

# HAI AND ANTIMICROBIAL USE IN LONG-TERM CARE FACILITIES: KICK-OFF MEETING HALT-2 PROJECT

## RESIDENT QUESTIONNAIRE



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# METHODOLOGY

- **A resident questionnaire for each resident:**
  - Presenting signs/symptoms of an infection on the day of the PPS
    - Not already present or in incubation at (re)admission
    - Acute or worsening, unrelated to non-infectious cause



## AND/OR

- On antimicrobials on the day of the PPS
  - All oral, rectal, IM and IV treatments with
    - Antibacterials and antimycotics for systemic use
    - Drugs for treatment of tuberculosis
  - Antibiotic treatment by inhalation
  - Exclusion: antivirals, antimicrobials for topical use, antiseptics

# RESIDENT QUESTIONNAIRE

RESIDENT STUDY NUMBER

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Healthcare associated infections, antimicrobial resistance, antibiotic use and infection control resources in European long term care facilities

**RESIDENT QUESTIONNAIRE**

## RESIDENT DATA

GENDER  Male  Female

BIRTH YEAR     (YYYY)

LENGTH OF STAY IN THE FACILITY  Less than 1 year  1 year or longer

ADMISSION TO A HOSPITAL IN THE LAST 3 MONTHS  Yes  No

SURGERY IN THE PREVIOUS 30 DAYS  Yes  No

**PRESENCE OF:**

- URINARY CATHETER  Yes  No

- VASCULAR CATHETER  Yes  No

- INCONTINENCE (URINARY AND/OR FAECAL)  Yes  No

- WOUNDS

- PRESSURE WOUNDS  Yes  No

- OTHER WOUNDS  Yes  No

- DISORIENTED (in time and/or space)  Yes  No

- MOBILITY  Ambulant  Wheelchair  Bedridden

On the day of the survey, the resident:

- RECEIVES AN ANTIBIOTIC THERAPY → COMPLETE PAGE 2 OF THIS QUESTIONNAIRE
- PRESENTS SIGNS/SYMPTOMS OF AN INFECTION (not present or in incubation at admission) → COMPLETE PAGE 3/4 OF THE QUESTIONNAIRE
- BOTH: AB AND SIGNS/SYMPTOMS OF INFECTION → COMPLETE ALL THESE PAGES

**Important remark:**

We strongly recommend you to write the resident study number on each of following pages (right top of each page), in order to keep data from one single resident together.

## ANTIBIOTIC TREATMENT DATA

	Antibiotic – 1	Antibiotic – 2	Antibiotic – 3	Antibiotic – 4
ANTIBIOTIC NAME (capital letters)	.....	.....	.....	.....
TOTAL PRESCRIBED DAILY DOSE	.....	.....	.....	.....
UNIT	<input type="checkbox"/> gr./ day <input type="checkbox"/> mg./ day <input type="checkbox"/> I.U./ day	<input type="checkbox"/> gr./ day <input type="checkbox"/> mg./ day <input type="checkbox"/> I.U./ day	<input type="checkbox"/> gr./ day <input type="checkbox"/> mg./ day <input type="checkbox"/> I.U./ day	<input type="checkbox"/> gr./ day <input type="checkbox"/> mg./ day <input type="checkbox"/> I.U./ day
ADMINISTRATION ROUTE	<input type="checkbox"/> Oral <input type="checkbox"/> IM or IV <input type="checkbox"/> Inhalation <input type="checkbox"/> Rectal	<input type="checkbox"/> Oral <input type="checkbox"/> IM or IV <input type="checkbox"/> Inhalation <input type="checkbox"/> Rectal	<input type="checkbox"/> Oral <input type="checkbox"/> IM or IV <input type="checkbox"/> Inhalation <input type="checkbox"/> Rectal	<input type="checkbox"/> Oral <input type="checkbox"/> IM or IV <input type="checkbox"/> Inhalation <input type="checkbox"/> Rectal
TYPE OF AB TREATMENT	<input type="checkbox"/> Prophylactic <input type="checkbox"/> Therapeutic	<input type="checkbox"/> Prophylactic <input type="checkbox"/> Therapeutic	<input type="checkbox"/> Prophylactic <input type="checkbox"/> Therapeutic	<input type="checkbox"/> Prophylactic <input type="checkbox"/> Therapeutic
AB THERAPY GIVEN FOR	<input type="checkbox"/> Urinary tract <input type="checkbox"/> Skin or wound <input type="checkbox"/> Respiratory tract <input type="checkbox"/> Gastrointestinal <input type="checkbox"/> Eye <input type="checkbox"/> Ear, nose, mouth <input type="checkbox"/> Systemic infection <input type="checkbox"/> Unexplained fever <input type="checkbox"/> Other	<input type="checkbox"/> Urinary tract <input type="checkbox"/> Skin or wound <input type="checkbox"/> Respiratory tract <input type="checkbox"/> Gastrointestinal <input type="checkbox"/> Eye <input type="checkbox"/> Ear, nose, mouth <input type="checkbox"/> Systemic infection <input type="checkbox"/> Unexplained fever <input type="checkbox"/> Other	<input type="checkbox"/> Urinary tract <input type="checkbox"/> Skin or wound <input type="checkbox"/> Respiratory tract <input type="checkbox"/> Gastrointestinal <input type="checkbox"/> Eye <input type="checkbox"/> Ear, nose, mouth <input type="checkbox"/> Systemic infection <input type="checkbox"/> Unexplained fever <input type="checkbox"/> Other	<input type="checkbox"/> Urinary tract <input type="checkbox"/> Skin or wound <input type="checkbox"/> Respiratory tract <input type="checkbox"/> Gastrointestinal <input type="checkbox"/> Eye <input type="checkbox"/> Ear, nose, mouth <input type="checkbox"/> Systemic infection <input type="checkbox"/> Unexplained fever <input type="checkbox"/> Other
Specific:				
WHERE PRESCRIBED?	<input type="checkbox"/> In this facility <input type="checkbox"/> In the hospital <input type="checkbox"/> Elsewhere	<input type="checkbox"/> In this facility <input type="checkbox"/> In the hospital <input type="checkbox"/> Elsewhere	<input type="checkbox"/> In this facility <input type="checkbox"/> In the hospital <input type="checkbox"/> Elsewhere	<input type="checkbox"/> In this facility <input type="checkbox"/> In the hospital <input type="checkbox"/> Elsewhere
WHO PRESCRIBED?	<input type="checkbox"/> GP <input type="checkbox"/> Specialist <input type="checkbox"/> Pharmacist <input type="checkbox"/> Nurse <input type="checkbox"/> Other	<input type="checkbox"/> GP <input type="checkbox"/> Specialist <input type="checkbox"/> Pharmacist <input type="checkbox"/> Nurse <input type="checkbox"/> Other	<input type="checkbox"/> GP <input type="checkbox"/> Specialist <input type="checkbox"/> Pharmacist <input type="checkbox"/> Nurse <input type="checkbox"/> Other	<input type="checkbox"/> GP <input type="checkbox"/> Specialist <input type="checkbox"/> Pharmacist <input type="checkbox"/> Nurse <input type="checkbox"/> Other
FOR URINE: DIPSTICK BEFORE AB-THERAPY	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes
WAS A CULTURE SAMPLE TAKEN?	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes

## ISOLATED MICROORGANISMS

NAME OF ISOLATED MICROORGANISM (please use code-list)				
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

# RESIDENT QUESTIONNAIRE

RESIDENT STUDY NUMBER

RESIDENT STUDY NUMBER

## SIGNS AND SYMPTOMS OF AN INFECTION

### URINARY TRACT INFECTION

- Fever (> 38°C)
- Chills
- New or increased burning pain on urination
- New or increased frequency on urination
- New or increased urgency on urination
- New flank or suprapubic pain or tenderness
- Change in character of urine (or smell)
- Worsening of mental or functional status (may be a new or increased incontinence)
- Diagnosed by the attending physician

### SKIN INFECTION

#### *Cellulitis/soft tissue/wound infection*

- Pus present at a wound, skin, or soft tissue site
- Fever (> 38°C)
- Worsening of mental or functional status
- New or increasing heat at the affected site
- New or increasing redness at affected site
- New or increasing swelling at affected site
- New or increasing tenderness or pain at the affected site
- New or increasing serous drainage at the affected site
- Diagnosed by the attending physician

- Local antibiotic used for treatment (antibiotic ointment, unguent, etc ...)

#### *Fungal skin infection*

- Maculopapular rash
- Physician diagnosis or laboratory confirmation

#### *Herpes simplex & herpes zoster infection*

- Vesicular rash
- Physician diagnosis or laboratory confirmation

#### *Scabies*

- Maculopapular and/or itching rash
- Physician diagnosis or laboratory confirmation

### RESPIRATORY TRACT INFECTION

#### *Common cold syndromes/pharyngitis*

- Runny nose or sneezing
- Stuffy nose (e.g., congestion)
- Sore throat or hoarseness or difficulty in swallowing
- Dry cough
- Swollen or tender glands in the neck (cervical lymphadenopathy)
- Diagnosed by the attending physician

#### *Influenza-like illness*

- Fever (> 38°C)
- Chills
- New headache or eye pain
- Myalgias
- Malaise or loss of appetite
- Sore throat
- New or increased dry cough
- Diagnosed by the attending physician

#### *Pneumonia/ other lower respiratory tract infections (bronchitis, tracheobronchitis)*

- Interpretation of a chest radiograph as demonstrating "pneumonia", "probable pneumonia", or the presence of an infiltrate. If a previous radiograph exists for comparison, the infiltrate should be new.
- New or increased cough
- New or increased sputum production
- Fever (> 38°C)
- Pleuritic chest pain
- Physical findings on chest examination (rales, rhonchi, wheezes, bronchial breathing)
- Shortness of breath or respiratory rate > 25 per min.
- Worsening mental or functional status

- Pneumonia diagnosed by the attending physician (focus of crepitant rales on chest examination)
- Other lower respiratory tract infection diagnosed by the attending physician

## SIGNS AND SYMPTOMS OF AN INFECTION

### GASTROINTESTINAL TRACT INFECTION

- Diarrhoea: two or more loose or watery stools within a 24-hour period
- Vomiting: two or more episodes of vomiting in a 24-hour period
- A stool culture positive for a pathogen (Salmonella, Shigella, E. coli O157:H7, Campylobacter, Clostridium difficile) and/or a toxin assay positive for C. difficile toxin
- Nausea
- Abdominal pain or tenderness
- Diagnosed by the attending physician

### EYE, EAR, NOSE AND MOUTH INFECTIONS

#### *Conjunctivitis*

- Pus appearing from eyes, present for at least 24 hours
- Conjunctival redness, with or without itching or pain present for at least 24 hours (also known as "pink eye")
- Diagnosed by the attending physician

- Local antibiotic used for treatment (antibiotic drops, ointment, etc ...)

#### *Ear infection*

- New drainage from one or both ears (non purulent drainage must be accompanied by additional symptoms, such as ear pain or redness)
- Diagnosed by the attending physician

#### *Mouth and perioral infection*

- Diagnosed by the attending physician

#### *Sinusitis*

- Diagnosed by the attending physician

### SYSTEMIC INFECTION

#### *Primary bloodstream infection*

- Two or more blood cultures positives for the same organism
- A single blood culture documented with an organism thought not to be a contaminant
- Fever (> 38°C)
- New hypothermia (< 34.5°C)
- A drop in systolic blood pressure of > 30 mmHg from baseline
- Worsening mental or functional status
- Diagnosed by the attending physician

### UNEXPLAINED FEBRILE EPISODE

- The resident must have documentation in the medical record of fever (> 38°C) on two or more occasions at least 12 hours apart in any 3-day period, with no known infectious or non-infectious cause
- Diagnosed by the attending physician

- OTHER**  
*please specify*



# RESIDENT QUESTIONNAIRE

- **Resident data**
- **Antibiotic treatment data**
- **Isolated microorganisms**
- **Signs and symptoms of an infection**

# RESIDENT DATA

## ○ Unchanged

- Gender & birth year
- Length of stay in the LTCF
- Admission to a hospital (last 3 months)
- Care load indicators
  - Incontinence (urinary and/or faecal)
  - Disorientation (in time and/or space)
  - Mobility (ambulant, wheelchair or bedridden)
- Risk factors
  - Urinary & vascular catheter
  - Wounds: pressure sores & other wounds
  - Surgery in the previous 30 days

# ANTIMICROBIAL TREATMENT DATA

## ○ Inclusion

- All oral, rectal, IM and IV treatments with
  - Antibacterials and antimycotics for systemic use
  - Drugs for treatment of tuberculosis
- Antibiotic treatment by inhalation

## ○ Exclusion

- Antivirals, antimicrobials for topical use, antiseptics

Explored in signs/symptom part

Local antibiotic used for treatment  
(antibiotic ointment, unguent, etc ...)

\* Cellulitis / soft tissue / wound infections

\* Conjunctivitis

# ANTIMICROBIAL TREATMENT DATA

- **Total Prescribed Daily Dose**

- **Unit**

- gr/day, mg/day, I.U./day

- ➔ **Until now not used**

- Bad quality of data / often missing
- DDD? Useful for LTCF?

- **Frequency**

- Single antimicrobial treatment (start and end date known)
- Recurrent treatment (fixed intervals?)
- Unknown length of treatment (end date unknown, prolonged = how long?)



# ANTIMICROBIAL TREATMENT DATA

## ○ Administration Route

- Oral
- IM or IV
- Inhalation
- Rectal

## ○ Proposal:

- Oral
- IM
- IV
- Other



# ANTIMICROBIAL TREATMENT DATA

## ○ Type of treatment

- ESAC-NH PPS, HALT pilot PPS (2009)
  - Prophylactic
  - Empirical
  - Documented
- HALT EU-wide PPS (2010)
  - Prophylactic
  - Therapeutic

## ○ Prophylaxis

- To prevent an infection
- To prevent complications of an infection



## ANTIMICROBIAL TREATMENT DATA

### ○ AB therapy given for

- Urinary tract
- Skin or wound                      Including surgical wound infections
- Respiratory tract
- Gastrointestinal
- Eye
- Ear, nose, mouth
- Systemic infection
- Unexplained fever
- Other
- Genital infections ???

# ANTIMICROBIAL TREATMENT DATA

## ○ Where prescribed?

- In the facility
- In the hospital
- Elsewhere

## ○ Who prescribed?

- GP
  - Specialist
  - Pharmacist
- Nurse  
Other

## ○ Was a culture sample taken? (Y/N)

## ○ For urine: dipstick before AB therapy? (Y/N)

# ANTIMICROBIAL RESISTANCE

- Difficult to collect
- List with microorganisms



HALT survey in LONG TERM CARE FACILITIES

## CODE LIST: MICROORGANISMS



CODE	NAME OF THE MICROORGANISM
- A -	
ACHSPP	ACHROMOBACTER SPECIES
ACIBAU	ACINETOBACTER BAUMANNII
<b>ACIMDR</b>	<b>ACINETOBACTER BAUMANNII, CARBAPENEM RESISTANT (<i>imipenem, meropenem</i>)</b>
ACICAL	ACINETOBACTER CALCOACETICUS
ACIHAE	ACINETOBACTER HAEMOLYTICUS
ACILWO	ACINETOBACTER LWOFFI
ACINSP	ACINETOBACTER SPECIES, <i>not specified</i>
ACIOTH	ACINETOBACTER SPECIES, <i>other</i>

- Further research?

# HEALTHCARE ASSOCIATED INFECTIONS

- **LTCF staff not familiar with HAI definitions**
- **Signs and/or symptoms of an infections**
  - Based on McGeer definitions
  - ‘Diagnosed by the attending physician’
  - Modified McGeer criteria
- **Risk of underreporting**
  - Exhaustive reporting!
- **Validation study**