

Svebar

Swedish antimicrobial resistance early warning and surveillance system

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Smi

SMITTSKYDDSinSTITUTET

Swedish Institute for Communicable Disease Control

Svebar – two components

Components

- Early warning (EW)
- Antimicrobial resistance surveillance

To make it work

- Automatic (but avoid pre-mapping)
- Deal early with proprietary issues
- Offer benefits to participating laboratories

Svebar

- **Sweden 9 miljon inhabitants**
- **SMI (Smittskyddsinstitutet)**
- **≈ 25 laboratories (clinical microbiology)**
- **≈ 5 different IT systems**

- **For each IT system a programme which exports all bacteriological culture-data in a structured XML-file, organised**
 - **DATA-ID (laboratory number; not patient ID)**
 - **DATE of SAMPLE ADMISSION**
 - **SPECIES (or if no species: NEGATIVE)**
 - **ANTIBIOTIC (disk)**
 - **AST RESULT: SIR (ZONE and/or MIC)**

Svebar - Swedish surveillance of antimicrobial resistance

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Svebar – data export and import

- 25 labs every night export the last 14 days of culture results.
- The 25 files are imported by Svebar (between 2 – 6 in the morning).
- Each file goes through the CENTRAL and the LOCAL early warning "exceptional phenotype trapping" system.
- CENTRAL and LOCAL reports are built.
- Data related to the 14th day is deposited in the "surveillance database".

Svebar


















- **Early warning**

- Trapping of exceptional antimicrobial resistance (spectacular phenotypes)
- Committee defines EW phenotypes
- Communication between central and local on "hits"

- **Antimicrobial resistance surveillance**

- national comprehensive database of all culture data
 - Laboratory, sample ID (number), date.
 - Patient: age, gender, geographical area (county, hospital code)
 - Type of sample/analysis (blood/culture, urine/culture etc)
 - Species
 - Antimicrobial (zone, MIC and interpretations SIR)

Svebar – Early Warning Traps

	▼ Labkod ▲	▼ Art ▲	▼ Antibiotika ▲	Aktivt	Antal R	%R	%(I + R)	Period	C/L
 	Alla	STAPHYLOCOCCUS AUREUS	VANKOMYCIN OR TEICOPLANIN OR DAPTOMYCIN OR LINEZOLID	ja	1	Ej valt	Ej valt	2 veckor	Centralt
 	Alla	ENTEROCOCCUS FAECIUM	VANKOMYCIN OR TEICOPLANIN	ja	1	Ej valt	Ej valt	2 veckor	Centralt
 	Alla	STREPTOCOCCUS PNEUMONIAE	AMOXICILLIN OR AMPICILLIN OR CEFOTAXIM OR CEFTRIAXON OR MEROPENEM OR PENICILLIN V	ja	1	Ej valt	Ej valt	2 veckor	Centralt
 	Alla	ESCHERICHIA COLI	ERTAPENEM OR IMIPENEM OR MEROPENEM OR DORIPENEM	ja	1	Ej valt	Ej valt	2 veckor	Centralt
 	Alla	KLEBSIELLA PNEUMONIAE	ERTAPENEM OR DORIPENEM OR IMIPENEM OR MEROPENEM	ja	1	Ej valt	Ej valt	2 veckor	Centralt
 	Alla	ESCHERICHIA COLI	AMPICILLIN	ja	0	30	Ej valt	3 månader	Centralt
 	Alla	ESCHERICHIA COLI	CIPROFLOXACIN	ja	0	Ej valt	10	3 månader	Centralt
 	Alla	STREPTOCOCCUS PNEUMONIAE	PENICILLIN V	ja	0	5	Ej valt	2 veckor	Centralt
 	Alla	PSEUDOMONAS AERUGINOSA	CEFTAZIDIM AND DORIPENEM OR ERTAPENEM OR MEROPENEM OR IMIPENEM	ja	1	Ej valt	Ej valt	2 veckor	Centralt
 	Alla	STREPTOCOCCUS PNEUMONIAE	ERYTHROMYCIN OR KLINDAMYCIN AND TETRACYKLIN AND TRIMETOPRIMSULFA	ja	1	Ej valt	Ej valt	2 veckor	Centralt
	Alla	STREPTOCOCCUS PYOGENES	DENICILLIN G	ja	1	Ej valt	Ej valt	2 veckor	Centralt

Svebar

- **Daily Central Report (to SMI):**
 - Summarise all "exceptional phenotypes"
 - Allows communication between Central and Local
- **Daily Local Report to the local laboratory**
 - Lists the local contribution to the "exceptional phenotypes" report
 - Lists locally defined phenotypes of local interest (each lab can define their own EW traps)

This is an example of the nightly report (SE-numbers represent different hospitals and the number after are the number of microorganisms analysed from each lab):

----- SUMMARY -----

Total number of registrations: 373221

Number of negative registrations: 233354 (62%)

Numbers of registrations last 24 hours:

SE100 : 0

SE110 : 227

SE120 : 2573

SE230 : 127

SE240 : 181

SE250 : 202

SE300 : 567

SE310 : 0

SE320 : 0

SE450 : 0

SE540 : 59

SMI001 : 0

TOTAL : 3369

ALERT: There are items in correction list

ALERT: There are one or more warnings

----- Trap Analysis -----

Central trap ID: 195

Lab : All

Species : STAPHYLOCOCCUS AUREUS

Antib. : VANKOMYCIN OR TEICOPLANIN OR DAPTOMYCIN OR LINEZOLID

NOO : 1

%R : N/A

%(R+I) : N/A

Period : 14 days

Triggers: none

Central trap ID: 199

Lab : Alla

Species : ENTEROCOCCUS FAECIUM

Antib. : VANKOMYCIN OR TEICOPLANIN

NOO : 1

%R : N/A

%(R+I) : N/A

Period : 14 days

Triggers: 2

Date :2011123

Lab :SE240

Sample date :2011111

Ident :See report-file.

Date :2011123

Lab :SE240

Sample date :2011111

Ident :See report-file.

Central Trap ID: 206

Lab : All

Species : ESCHERICHIA COLI

Antib. : ERTAPENEM OR IMIPENEM OR MEROPENEM OR DORIPENEM

NOO : 1

%R : N/A

%(R+I) : N/A

Period : 14 days

Triggers: None

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Central filter ID: 207

Lab : Alla

Species : KLEBSIELLA PNEUMONIAE

Antib. : ERTAPENEM OR DORIPENEM OR IMIPENEM OR MEROPENEM

NOO : 1

%R : N/A

%(R+I) : N/A

Period : 14 days

Triggers: 2

1. Date :20111124

Lab :SE230

Sample date :20111109

Ident :See report-file.

2. Date :20111124

Lab :SE230

Sample date :20111109

Ident :See report-file.

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 - Species
 - Antimicrobial (zone, MIC and interpretations SIR)

Svebar – AMR database

Google

Sida Säkerhet

Filter	ESCHERICHIA COLI	Välj...	20110924 20111109	Välj...	2001 2011	Välj... Välj...
Calc	Art ▲	Labkod ▲	Provdatum ▲	Typ av analys ▲	Remissår ▲	Födelsedatum ▲
ESCHERICHIA COLI	SE540	20111108	URINODLING	2011	195305 (58)	
ESCHERICHIA COLI	SE230	20110927	URINODLING	2011	195008 (61)	
ESCHERICHIA COLI	SE110	20111025	URINODLING	2011	192805 (83)	
ESCHERICHIA COLI	SE250	20110925	URINODLING	2011	196605 (45)	
ESCHERICHIA COLI	SE110	20111027	URINODLING	2011	191909 (92)	
ESCHERICHIA COLI	SE110	20111021	URINODLING	2011	191808 (93)	
ESCHERICHIA COLI	SE230	20111101	BLODODLING AEROB ANAEROB	2011	193802 (73)	
ESCHERICHIA COLI	SE250	20110926	URINODLING	2011	192203 (89)	
ESCHERICHIA COLI	SE110	20111026	URINODLING	2011	192505 (86)	
ESCHERICHIA COLI	SE250	20110926	URINODLING	2011	195508 (56)	
ESCHERICHIA COLI	SE240	20111027	URINODLING	2011	192812 (83)	
ESCHERICHIA COLI	SE230	20110927	URINODLING	2011	193702 (74)	
ESCHERICHIA COLI	SE230	20111031	ALLMÄN ODLING	2011	194608 (65)	
ESCHERICHIA COLI	SE230	20111019	URINODLING	2011	194402 (67)	
ESCHERICHIA COLI	SE110	20111026	URINODLING	2011	200809 (3)	
ESCHERICHIA COLI	SE230	20111020	URINODLING	2011	198203 (29)	
ESCHERICHIA COLI	SE110	20111026	URINODLING	2011	192208 (89)	
ESCHERICHIA COLI	SE250	20110925	URINODLING	2011	192701 (84)	
ESCHERICHIA COLI	SE240	20111102	URINODLING	2011	198203 (29)	
ESCHERICHIA COLI	SE230	20111020	URINODLING	2011	194204 (69)	
ESCHERICHIA COLI	SE230	20111031	URINODLING	2011	194009 (71)	
ESCHERICHIA COLI	SE250	20110926	URINODLING	2011	194108 (70)	
ESCHERICHIA COLI	SE110	20111028	URINODLING	2011	192711 (84)	
ESCHERICHIA COLI	SE250	20110927	URINODLING	2011	196408 (47)	
ESCHERICHIA COLI	SE230	20111102	URINODLING	2011	194206 (69)	

Year	Microorganism	Year	Count	Sex	Antib	Disk	Prim	Zon	SIR	Mic
20110928	NASOFARYNXODLING	2011	200508 (6)	Man						
20111027	NASOFARYNXODLING	2011	195207 (59)	Kvinna						
20111019	BLODODLING AEROB ANAEROB	2011	194510 (66)	Kvinna						
20111027	NASOFARYNXODLING	2011	201107 (0)	Man						
20111019	BLODODLING AEROB ANAEROB	2011	194510 (66)	Kvinna						
20111013	ALLMÄN ODLING	2011	201005 (1)	Man						
20111020	BLODODLING AEROB ANAEROB	2011	197312 (38)	Man						
20111016	ALLMÄN ODLING	2011	193706 (74)	Man						
20111008	NASOFARYNXODLING	2011	200209 (9)	Man						
20111011	ALLMÄN ODLING	2011	193512 (76)	Man						
20111004	NASOFARYNXODLING	2011	198306 (28)	Kvinna						
20111013	NASOFARYNXODLING	2011	200905 (2)	Kvinna						
20111020	BLODODLING AEROB ANAEROB	2011	197312 (38)	Man						
20111006	ALLMÄN ODLING	2011	201108 (0)	Kvinna						
20111024	NASOFARYNXODLING	2011	197705 (34)	Man						
20111030	NASOFARYNXODLING	2011	195510 (56)	Man						
20111014	ALLMÄN ODLING	2011	201103 (0)	Man						
20111004	NASOFARYNXODLING	2011	194707 (64)	Kvinna						
20111004	ALLMÄN ODLING	2011	194111 (70)	Okänd						
20111005	NASOFARYNXODLING	2011	197709 (34)	Kvinna						
20111010	NASOFARYNXODLING	2011	196006 (51)	Kvinna						
20111016	ALLMÄN ODLING	2011	193706 (74)	Man						
20111005	NEDRE LUFTVÄGAR	2011	194504 (66)	Man						
20111017	ALLMÄN ODLING	2011	199306 (18)	Kvinna						
20111005	ALLMÄN ODLING	2011	200604 (5)	Man						
20111015	NASOFARYNXODLING	2011	194210 (69)	Kvinna						
20111006	BLODODLING AEROB ANAEROB	2011	194307 (68)	Man						
20111017	NASOFARYNXODLING	2011	196010 (51)	Kvinna						
20111006	BLODODLING AEROB ANAEROB	2011	194307 (68)	Man						
20111019	ALLMÄN ODLING	2011	196005 (51)	Man						

Antib	Disk	Prim	Zon	SIR	Mic
CEFOFOXIM	30	1	39	S	
ERYTHROMYCIN	15	1	24	S	
ISOXAZOLYL-PENICILLIN	1	1	30	S	
KLINDAMYCIN	15	1	21	S	
MEROPENEM	10	1	44		
NORFLOXACIN	30	1	16	S	
PENICILLIN G	10	1	34		0,016
PENICILLIN V	10	1		S	
RIFAMPICIN	2	1	25	S	
TETRACYKLIN		1	25	S	
TRIMETOPRIMSULFA	25	1	22	S	
VANKOMYCIN	5	1	18	S	

Antibiotikum	Totalt	S %	I %	R %
AMIKACIN	11	90,9	9,1	0
AMOXICILLIN	562	3,6	63,7	32,7
AMOXICILLINCLAVULANSYRA	5	60	0	40
AMPICILLIN	16 926	26,3	45,7	28
AZTREONAM	364	18,1	6	75,8
CEFADROXIL	36 723	56,5	40,2	3,3
CEFALEXIN	4	25	0	75
CEFEPIM	360	31,4	5,3	63,3
CEFOTAXIM	12 951	91	0,5	8,5
CEFOXITIN	160	34,4	0	65,6
CEFPODOXIM	299	7,5	0	92,5
CEFTAZIDIM	15 018	92,2	1,6	6,2
CEFTIBUTEN	22 573	98,6	0,1	1,4
CEFUROXIM	305	80	0,7	19,3
CIPROFLOXACIN	34 185	89,5	0,3	10,2
COLISTIN	13	100	0	0
DOXYCYKLIN	4	0	0	100
ERTAPENEM	156	98,7	0	1,3
FOSFOMYCIN	746	63,9	0	36,1
FUSIDINSYRA	1	0	0	100
GENTAMICIN	2 999	89,5	0,5	10
IMIPENEM	721	99,9	0	0,1

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