Incidence of bloodstream infections, antibiotic resistances, blood culture ordering and testing practices – a Thuringia-wide prospective population-based surveillance and registry

AlertsNet Thüringen

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Background

Limitations of existing BSI surveillance studies [1-4]:
- not representative of the population,
- no hospital-, patient-, and laboratory-based denominator data,
- not directly used to improve health care.
- *The more you take, the more you find*: Germany among weakest BC testing performers in Europe (annually ECDC reports).

Objectives

- To sustain and expand a population-based surveillance and warning system of hospitalized patients with BSIs in Thuringia.
- To build up a collection bank of BSI pathogens.
- To build up a spondylodiscitis and endocarditis registry.
- To create an infrastructure for large-scale interventional trials.
- To improve outcomes of patients with BSIs.

Condition

Patients with microbiologically documented sepsis, i.e. bacterial and/or fungal bloodstream infections (BSIs).

Inclusion/Exclusion Criteria

- Inclusion criteria: BSIs as documented by microbiological labs
- Exclusion criteria: clinically not relevant findings (contaminations)
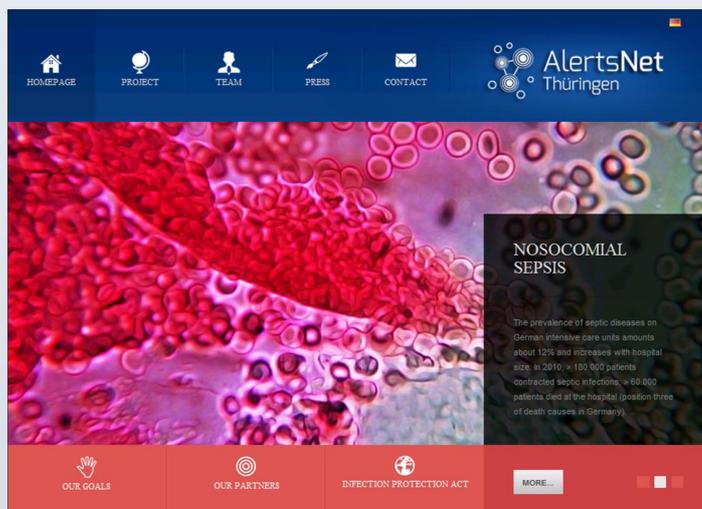
AlertsNet 2.0 website – www.alertsnet.org

Intervention

Educational initiative, the effectiveness of which is assessed by means of a before and after comparison on the basis of the indicator values.

Primary Endpoints

- Incidence density of BSIs (no/1,000 BC sets)
- Incidence density of BC sets taken (no/1,000 patient days)

Sample Size

- Eligible: ~316,000 BC sets/year
- Assigned: ~25,300 positive BC sets/year
- Analyzed: ~20,200 clinically relevant positive BC sets in ~5,000 patients/year

Statistical analysis

- Determine reference values for the indicators after adjusting for hospital characteristics.
- Analysis of relationship between incidence rate of blood culture testing and mortality after adjusting for hospital characteristics.
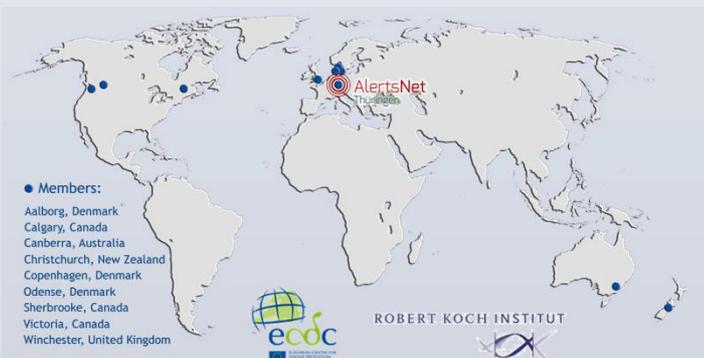
Participating Centers (Planned)

- ~36 hospitals (20,403 hospital beds), ~19 microbiological labs

AlertsNet 2.0 – Infrastructure And Collaboration
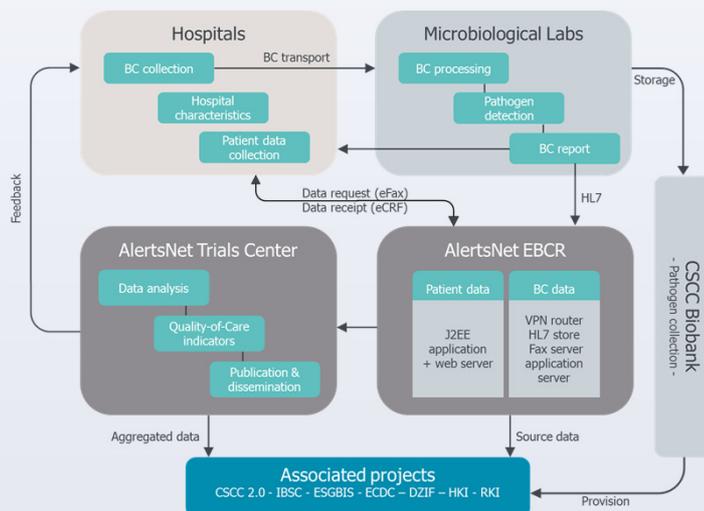
- **CSCC** Center for Sepsis Control and Care, Jena, Germany
- **DZIF** German Center for Infection Research
- **ECDC** European Centre for Disease Prevention and Control
- **ESGBIS** ESCMID (European Society of Clinical Microbiology and Infectious Diseases) Study Group for Bloodstream Infections and Sepsis
- **IBSC**: International Bacteremia Surveillance Collaborative
- **RKI** Robert Koch Institute, Berlin, Germany.

● **Members:**
Aalborg, Denmark
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Winchester, United Kingdom

AlertsNet 2.0 is member of the International Bacteremia Surveillance Collaborative (IBSC) [3] surveillance data collections. Collected data will be available for cross-national comparisons, may serve as replication data and allow for creating control settings.

References

1. Gaynes R (1995) Surveillance of antibiotic resistance: learning to live with bias. *Infect Control Hosp Epidemiol* **16**: 623-6
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3. Laupland KB et al (2009) Rationale for and protocol of a multi-national population-based bacteremia surveillance collaborative. *BMC Res Notes* **2**: 146
4. Schmitz RPH, ...Brunkhorst FM (2013) Quality of blood culture testing – a survey in intensive care units and microbiological laboratories across four European countries. Crit Care **17**: R248

Acknowledgements