, SSI) a **ECDIS-Net**