

Infektionsschutz: Standardisierte Daten gegen die Ausbreitung multiresistenter Bakterien

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Life Science + Gesundheitswirtschaft

in Mecklenburg-Vorpommern.

WHO: Global Action Plan Global Report on Surveillance

GLOBAL ACTION PLAN
ON ANTIMICROBIAL
RESISTANCE



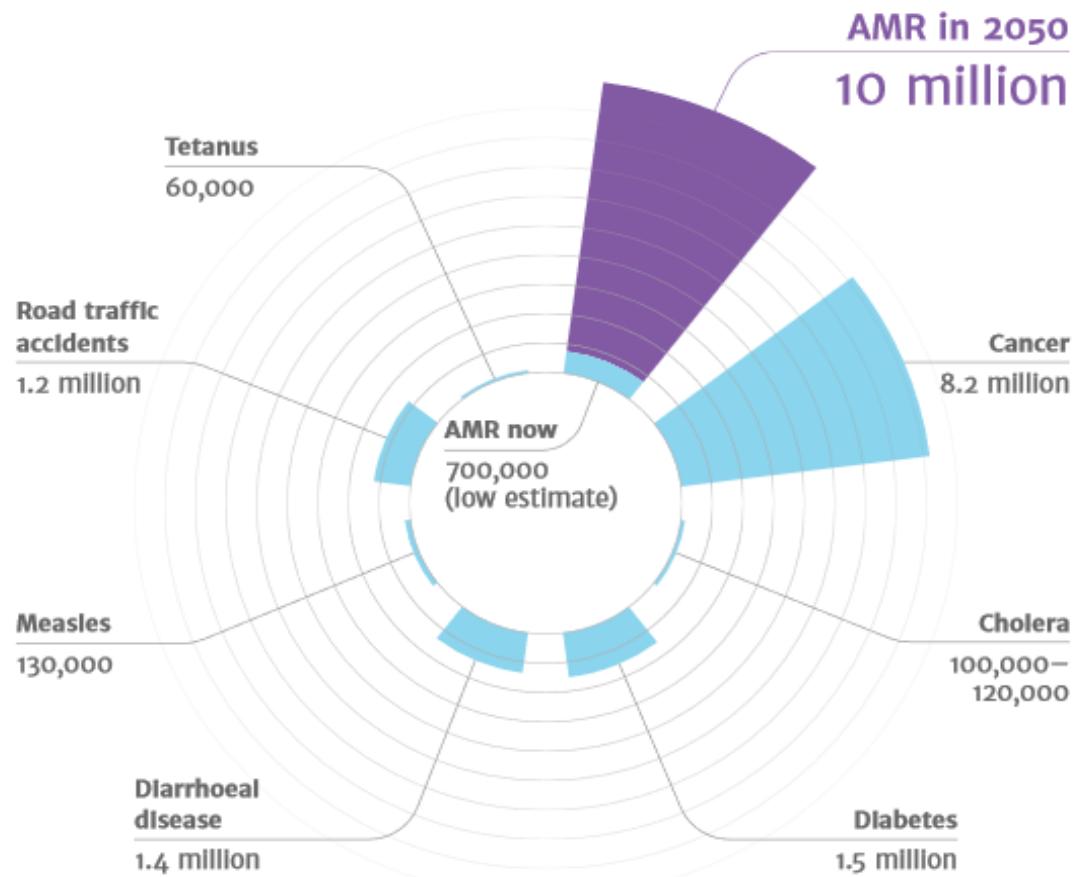
WHO Global Report on Surveillance 2014

Key findings and public health implications of AMR are:

- Very high rates of resistance have been observed in bacteria that cause common health-care associated and community-acquired infections (e.g. urinary tract infection, pneumonia) in all WHO regions.
- There are significant gaps in surveillance, and a lack of standards for methodology, data sharing and coordination.
- There is at present no global consensus on methodology and data collection for AMR surveillance.
- Community-acquired infections are almost certainly underrepresented among samples, leading to gaps in coverage of important patient groups.

Source: http://apps.who.int/iris/bitstream/10665/112642/1/9789241564748_eng.pdf

DEATHS ATTRIBUTABLE TO AMR EVERY YEAR



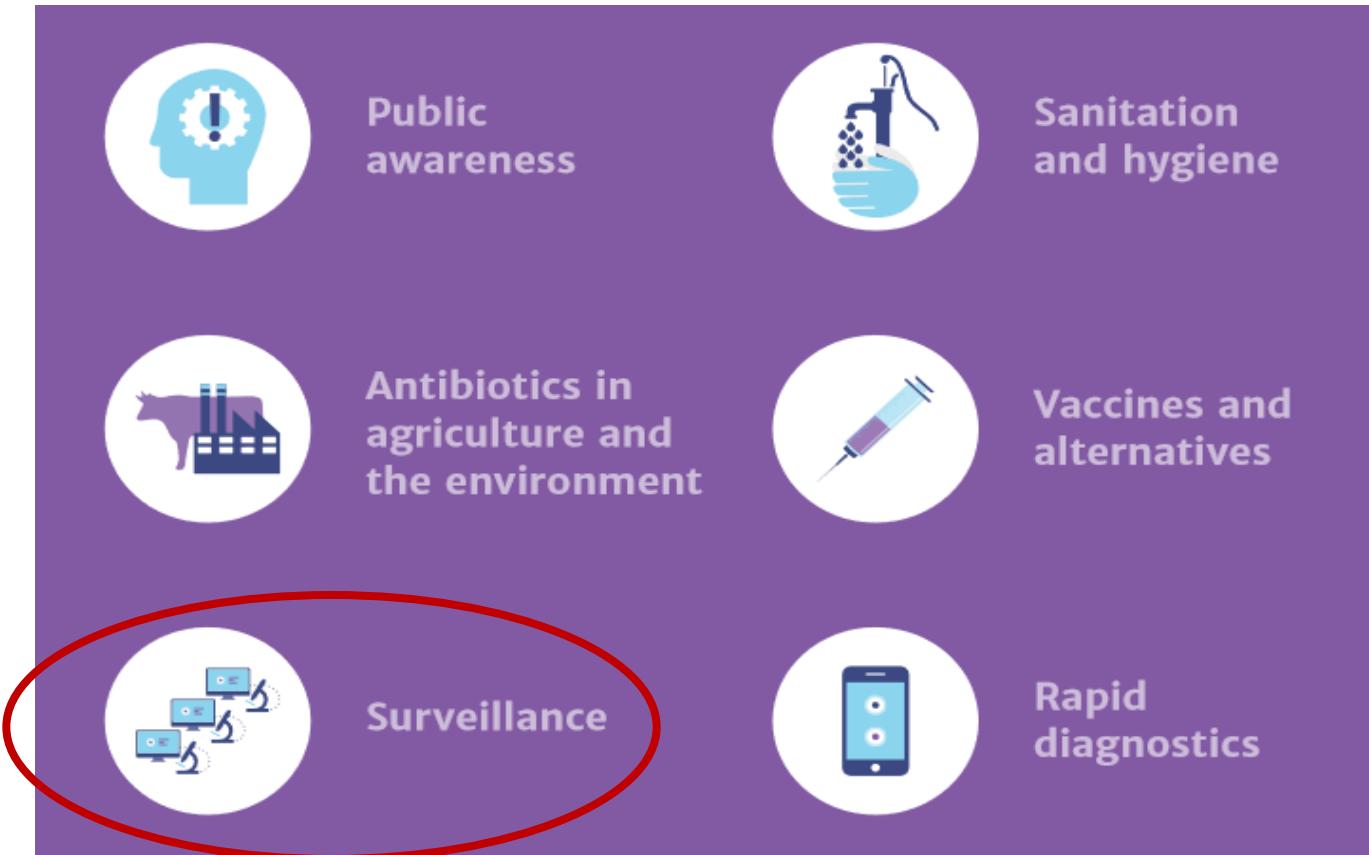
The Review on Antimicrobial Resistance, Tackling drug-resistant infections globally: Final report and recommendations

Sources:

- Diabetes: www.who.int/mediacentre/factsheets/fs312/en/
- Cancer: www.who.int/mediacentre/factsheets/fs297/en/
- Cholera: www.who.int/mediacentre/factsheets/fs107/en/
- Diarrhoeal disease: www.sciencedirect.com/science/article/pii/S0140673612617280
- Measles: www.sciencedirect.com/science/article/pii/S0140673612617280
- Road traffic accidents: www.who.int/mediacentre/factsheets/fs358/en/
- Tetanus: www.sciencedirect.com/science/article/pii/S0140673612617280

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TACKLING ANTIMICROBIAL RESISTANCE ON TEN FRONTS



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Final report and recommendations

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TACKLING ANTIMICROBIAL RESISTANCE ON TEN FRONTS cont.



Human capital



Drugs



Global
Innovation Fund



International
coalition for action

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The Review on Antimicrobial Resistance (amr-review.org)

10 Recommendations

1. A massive global public awareness campaign
2. Improve hygiene and prevent the spread of infection
3. Reduce unnecessary use of antimicrobials in agriculture and their dissemination into the environment
4. Improve global surveillance of drug resistance in humans and animals
5. Promote new, rapid diagnostics to cut unnecessary use of antibiotics
6. Promote the development and use of vaccines and alternatives
7. Improve the numbers, pay and recognition of people working in infectious disease
8. Establish a Global Innovation Fund for early-stage and non-commercial research
9. Better incentives to promote investment for new drugs and improving existing ones
10. Build a global coalition for real action – via the G20 and the UN

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Final report and recommendations

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IT IS VITAL THAT WE IMPROVE THE GLOBAL SURVEILLANCE OF DRUG-RESISTANT INFECTIONS

“If we cannot measure the development and spread of drug resistance, we cannot manage it.”

“Even in some of the world’s most developed health systems, AMR surveillance data is often patchy and retrospective – virtually none is ‘real time’.

Without effective monitoring, we will lack early warning of emerging patterns of drug resistance, and lack the insights needed to guide and evaluate our response.”[1]

[1] The Review on Antimicrobial Resistance, Tackling drug-resistant infections globally:
Final report and recommendations

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Better surveillance delivers benefits at all levels

1 Improved patient health

Data from surveillance of drug resistance would be used to inform treatment decisions in a way that will directly benefit patient health. For instance, if data were to reveal abnormally high rates of infections caused by bacteria resistant to a particular antibiotic in an area, then clinicians there could change their prescribing behaviour accordingly – benefitting the patient directly and improving antibiotic stewardship.

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Final report and recommendations

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Better surveillance delivers benefits at all levels

2 Inform public health policies and standards

At a national level, richer AMR surveillance data would inform policymakers in designing policies for responding to the challenges of drug resistance.

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Final report and recommendations

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Better surveillance delivers benefits at all levels

3 Enhance our understanding of resistance

Systematically collecting better data on AMR, over long periods and across human and animal health, will enable us to deepen our understanding of the epidemiology and transmission of resistance.

As well as supporting the efforts of public health authorities, this will inform the work of researchers and innovators involved in the development of new drugs and other products to counter the AMR threat.

The Review on Antimicrobial Resistance, Tackling drug-resistant infections globally:
Final report and recommendations

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HOW SURVEILLANCE CAN IMPROVE HEALTH OUTCOMES



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Disease Surveillance and Information Systems

“Effective surveillance is critical to containing infectious disease outbreaks. Disease surveillance and health information systems should be developed with the long-term vision of creating nationwide, interoperable, and interconnected platforms that are capable of collecting, aggregating, and analyzing information at every level of the health system (community, district, other subnational, and national levels). “ [GHRF, 2016]

GHRF Commission (Commission on a Global Health Risk Framework for the Future).

The neglected dimension of global security: A framework to counter infectious disease crises, 2016

Disease Surveillance and Information Systems

“Such systems should be able to support both indicator-based (syndromic) surveillance and event-based surveillance. Increased access to new information technology has increased surveillance capacity even in countries with limited resources and should be fully exploited. Electronic surveillance tools should be implemented and standardized across the country to transmit information to a central hub that can be accessed in real-time by surveillance staff at every level.” [GHRF, 2016]

GHRF Commission (Commission on a Global Health Risk Framework for the Future).

The neglected dimension of global security: A framework to counter infectious disease crises, 2016

The three different domain in AMR



AMR



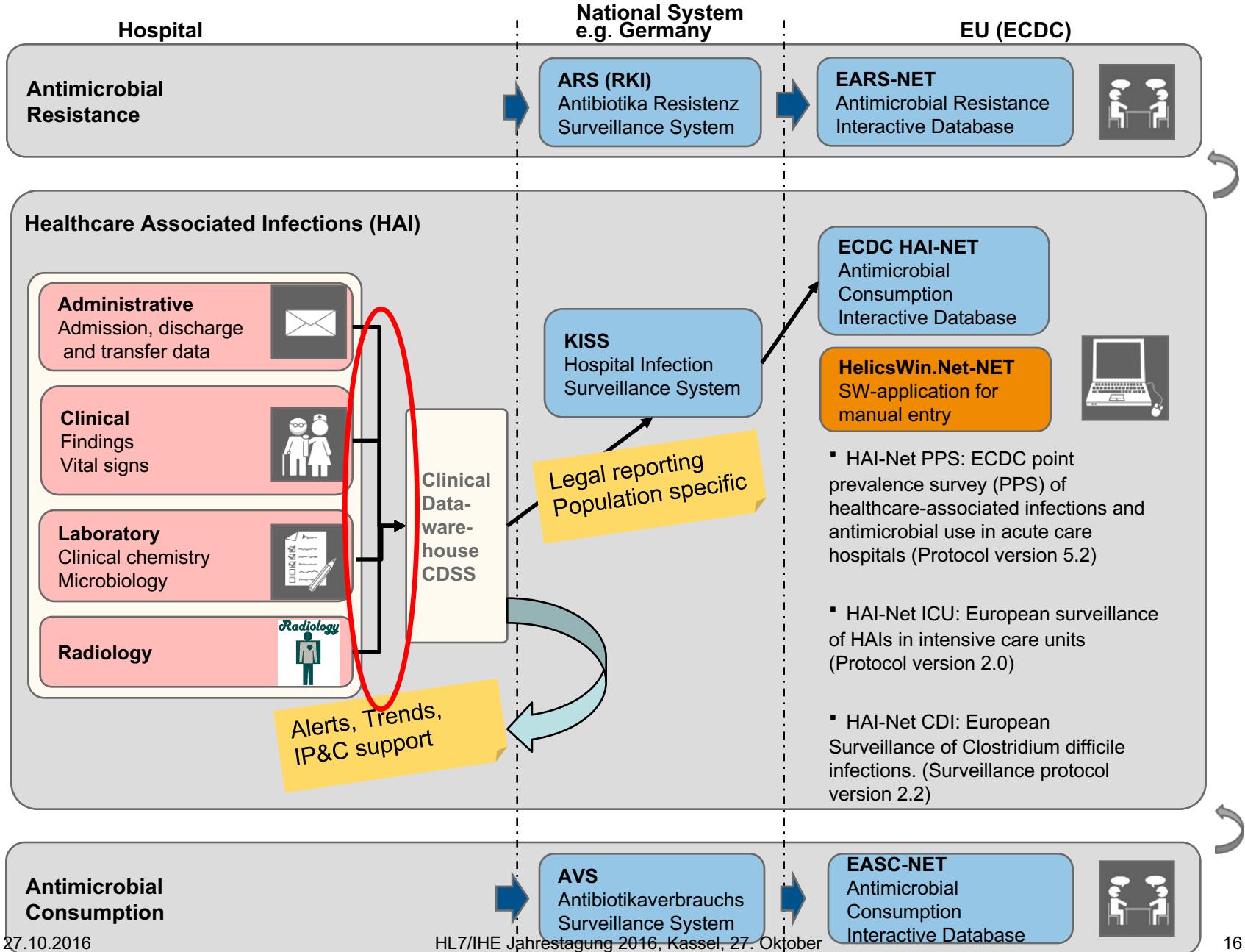
HAI



AC



Overview of Data in the context of antimicrobial resistance



Healthcare-associated infections (HAI) in Europe

- Approximately 4 million per year – (ECDC PPS '11-12: 3.5 M)
- Directly attributable deaths: approx. 37,000 each year
- Extra hospital days: approx. 16 million each year
- Direct costs: approx. €5.5 billion per year (average €334 per day)
- + Long-term care facilities (2013 estimate): 4.2 M HAIs

Source: ECDC Annual Epidemiological Report 2008; ECDC PPS 2011-2012; HALT-2 PPS 2013

HEALTHCARE-ASSOCIATED INFECTIONS ARE A CONCERN IN ALL COUNTRIES



The Review on Antimicrobial Resistance, Infection prevention, control and surveillance: Limiting the development and spread of drug resistance

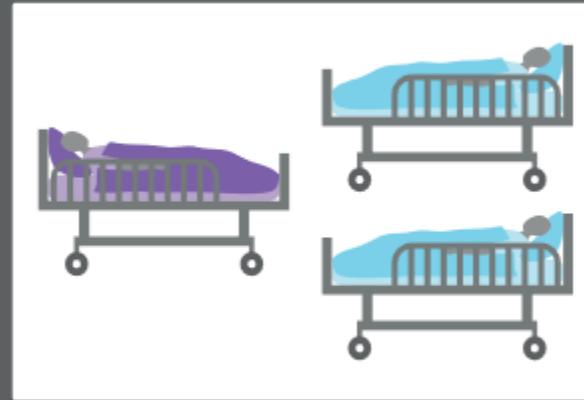
Original Source: WHO Healthcare-Associated Infections, Fact Sheet, 2014, WHO

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HEALTHCARE-ASSOCIATED INFECTIONS ARE A CONCERN IN ALL COUNTRIES

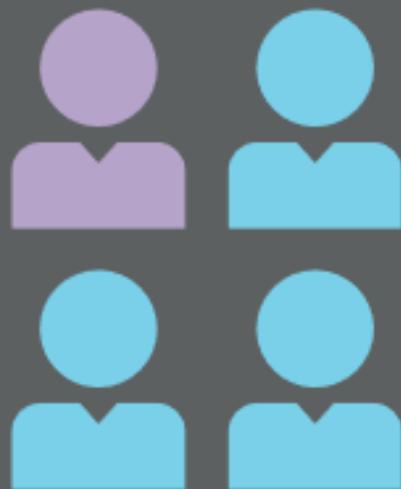
1 in 3

A third of patients in intensive care units (ICUs) in high-income countries are affected by at least 1 healthcare-associated infection.



Licensed under CC BY 4.0 – The Review on Antimicrobial Resistance, Infection prevention, control and surveillance: Limiting the development and spread of drug resistance
Original Source: WHO, The Burden of Health Care-Associated Infection Worldwide: A Summary, 2010

HEALTHCARE-ASSOCIATED INFECTIONS ARE A CONCERN IN ALL COUNTRIES



1 in 4

A quarter of healthcare-associated infections in long-term acute care settings are caused by antibiotic-resistant bacteria.

The Review on Antimicrobial Resistance, Infection prevention, control and surveillance: Limiting the development and spread of drug resistance

Original Source: CDC, Vital Signs Report, March 2016.

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Some examples for Health IT Systems and existing standards in the domain of antimicrobial resistance

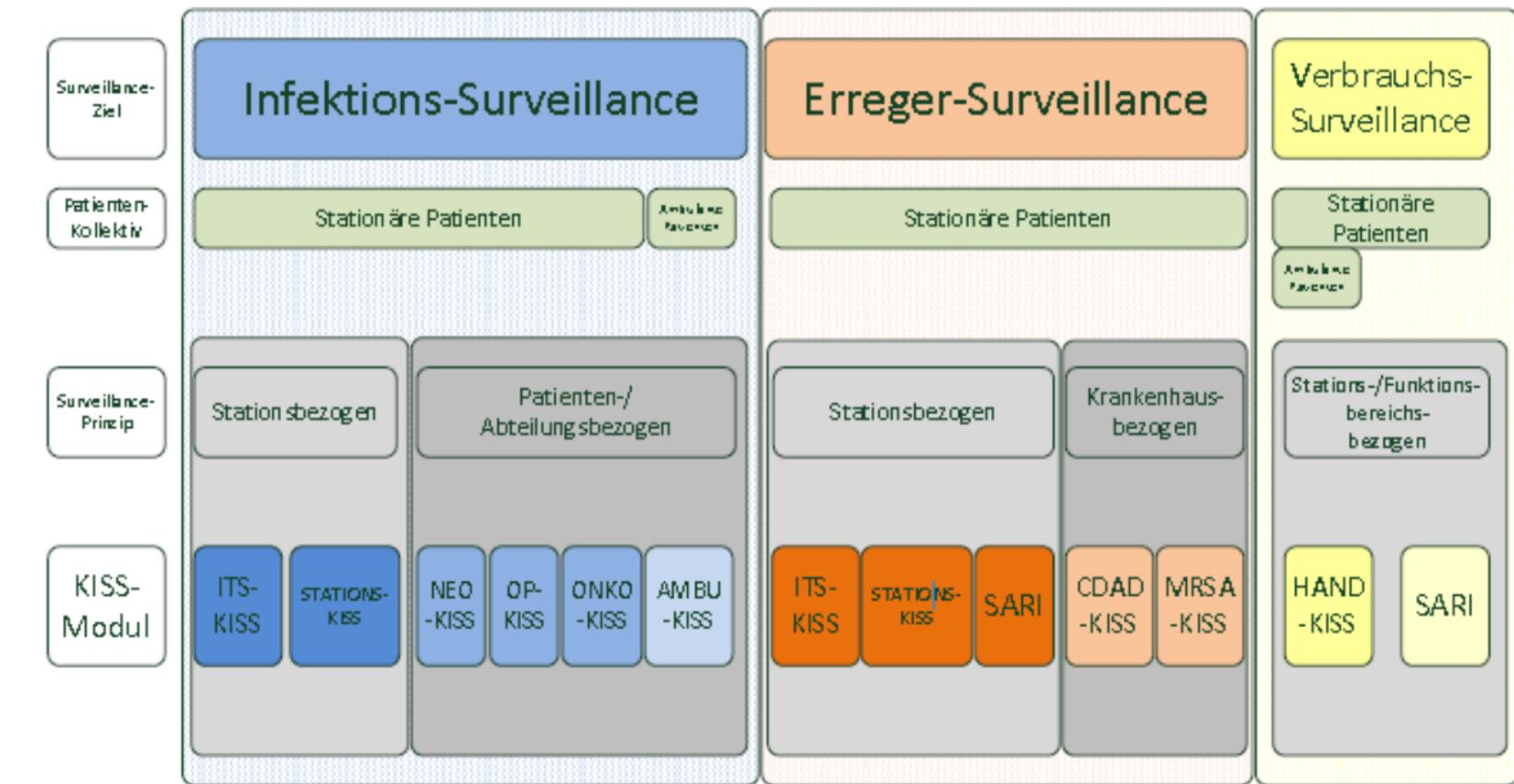
- Germany
- Austria
- Australia
- US
- Denmark
- Sweden



Krankenhaus Infektions Surveillance System



KISS





Nationales Referenzzentrum für Surveillance von nosokomialen Infektionen



NRZ

SURVEILLANCE

SUPPORT

KONTAKT

» KONTAKT / Mitarbeiter

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Suchbegriff



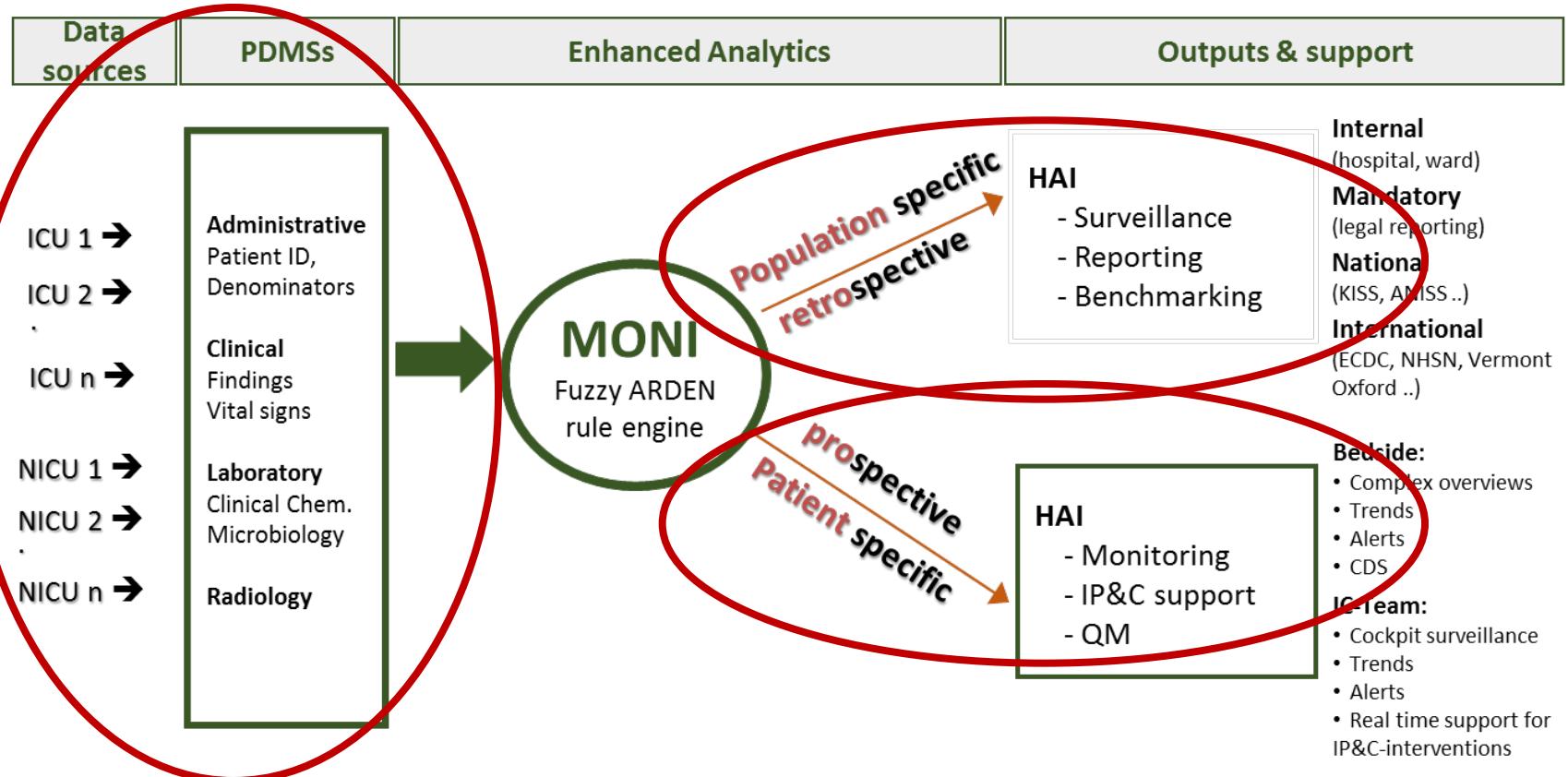
ARS - Antibiotika-Resistenz-Surveillance



Deutsche Antibiotika Resistenzstrategie (DART)
Jedes Jahr sind in Deutschland ca. **400.000 bis 600.000** Menschen von einer nosokomialen Infektion betroffen und schätzungsweise **10.000 bis 15.000** Patienten sterben daran. **20-30 %** dieser nosokomialen Infektionen und Todesfälle wären durch eine bessere Einhaltung von bekannten Hygieneregeln vermeidbar.

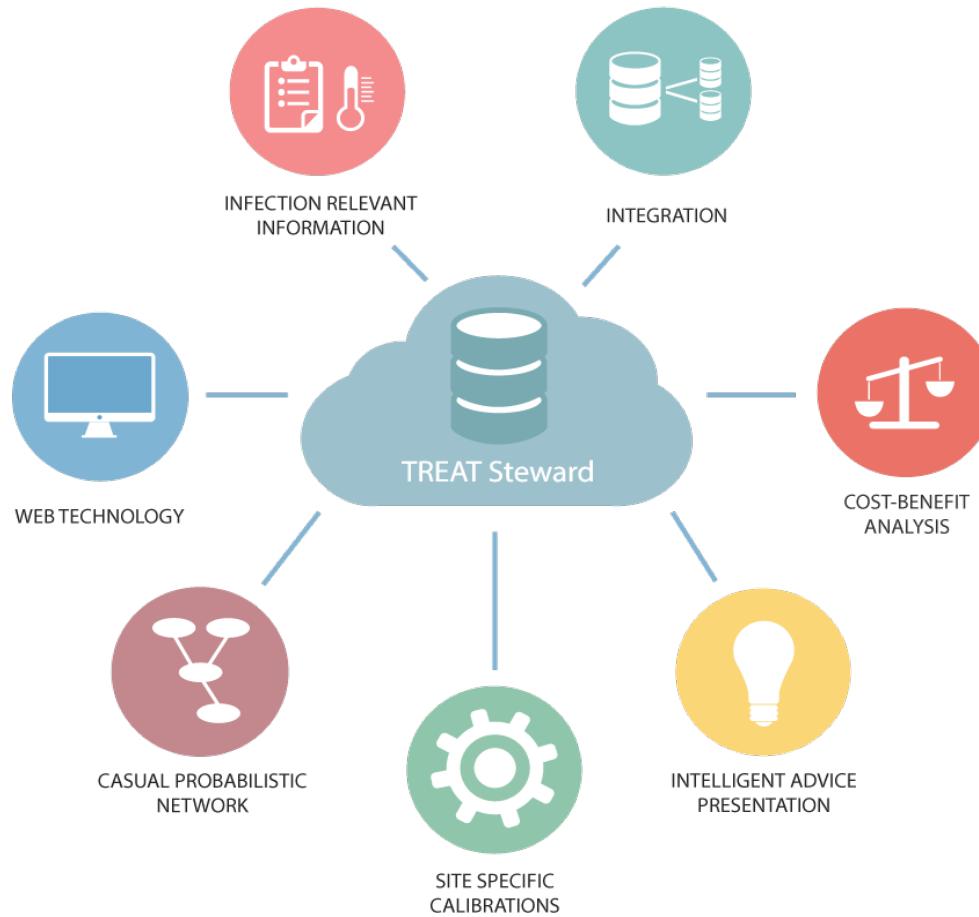


Monitoring of Nosocomial Infections

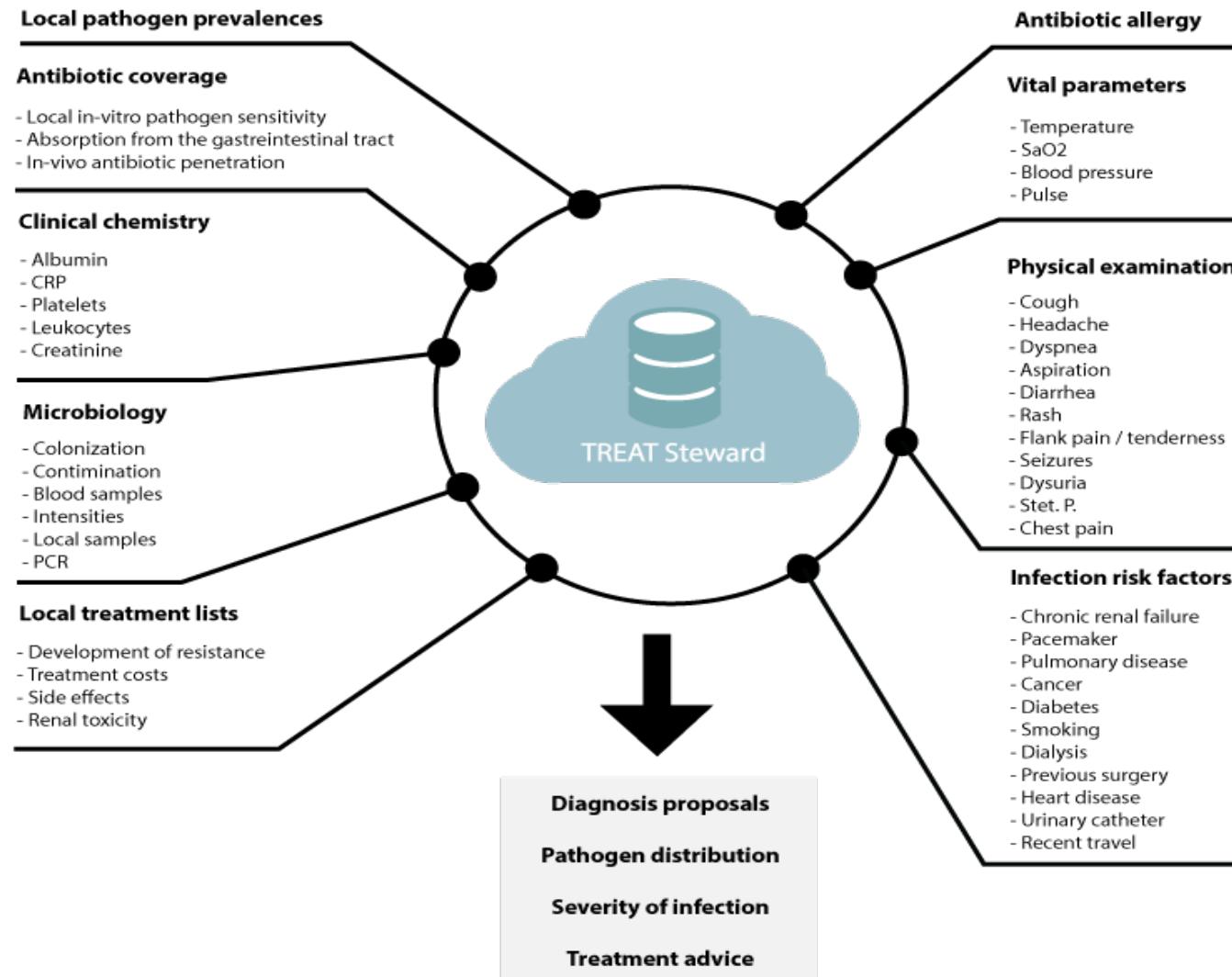


Courtesy to Stefan Reich, Medexter

Antibiotic Stewardship with TREAT



Clinical Decision Support with TREAT





NHSN CDA Submission Support Portal (CSSP)

CDC Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

 Search The CDC
 

CDC A-Z INDEX ▾

NHSN CDA Submission Support Portal (CSSP)

[CDC](#) > [NHSN](#)



Clinical Document Architecture (CDA) is a Health Level 7 (HL7) standard that provides a framework for the encoding, formatting and semantics of electronic documents. CDC's National Healthcare Safety Network (NHSN) supports CDA import of certain healthcare-associated infection (HAI) data. To assist programmers in creating standards for reporting via CDA import, NHSN offers an Implementation Guide and associated materials based fully on HL7-balloted CDA document specifications. Types of data that can be reported include event reports, denominator data, and process-of-care measures.



ABOUT CDA

What is Clinical Document Architecture?



GETTING STARTED

How to implement CDA for HAI reporting.



FAQS

Common questions asked by CDA implementers.



IMPLEMENTATION TOOLKITS & RESOURCES

NHSN HAI Implementation Guides, IDMs and toolkits.



DATA VALIDATION & TESTING

Tools to validate and test your CDA data as per NHSN specifications.



WEBINARS & TRAINING VIDEOS

Webinars on NHSN releases and CDA training.



IMPORTING DATA

How to import your data into NHSN using CDA, CSV or Direct.



INNOVATION TOOLS

Data sets and algorithmic web services.



MEANINGFUL USE 3

Overview of Meaningful Use Stage 3 for NHSN reporting.

Source: <http://www.cdc.gov/nhsn/cdaportal/index.html>



CDC Antimicrobial Use and Resistance (AUR) Module



*Antimicrobial Use and Resistance Module
AUR*

Antimicrobial Use and Resistance (AUR) Module

Table of Contents

Introduction	1
1. Antimicrobial Use (AU) Option	2
Introduction	2
Requirements	4
Data Analyses	8
Appendix A. Table of Instructions: Antimicrobial Use	10
Appendix B. List of Antimicrobials	11
Appendix C. Example Calculations of Antimicrobial Days	14
2. Antimicrobial Resistance (AR) Option	17
Introduction	17
Requirements	18
Data Analyses	22
Appendix A. List of Microorganisms for Antimicrobial Resistance	27
Appendix B. SNOMED Codes to Identify Eligible Specimen Types	33
Appendix C. Technical and Isolate Based Report Variables	35
Appendix D. Denominator Data Variables	37

HL7 CDA® R2 Implementation Guide: Healthcare Associated Infection Reports, Release 3, DSTU Release 1.1 - US Realm



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Master Grid of Standards									
Primary Standards									
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Section 5: Implementation Guides

HL7 CDA® R2 Implementation Guide: NHSN Healthcare Associated Infection Reports, Release 3 - US Realm

DESCRIPTION

This project developed an implementation guide constraining CDA Release 2. The implementation guide supports electronic submission of HAI data to the National Healthcare Safety Network. CDC provided NHSN developers, vocabulary experts and CDA experts to support this project. SDWG reviewed the design and draft specification before ballot.

ALTERNATIVE NAMES

HL7 CDA® R2 Implementation Guide: NHSN Healthcare Associated Infection Reports, Release 3 - US Realm may also go by the following names or acronyms:

CDA R2 IG HAIRPT R3, HAI, NHSN HAI

TARGETS

- Regulatory Agency
- Health Care IT Vendors
- Healthcare Institutions (hospitals, long term care, home care, mental health)

BENEFITS

- Enables more than 3000 hospitals in 22 states to meet requirements that Healthcare Associated Infection data be submitted through the National Healthcare Safety Network (NHSN) to CDC
- Revises existing reports and adds new ones to collect data that is relevant to CDC's mandate

IMPLEMENTATIONS/CASE STUDIES

- NHSN
- Theradoc



Sweden - The Anti-Infection Tool

Infektionsverktyget, "The Anti-Infection Tool", is a national IT support tool for consistent documentation, storage and feedback of information on healthcare-associated infections and antibiotics, which local electronic health record systems can access.

Daily updates are generated through a versatile report module and can easily be adapted to every health care unit's needs in order to support the local quality improvement work.

The Anti-Infection Tool is estimated to support the prevention of up to 20 percent of all healthcare-associated infections. This corresponds to 700 million SEK in direct health-care costs saved per annum.

The Anti-Infection Tool integrates life saving information sharing between units with personal secrecy and correct prescribing of antibiotics.



PREVENTION



KNOWLEDGE SUPPORT



ANTI-RESISTANCE



Australian Guidelines



AUSTRALIAN GUIDELINES FOR THE Prevention and Control of Infection in Healthcare



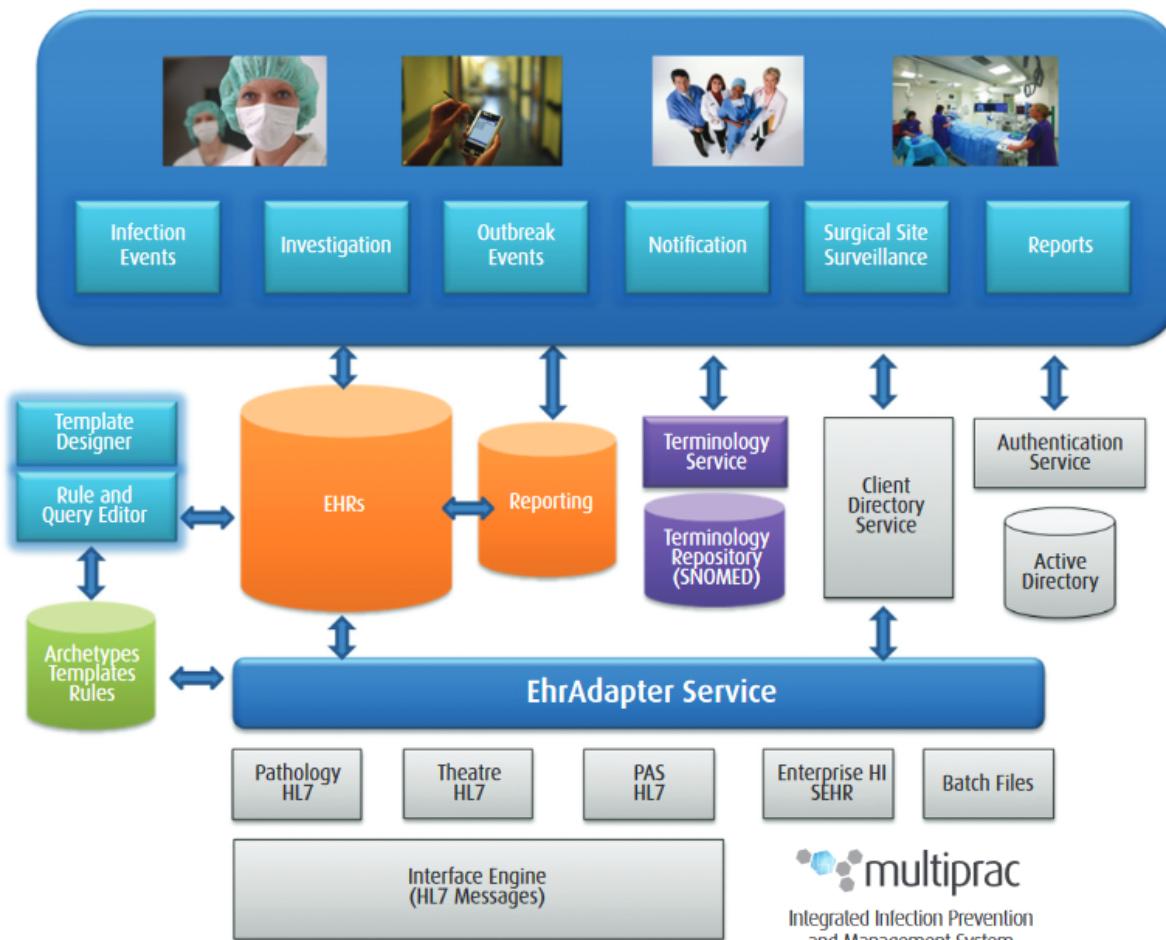


Core Information Components

Structured Microbiology Requests and Reports for Healthcare Associated Infections

Source: <https://safetyandquality.gov.au/wp-content/uploads/2012/02/Core-information-components-Structured-microbiology-and-reports-for-healthcare-associated-infections-January-2013.pdf>

Australia: Multiprac® Integrated Infection Prevention and Management System



Based on
openEHR
Archetypes



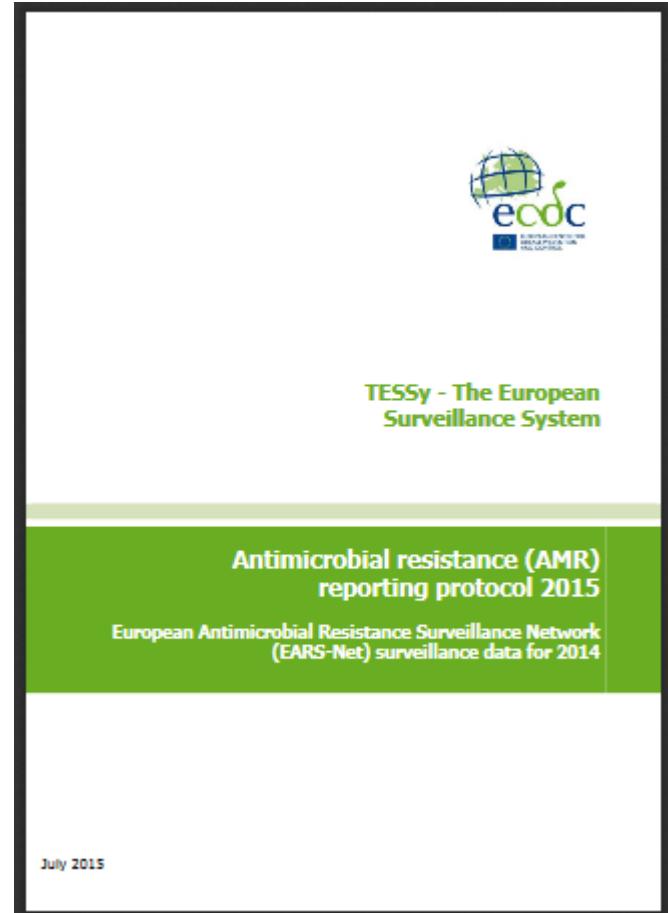
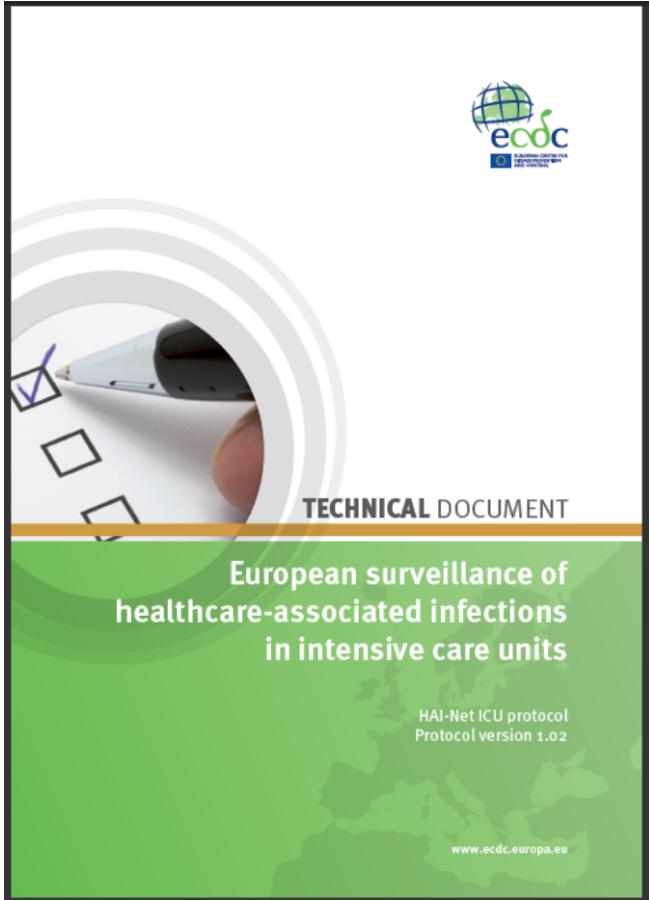
US: HL7 HAI Reports, US Realm

22 states require that Healthcare Associated Infection data be submitted through the National Healthcare Safety Network (NHSN) to CDC and more than 3000 hospitals do so

The image shows the cover of the HL7 Implementation Guide for CDA® Release 2 – Level 3: Healthcare Associated Infection Reports, Release 1 – US Realm. The cover features the HL7 International logo and the ANSI logo. The title is prominently displayed in the center. Below the title, it says "ANSI/HL7 CDAR2IG HAIRPT, R1-2013 8/9/2013". At the bottom, it says "August 2013" and "Sponsored by: Structured Documents Working Group National Healthcare Safety Network". There are also small sections for "Copyright" and "IMPORTANT NOTES".

Source: http://www.hl7.org/implement/standards/product_brief.cfm?product_id=20

Europe: ECDC HAI-net ICU protocol





HAI-Net ICU protocol

HAI-Net ICU protocol, version 1.02

TECHNICAL DOCUMENT

6.2 Patient ICU admission data (second level)

The second level (RecordType HAIICU\$PT) includes variables at the patient level, mainly at admission to the ICU (within the first 24 hours), but also date and status at discharge from the ICU.

Variable name	Description	Value list	Required
Patient counter	Numeric Code for each patient, unique within hospital. Anonymous code assigned by hospital to specify patient		True (Error)
Age	Age corresponds to the age of the patient at date of admission to the ICU	Num (0–120), UNK	True (Warning)
Gender	Gender of the patient	M = Male F = Female O = Other UNK = Unknown	True (Warning)
Outcome from ICU	Patient status at discharge from the ICU or at end of follow-up in the ICU	A = Alive D = Dead in ICU UNK = Unknown	True (Warning)
Date of ICU admission	Date of admission in the ICU	Date (YYYY-MM-DD), UNK	True (Error)
Date of ICU discharge	Date the patient was discharged from the ICU or date of in-ICU death or date of last follow-up in the ICU	Date (YYYY-MM-DD), UNK	True (Warning)
Origin of the patient	Origin of the patient at the time he/she was admitted at the ICU	HOSP = Ward in this/other hospital OICU = Other ICU COM = Community (patient came from his home, via emergency or not) LTC = Long-term care/nursing home O = Other UNK = Unknown	No
Date of hospital admission	Date patient was admitted to hospital in order to undergo the operation under surveillance	Date (YYYY-MM-DD), UNK	No

From national surveillance systems to ECDC

KISS webKess - Portal of KISS

Welcome xnic! [Log Off] To Home page [English] Deutsch

This website is part of the European Centre for Disease Prevention and Control (ECDC) network

ECDC Extranet | **TESSy** The European Surveillance System

Logged in as Michael Behnke Log off

KISS Module: ITS-KISS, KISS S

Home My Account Support Groups
Permissions (webkess) KISS-Intern HAN

Overview Monthly Data Infection Da

List of Infections Jährliche Angaben

List of Infections

In diesem Bereich sehen Sie alle für diese Das Plus-Symbol in der letzten Spalte "Dat zuzuordnen.

Grau hinterlegten Zeilen weisen auf eine ei Einstellungen können Sie unter dem Menü

- Bitte denken Sie daran, daß nach Ablau Angaben für Blutkulturen

+ Add new record Export to CSV

#	Infection Id	Patient Id	Year Birth
1	4	16	1977
2	1	11	2000
3	3	13	1950

You are here: ECDC Extranet > TESSy > Data sources

Data sources

1 Specific Basic Information for this Data Source > 2 Specific Common Properties > 3 Specify Report Types and the Subject-Specific Properties > 4 Review the Summary Information and Confirm

Code: DE-HAICU_AND_SSI
Name: German KISS equivalent to ECDC ICU light and SSI protocols

Show/hide subject and report types

Subject:	Report Types:	Population under surveillance:
HAIICU - HAI Intensive Care Unit	Healthcare associated infections	DE - Germany
HAISSI - HAI Surgical Site Infections	Healthcare associated infections	DE - Germany
HAISICOVERAGE - HAI Surgical Site Infections (Coverage Denominators)	Healthcare associated infections	DE - Germany

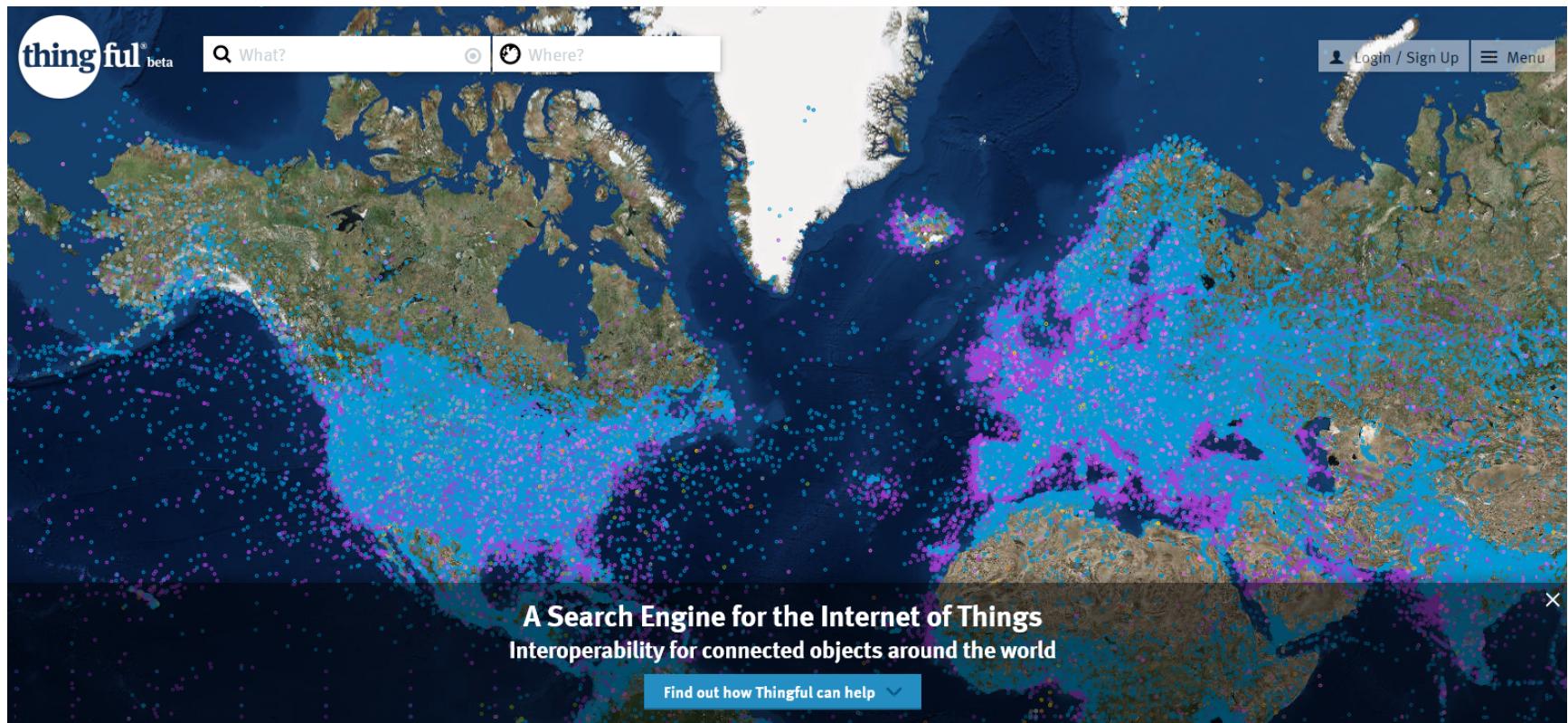
Description: OP-KISS
Comment: HAI Intensive Care Unit: ITS-KISS

Legal Character: Voluntary
Comprehensiveness: Other
Active: Passive
Start year for data collection in the surveillance system: 2009

Converting KISS Protocols to ECDC Protocols

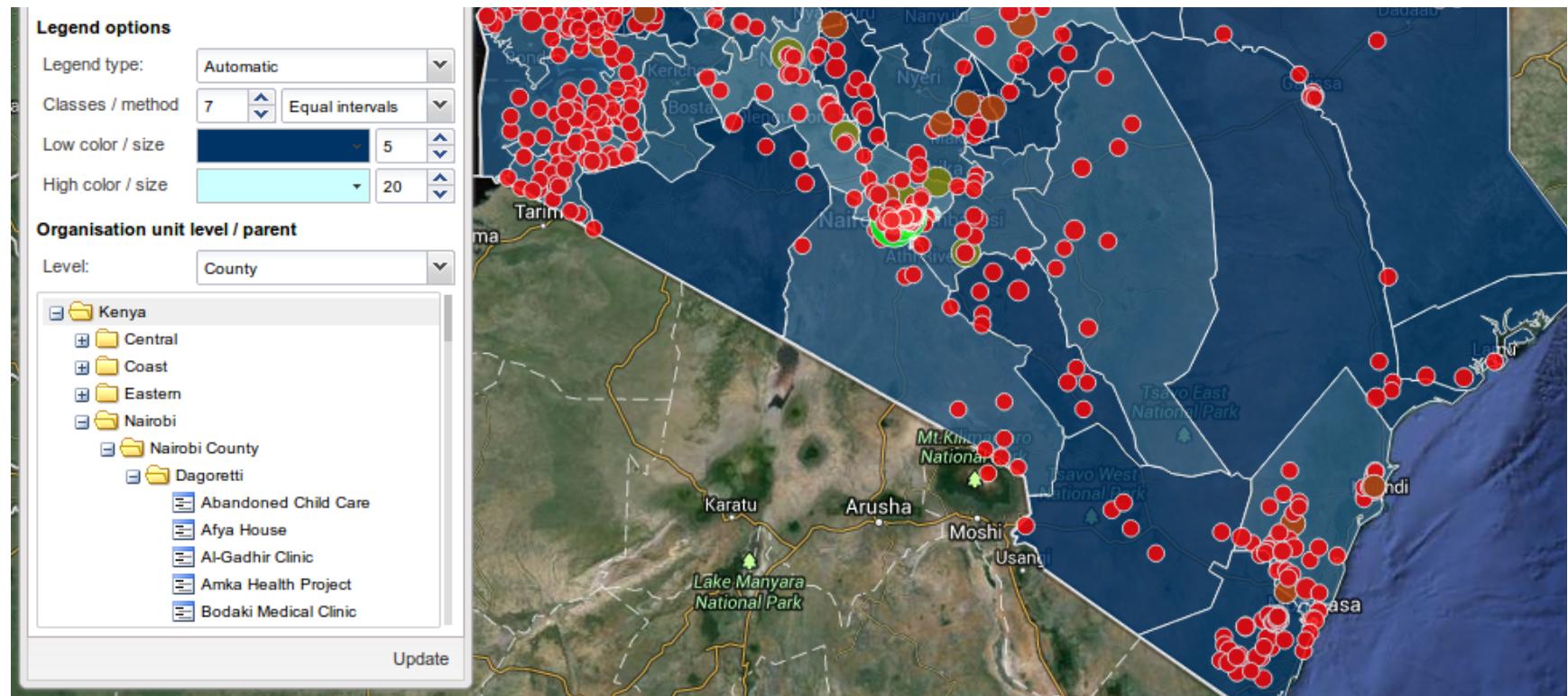
- KISS ITS-KISS is compatible to ECDC HAI-ICU Unit-based protocol (Light)
- KISS OP-KISS to ECDC SSI-Surveillance
- AVS to ECDC ESAC-Net (not yet implemented)

Real-time data for AMR – a dream or a reality in the near future?



District Health Information System 2

Open Source – Data Visualisation - Analytics



Source: <https://www.dhis2.org/sites/all/themes/dhis/images/gis-analytics.png>

Conclusion

- Current data about antimicrobial resistant is often patchy and retrospective. There is no real time data available
- What is lacking is the standardisation of “the last mile” i.e. the data in the clinic
- Better surveillance delivers benefits at all levels: local, national and global.
- There are already standards available in some countries (e.g. US, Australia, Sweden) that might serve as a starting point.
- Automatic electronic surveillance can reduce the workload for hygiene management staff and improve quality of the data.

Acknowledgment

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Luis Alberto Peña Diaz, Germany

Gudrun Mernitz, Germany

and many more...

Best of
Northern Germany

Mecklenburg
Vorpommern 

Thank you for your Attention !



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