## Supplementary document: Detailed algorithm description

## Predefined algorithms (after framework step 4)

## *Figure 1 a-c schematic overviews of algorithms*

## *(detailed component information provided per type of surgery hereafter)*

A. Algorithm when data on antibiotics is not included B. Algorithm when data on antibiotics is included

**Microbiology**

**Admissions**

**Antibiotics**

**Reinterventions**

1 or 2 components

3 or 4 components

Low SSI probability

High SSI probability

**Microbiology**

**Admissions**

**Reinterventions**

No

Yes

High SSI probability

Low SSI probability

0 components

≥ 1 component

C. Algorithm when data on antibiotics and radiology is included

**Radiology**

**Antibiotics**

**Admissions**

**Reinterventions**

2 or 3 components

4 components

Low SSI probability

High SSI probability

≤ 1 component

**Microbiology**

No

Yes

## *Algorithm Hip/knee arthroplasty*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data availability in hospital** | **Standardized algorithm** | **Applied to hospital** | **Center specific algorithm** | **Applied to hospital** |
| No data on antibiotics | Flowchart A with algorithm components A 1-3 | B, C | Flowchart A with algorithm components B 1-3 | B, C |
| Including data on antibiotics | Flowchart B with algorithm components A 1-4 | A, B | Flowchart B with algorithm components B 1-4 | A, B |

|  |  |  |
| --- | --- | --- |
| **Algorithm components** **orthopedic surgery** | **Standardized algorithm (A)** | **Center-specific algorithm (B)** |
| **1** | **Microbiology**  | ≥1 positive culture or more than 5 samples taken from relevant body sites within follow-up time, excluding cultures taken on any day prior to day 1. | ≥1 positive culture or more than a specified number of samples taken from relevant body sites within follow-up time, excluding cultures taken on any day prior to day 1. |
| **2** | **Admissions** | Length of stay ≥ 14 days or 1 readmission to original department within follow-up time. | Deviations from center-specific regular length of stay or 1 readmission to original department within follow-up time |
| **3** | **Reoperation** | Any reoperation by original surgery specialty within follow-up time | Specific reoperation performed by center in case of SSI suspicion by original specialty within follow-up time |
| **4** | **Antibiotics** | ≥ 14 cumulative days of antibiotics (ATC J01) post-operative, started after day 1, within follow-up time. | Center-specific regimen of antibiotics within follow-up time |

\*) Detailed selection based on criteria defined based information of questionnaire and content of extracted data

## *Algorithm Cardiac surgery*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data availability and anticipated indication for SSI in hospital** | **Standardized algorithm** | **Applied to hospital** | **Center specific algorithm** | **Applied to hospital** |
| No data on antibiotics | Flowchart A with algorithm components A 1-3 | B, C | Flowchart A with algorithm components B 1-3 | B, C |
| Including data on antibiotics | Flowchart B with algorithm components A 1-4 | A, B | Flowchart B with algorithm components B 1-4 | A |
| Including data on antibiotics and radiology |  |  | Flowchart C with algorithm components B 1-5 | B |

|  |  |  |
| --- | --- | --- |
| **Algorithm components** **Cardiac surgery** | **Standardized algorithm (A)** | **Center-specific algorithm (B)** |
| **1** | **Microbiology**  | ≥1 culture taken from relevant body sites\* within follow-up time, excluding cultures taken on any day prior to day 1. | ≥1 positive culture taken from relevant body sites\* within follow-up time, excluding cultures taken on any day prior to day 1. |
| **2** | **Admissions** | Length of stay ≥ 14 days or 1 readmission to original department or in-hospital mortality within follow-up time. | Deviations from center-specific regular length of stay or 1 readmission to original department or in-hospital mortality within follow-up time. |
| **3** | **Reoperation** | Any reoperation by original surgery specialty within FU time | Specific reoperation\* performed by center in case of SSI suspicion by original specialty within follow-up time |
| **4** | **Antibiotics** | >14 cumulative days of antibiotics (ATC J01) post-operative, starting after day 2. | Center-specific regimen of antibiotics within follow-up time. |
| **5**  | **Radiology** | *-- (not included)* | Ordering CT scan, if indicative for SSI in center |

\*) Detailed selection based on criteria defined based information of questionnaire and content of extracted data

## *Algorithm Colon surgery*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data availability and anticipated indication for SSI in hospital** | **Standardized algorithm** | **Applied to hospital** | **Center specific algorithm** | **Applied to hospital** |
| No data on antibiotics | Flowchart A with algorithm components A 1-3 | B, C | Flowchart A with algorithm components B 1-3 | B, C |
| Including data on antibiotics and radiology | Flowchart C with algorithm components B 1-5 | A, B | Flowchart C with algorithm components B 1-5 | A, B |

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Algorithm components** **colon surgery** | **Standardized algorithm (A)** | **Center-specific algorithm (B)** |
|  | **1** | **Microbiology**  | ≥1 culture taken from relevant body sites \* within FU time, excluding cultures taken on any day prior to day 1. | ≥1 positive culture or center-specific criteria for positive cultures\*\*, from relevant body sites\* within follow-up time excluding cultures taken on any day prior to day 1. |
|  | **2** | **Admissions** | Length of stay ≥ 14 days or 1 readmission to original department or in-hospital mortality within FU time. | Deviations from center-specific regular length of stay or 1 readmission to original department or in-hospital mortality within FU time. |
|  | **3** | **Reoperation** | Any reoperation by original surgery specialty within FU time | Specific reoperation\* performed by center in case of SSI suspicion by original specialty within follow-up time |
|  | **4** | **Antibiotics** | >3 consecutive days of antibiotics (ATC J01) post-operative, starting after day 2. | Center-specific antibiotic regimen in case of SSI suspicion |
|  | **5** | **Radiology** | Ordering CT scan. | Ordering CT scan |

\*) Detailed selection based on criteria defined based information of questionnaire and content of extracted data

\*\*) >/=1 culture taken: >/=2 same positive cultures; 1 culture taken: 1 positive culture from relevant body sites within FU time excluding cultures taken on any day prior to day 1