

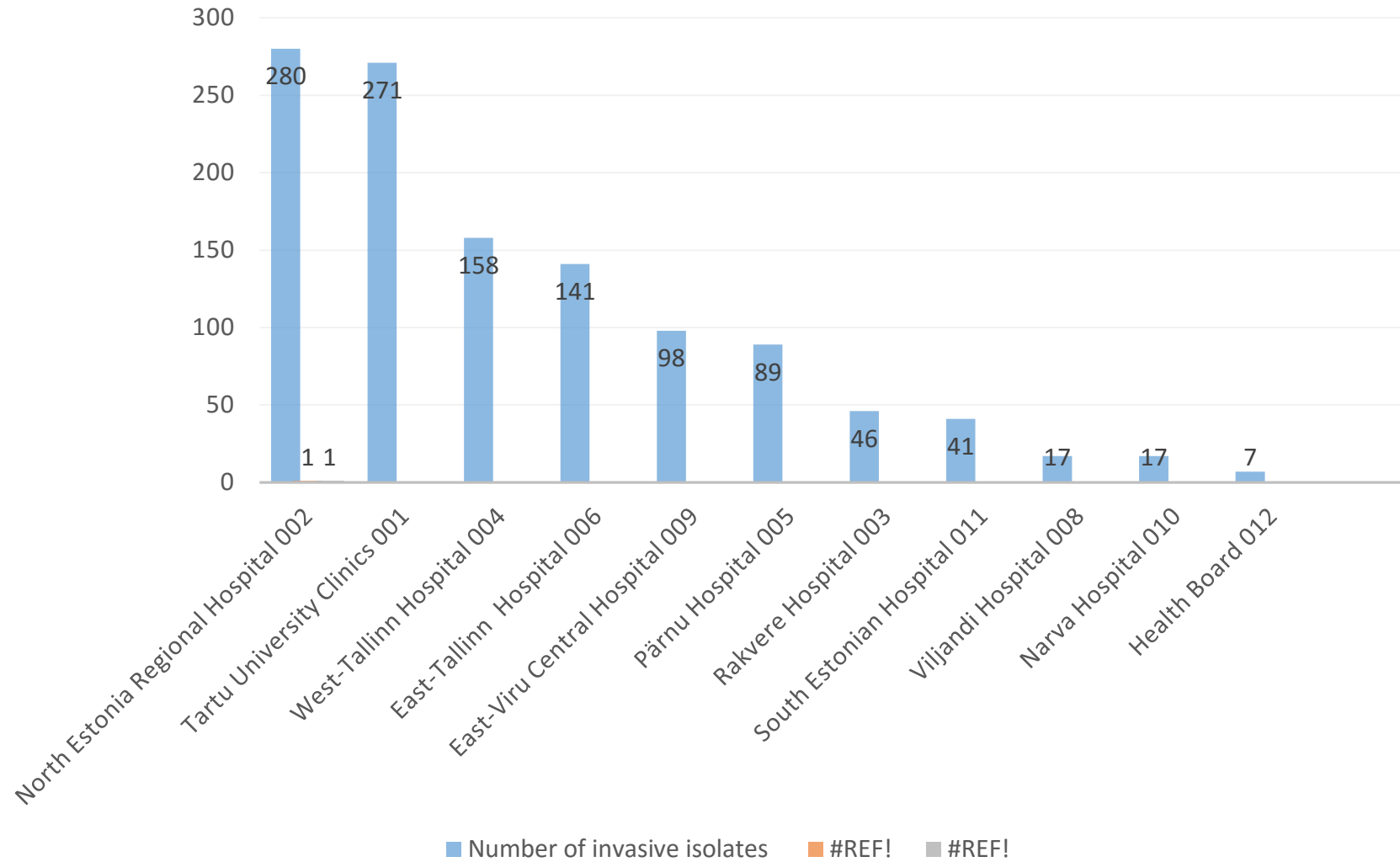
# Antimikroobse ravimresistentsuse seire Eestis

2015. aastal isoleeritud invasiivseid leide sisestas WHONET tarkvara kaudu jätkuvalt Terviseamet.

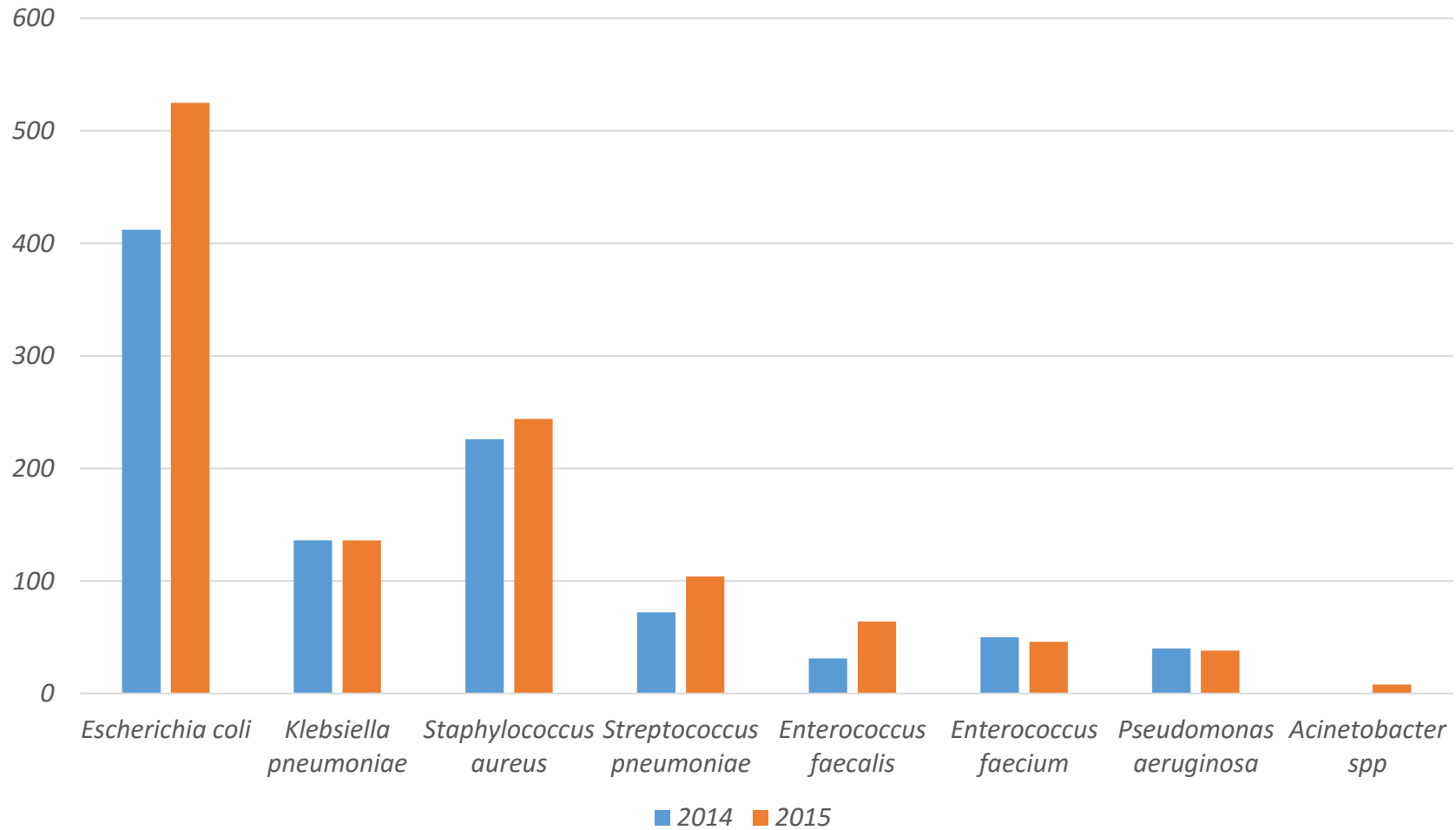
Eestis on võrgustikuga liitunud 11 mikrobioloogia laborit.

Kokku laekus laboritelt teatise ravim tundlikkusest 1165 mikroorganismi kohta, sh vereisolaate - 1151 ja isolaate liikvorist - 14.

# Number of invasive isolates reported by laboratories, Estonia, 2015



Number of invasive isolates reported by laboratories,  
in 2014 and 2015



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ECDC  
Extranet

**TESSy** The European Surveillance System



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Väljavõte 2014. aasta Eesti andmetest TESSy's

# Verification Summary for Antimicrobial Resistance

## Enterococcus faecalis

Number of labs: 8

Number of first isolates: 31

Antimicrobial Group	Antibiotic/equivalent	No of first isolates tested						
		Total	S		I		R	
			n	%	n	%	n	%
Aminopenicillins	Final Interpretation	30	25	83.3%	0	0.0%	5	16.7%
	AMP	29	24	82.8%	0	0.0%	5	17.2%
	AMX	1	1	100.0%	0	0.0%	0	0.0%
High level gentamicin	Final Interpretation	19	12	63.2%	0	0.0%	7	36.8%
	GEH	19	12	63.2%	0	0.0%	7	36.8%
Linezolid	Final Interpretation	19	19	100.0%	0	0.0%	0	0.0%
	LNZ	19	19	100.0%	0	0.0%	0	0.0%
Vancomycin	Final Interpretation	31	31	100.0%	0	0.0%	0	0.0%
	VAN	31	31	100.0%	0	0.0%	0	0.0%

## Enterococcus faecium

Number of labs: 7

Number of first isolates: 50

Antimicrobial Group	Antibiotic/equivalent	Total	No of first isolates tested					
			S		I		R	
			n	%	n	%	n	%
Aminopenicillins	Final Interpretation	49	13	26.5%	0	0.0%	36	73.5%
	AMP	49	13	26.5%	0	0.0%	36	73.5%
High level gentamicin	Final Interpretation	29	12	41.4%	0	0.0%	17	58.6%
	GEH	29	12	41.4%	0	0.0%	17	58.6%
Linezolid	Final Interpretation	32	31	96.9%	1	3.1%	0	0.0%
	LNZ	32	31	96.9%	1	3.1%	0	0.0%
Vancomycin	Final Interpretation	48	48	100.0%	0	0.0%	0	0.0%
	VAN	48	48	100.0%	0	0.0%	0	0.0%

### Escherichia coli

Number of labs: 11

Number of first isolates: 412

Antimicrobial Group	Antibiotic/equivalent	Total	No of first isolates tested					
			S		I		R	
			n	%	n	%	n	%
<b>3rd gen. cephalosporins</b>	Final Interpretation	410	370	90.2%	2	0.5%	38	9.3%
	CAZ	287	259	90.2%	0	0.0%	28	9.8%
	CRO	6	4	66.7%	0	0.0%	2	33.3%
	CTX	406	368	90.6%	2	0.5%	36	8.9%
<b>Aminoglycosides</b>	Final Interpretation	412	373	90.5%	10	2.4%	29	7.0%
	AMK	263	258	98.1%	3	1.1%	2	0.8%
	GEN	411	381	92.7%	8	1.9%	22	5.4%
	TOB	76	57	75.0%	8	10.5%	11	14.5%
<b>Aminopenicillins</b>	Final Interpretation	261	138	52.9%	0	0.0%	123	47.1%
	AMP	258	136	52.7%	0	0.0%	122	47.3%
	AMX	122	91	74.6%	4	3.3%	27	22.1%
<b>Carbapenems</b>	Final Interpretation	254	254	100.0%	0	0.0%	0	0.0%
	IPM	102	102	100.0%	0	0.0%	0	0.0%
	MEM	219	219	100.0%	0	0.0%	0	0.0%
<b>Fluoroquinolones</b>	Final Interpretation	407	357	87.7%	0	0.0%	50	12.3%
	CIP	407	357	87.7%	0	0.0%	50	12.3%
	LVX	10	10	100.0%	0	0.0%	0	0.0%

### **Klebsiella pneumoniae**

Number of labs: 10

Number of first isolates: 136

Antimicrobial Group	Antibiotic/equivalent	Total	No of first isolates tested					
			S		I		R	
			n	%	n	%	n	%
<b>3rd gen. cephalosporins</b>	Final Interpretation	135	105	77.8%	2	1.5%	28	20.7%
	CAZ	106	79	74.5%	2	1.9%	25	23.6%
	CRO	1	0	0.0%	0	0.0%	1	100.0%
	CTX	135	107	79.3%	0	0.0%	28	20.7%
<b>Aminoglycosides</b>	Final Interpretation	136	106	77.9%	4	2.9%	26	19.1%
	AMK	96	89	92.7%	2	2.1%	5	5.2%
	GEN	135	107	79.3%	4	3.0%	24	17.8%
	TOB	36	21	58.3%	2	5.6%	13	36.1%
<b>Carbapenems</b>	Final Interpretation	92	91	98.9%	1	1.1%	0	0.0%
	IPM	40	40	100.0%	0	0.0%	0	0.0%
	MEM	71	70	98.6%	1	1.4%	0	0.0%
<b>Fluoroquinolones</b>	Final Interpretation	133	104	78.2%	0	0.0%	29	21.8%
	CIP	133	104	78.2%	0	0.0%	29	21.8%
	LVX	5	3	60.0%	0	0.0%	2	40.0%



## **Pseudomonas aeruginosa**

Number of labs: 7

Number of first isolates: 40

Antimicrobial Group	Antibiotic/equivalent	Total	No of first isolates tested					
			S		I		R	
			n	%	n	%	n	%
<b>Amikacin</b>	Final Interpretation	32	32	100.0%	0	0.0%	0	0.0%
	AMK	32	32	100.0%	0	0.0%	0	0.0%
<b>Aminoglycosides</b>	Final Interpretation	40	37	92.5%	0	0.0%	3	7.5%
	GEN	39	36	92.3%	0	0.0%	3	7.7%
	TOB	10	10	100.0%	0	0.0%	0	0.0%
<b>Carbapenems</b>	Final Interpretation	39	31	79.5%	2	5.1%	6	15.4%
	IPM	29	21	72.4%	2	6.9%	6	20.7%
	MEM	27	25	92.6%	0	0.0%	2	7.4%
<b>Ceftazidime</b>	Final Interpretation	28	25	89.3%	1	3.6%	2	7.1%
	CAZ	28	25	89.3%	1	3.6%	2	7.1%
<b>Fluoroquinolones</b>	Final Interpretation	39	35	89.7%	0	0.0%	4	10.3%
	CIP	39	35	89.7%	0	0.0%	4	10.3%
<b>Piperacillin/taz</b>	Final Interpretation	39	35	89.7%	0	0.0%	4	10.3%
	TZP	39	35	89.7%	0	0.0%	4	10.3%

## Staphylococcus aureus

Number of labs: 11

Number of first isolates: 226

Antimicrobial Group	Antibiotic/equivalent	No of first isolates tested						
		Total	S		I		R	
			n	%	n	%	n	%
<b>Fluoroquinolones</b>	Final Interpretation	214	203	94.9%	0	0.0%	11	5.1%
	CIP	214	203	94.9%	0	0.0%	11	5.1%
	LVX	5	4	80.0%	0	0.0%	1	20.0%
	NOR	1	1	100.0%	0	0.0%	0	0.0%
<b>Linezolid</b>	Final Interpretation	128	128	100.0%	0	0.0%	0	0.0%
	LNZ	128	128	100.0%	0	0.0%	0	0.0%
<b>MRSA</b>	Final Interpretation	223	216	96.9%	0	0.0%	7	3.1%
	FOX	161	156	96.9%	0	0.0%	5	3.1%
	OXA	99	96	97.0%	0	0.0%	3	3.0%

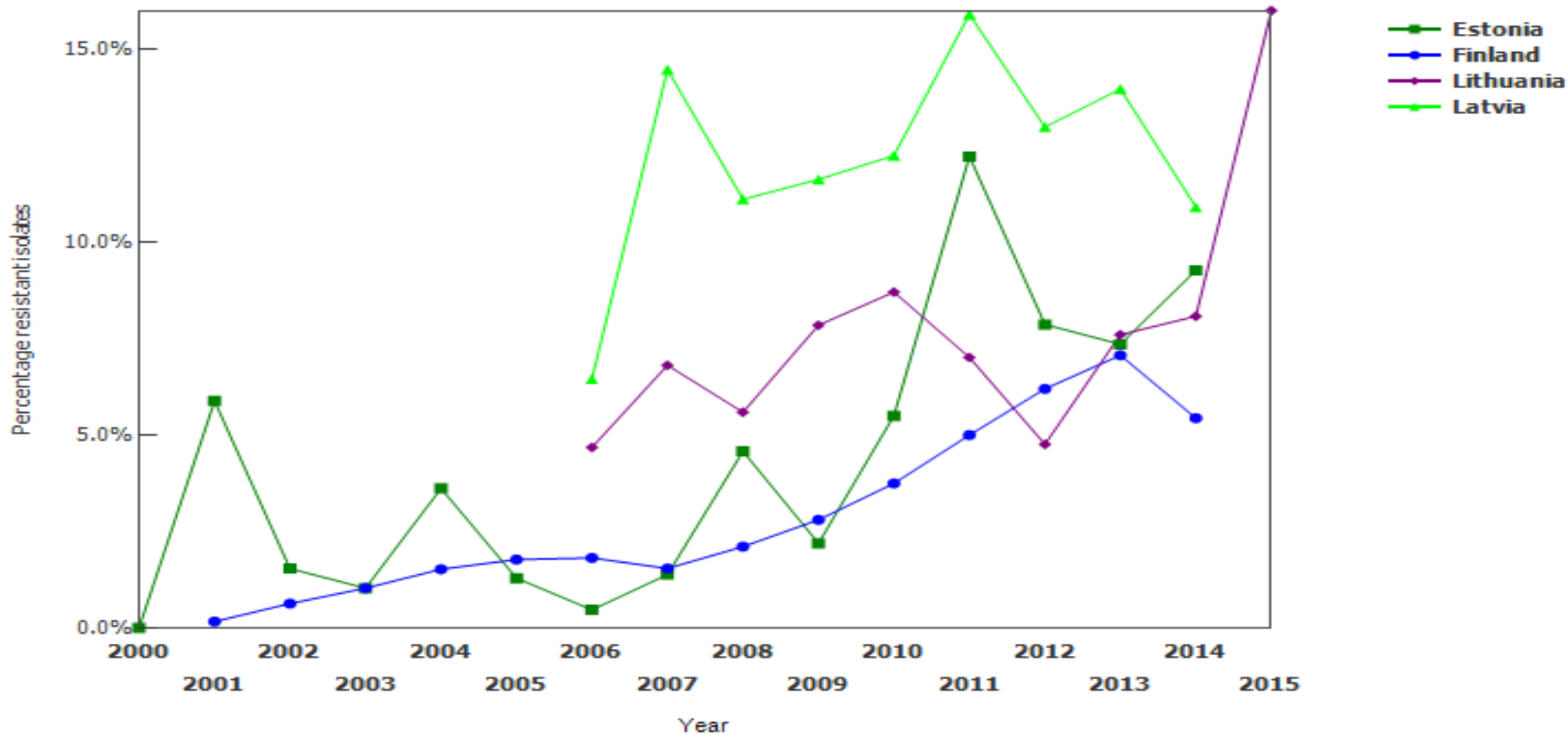
## Streptococcus pneumoniae

Number of labs: 10

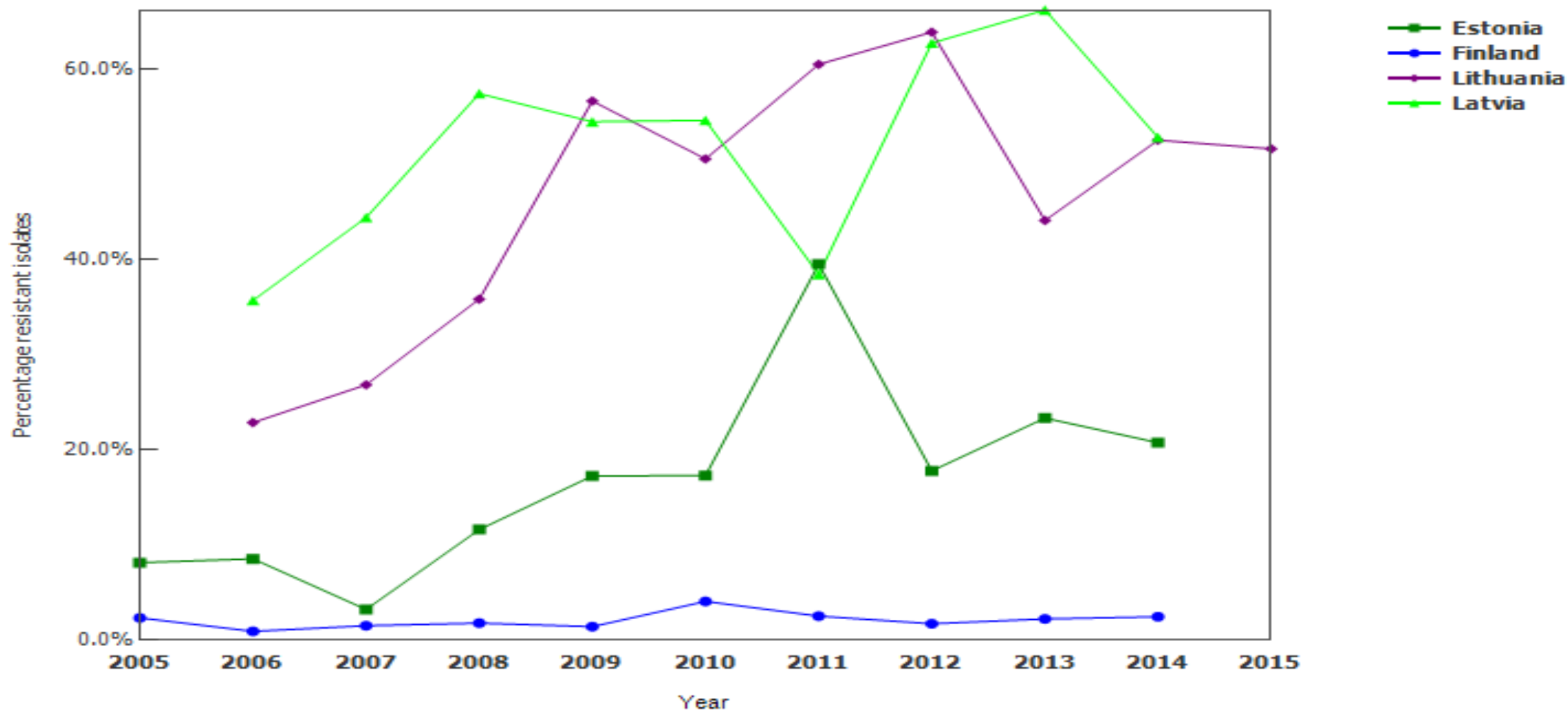
Number of first isolates: 72

Antimicrobial Group	Antibiotic/equivalent	Total	No of first isolates tested					
			S		I		R	
			n	%	n	%	n	%
<b>3rd gen. cephalosporins</b>	Final Interpretation	49	49	100.0%	0	0.0%	0	0.0%
	CRO	5	5	100.0%	0	0.0%	0	0.0%
	CTX	48	48	100.0%	0	0.0%	0	0.0%
<b>Fluoroquinolones</b>	Final Interpretation	24	23	95.8%	0	0.0%	1	4.2%
	LVX	2	2	100.0%	0	0.0%	0	0.0%
	NOR	23	22	95.7%	0	0.0%	1	4.3%
<b>Macrolides</b>	Final Interpretation	54	51	94.4%	0	0.0%	3	5.6%
	ERY	54	51	94.4%	0	0.0%	3	5.6%
<b>Moxifloxacin</b>	Final Interpretation	10	10	100.0%	0	0.0%	0	0.0%
	MFX	10	10	100.0%	0	0.0%	0	0.0%
<b>Penicillins</b>	Final Interpretation	72	69	95.8%	1	1.4%	2	2.8%
	OXA	53	48	90.6%	2	3.8%	3	5.7%
	PEN	51	51	100.0%	0	0.0%	0	0.0%

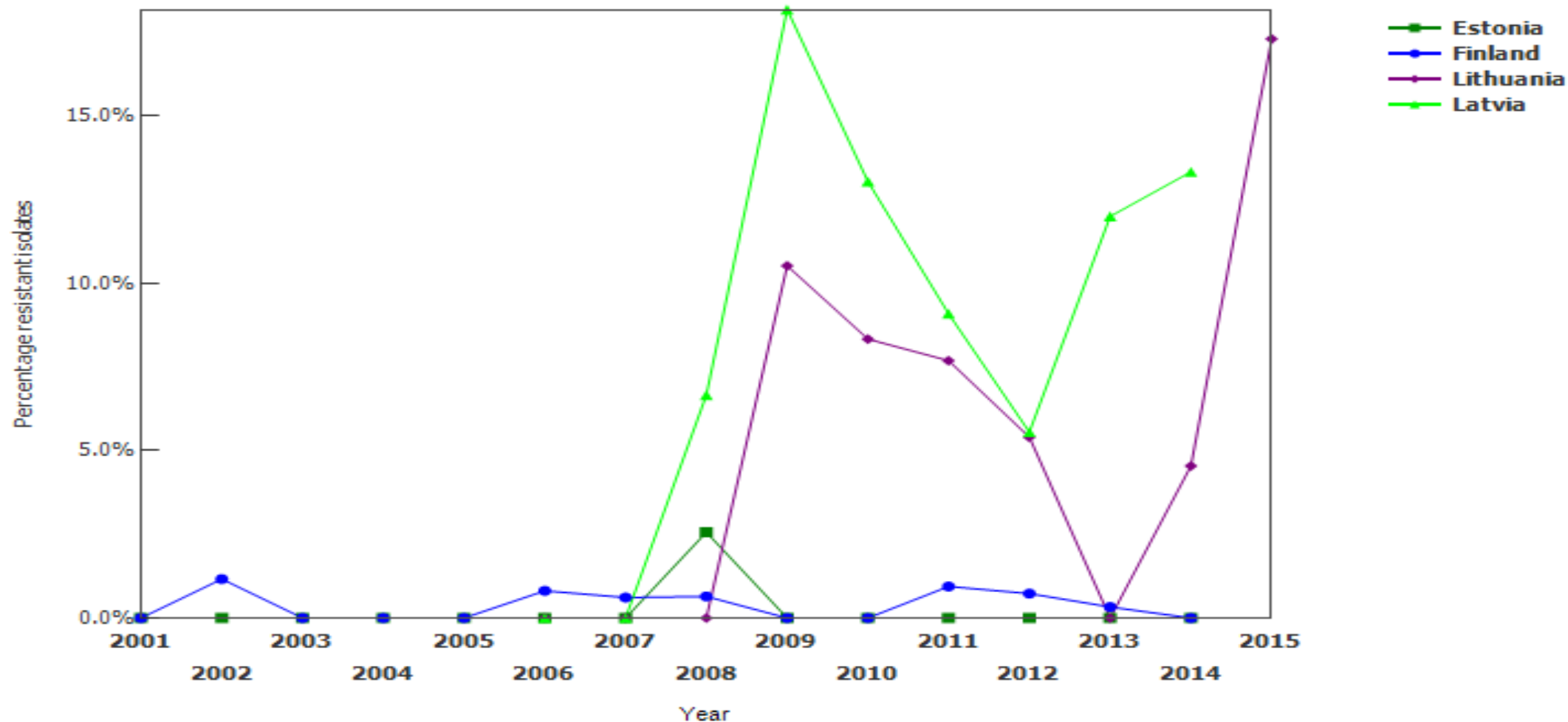
# Proportion of 3rd gen. cephalosporins Resistant (R) *Escherichia coli* Isolates in Estonia, Latvia, Finland and Lithuania, 2000 - 2015



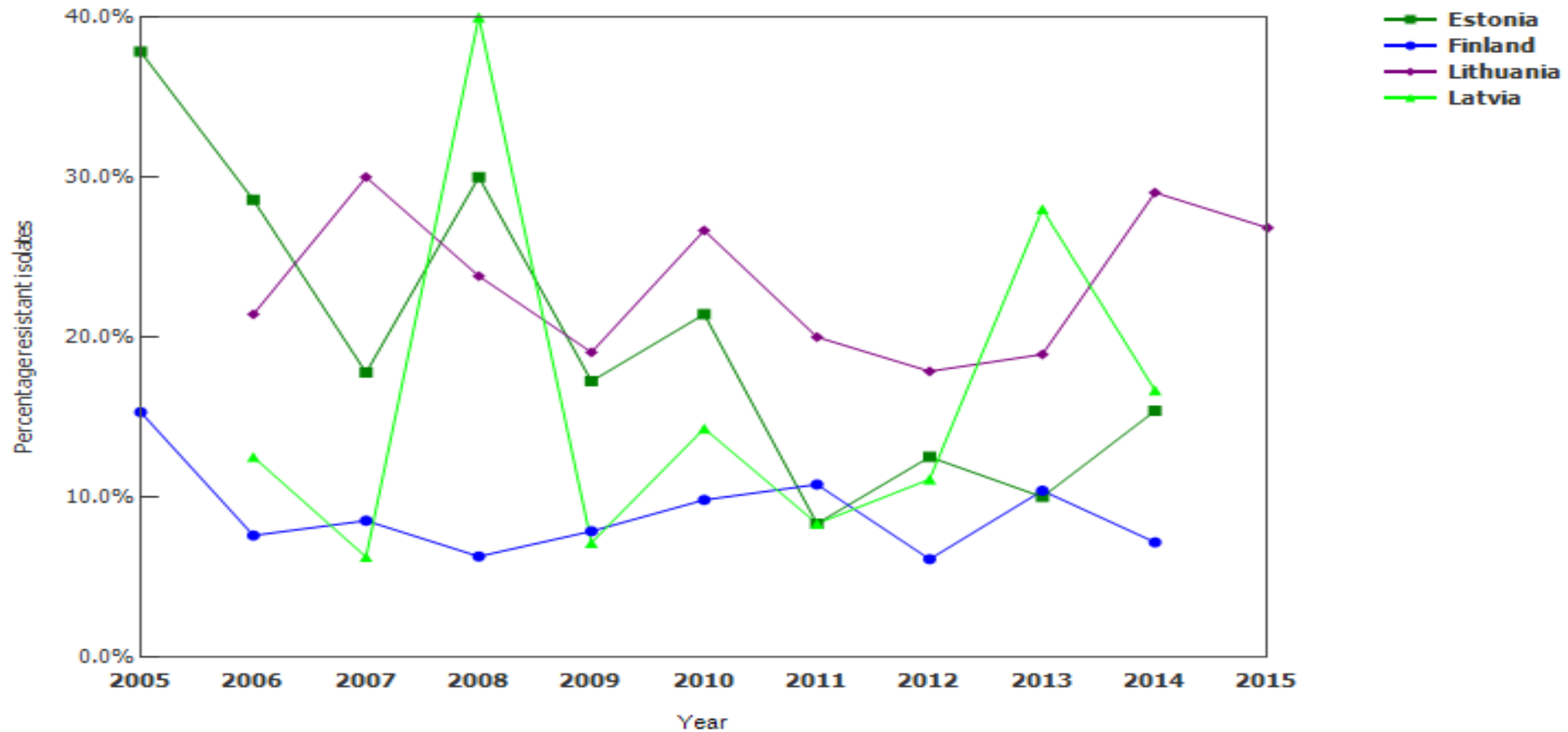
# Proportion of 3rd gen. cephalosporins Resistant (R) *Klebsiella pneumoniae* Isolates in Estonia, Latvia, Finland and Lithuania, 2005 - 2015



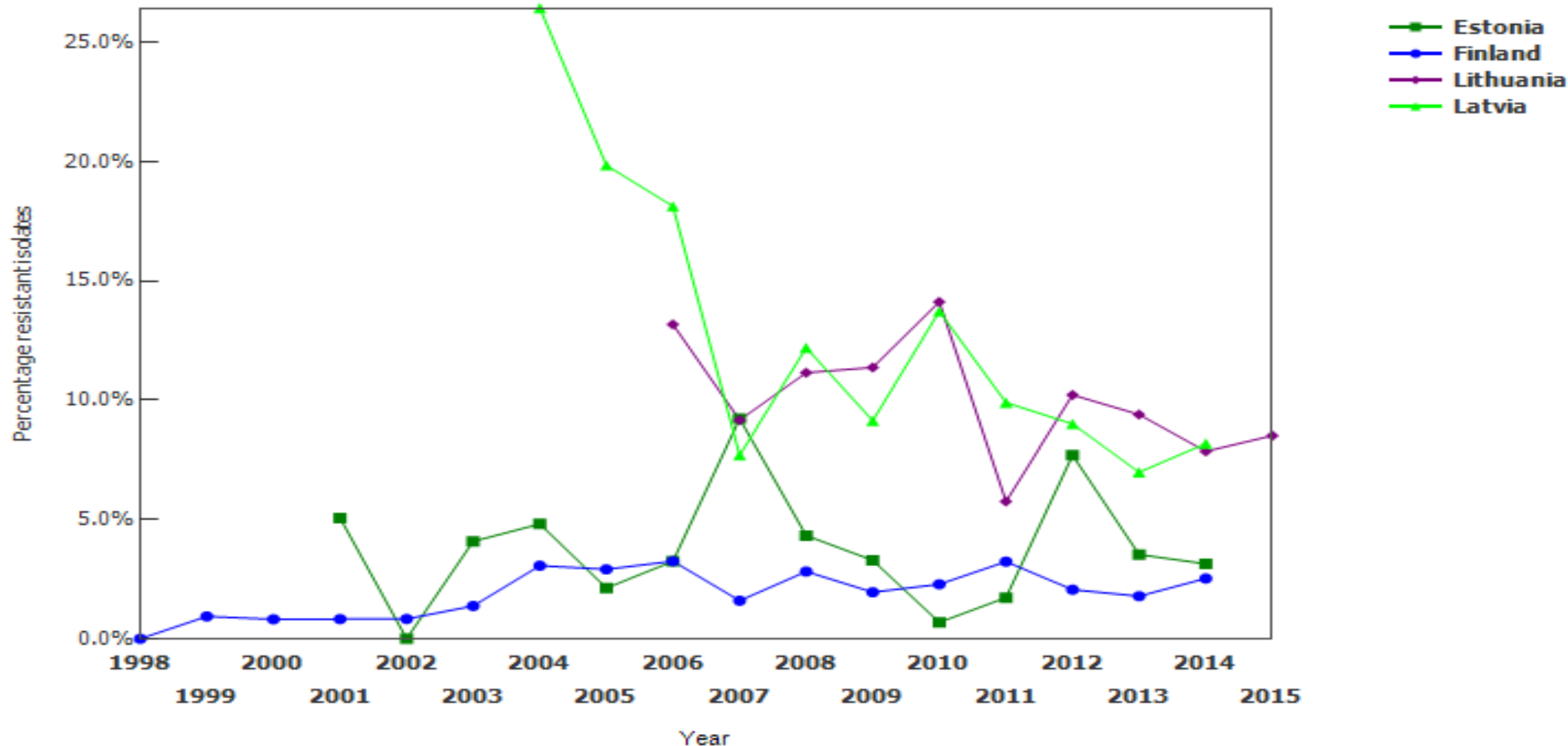
# Proportion of Vancomycin Resistant (R) *Enterococcus faecium* Isolates in Estonia, Latvia, Finland and Lithuania, 2001 - 2015



# Proportion of Carbapenems Resistant (R) *Pseudomonas aeruginosa* Isolates in Estonia, Latvia, Finland and Lithuania, 2005 - 2015

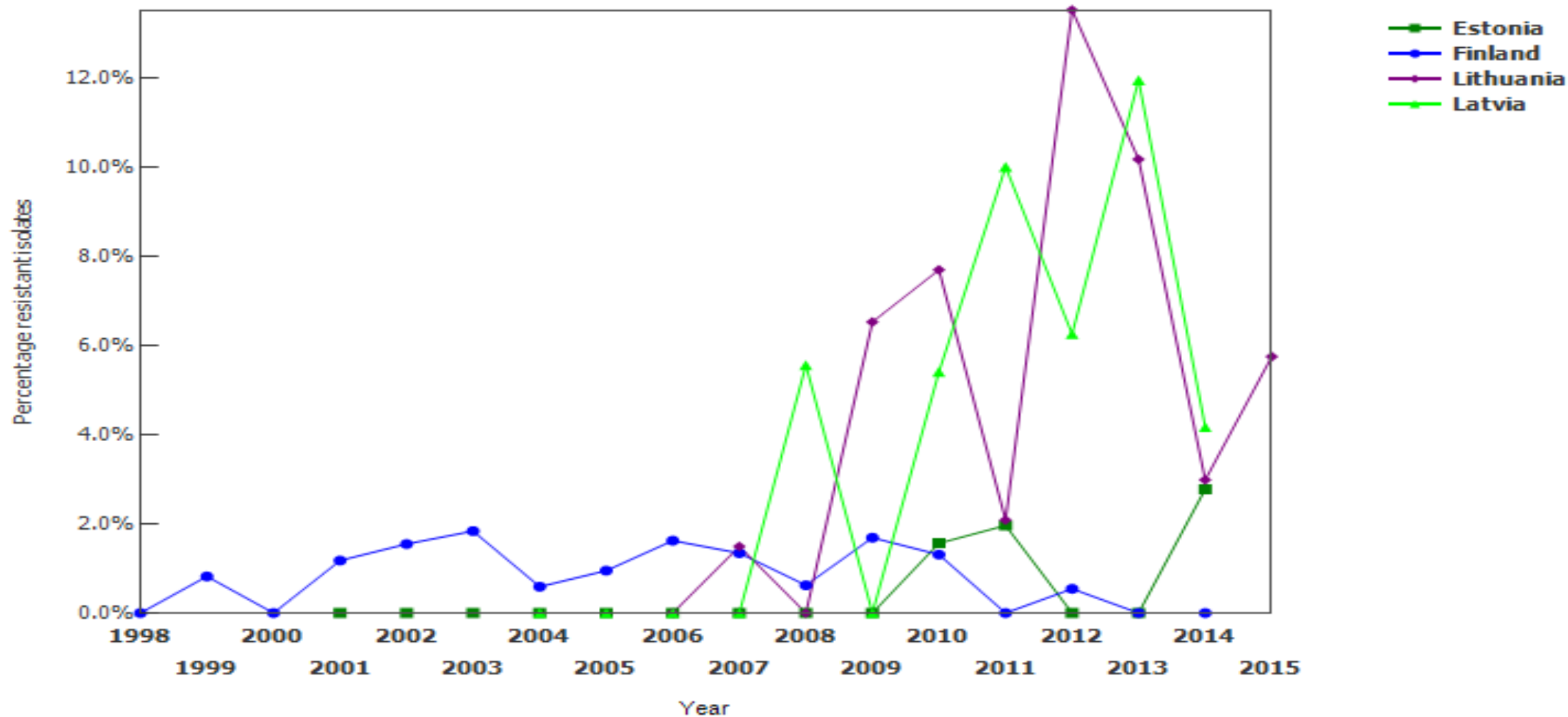


# Proportion of Methicillin Resistant *Staphylococcus aureus* (MRSA) Isolates in Estonia, Latvia, Finland and Lithuania, 1998 - 2015

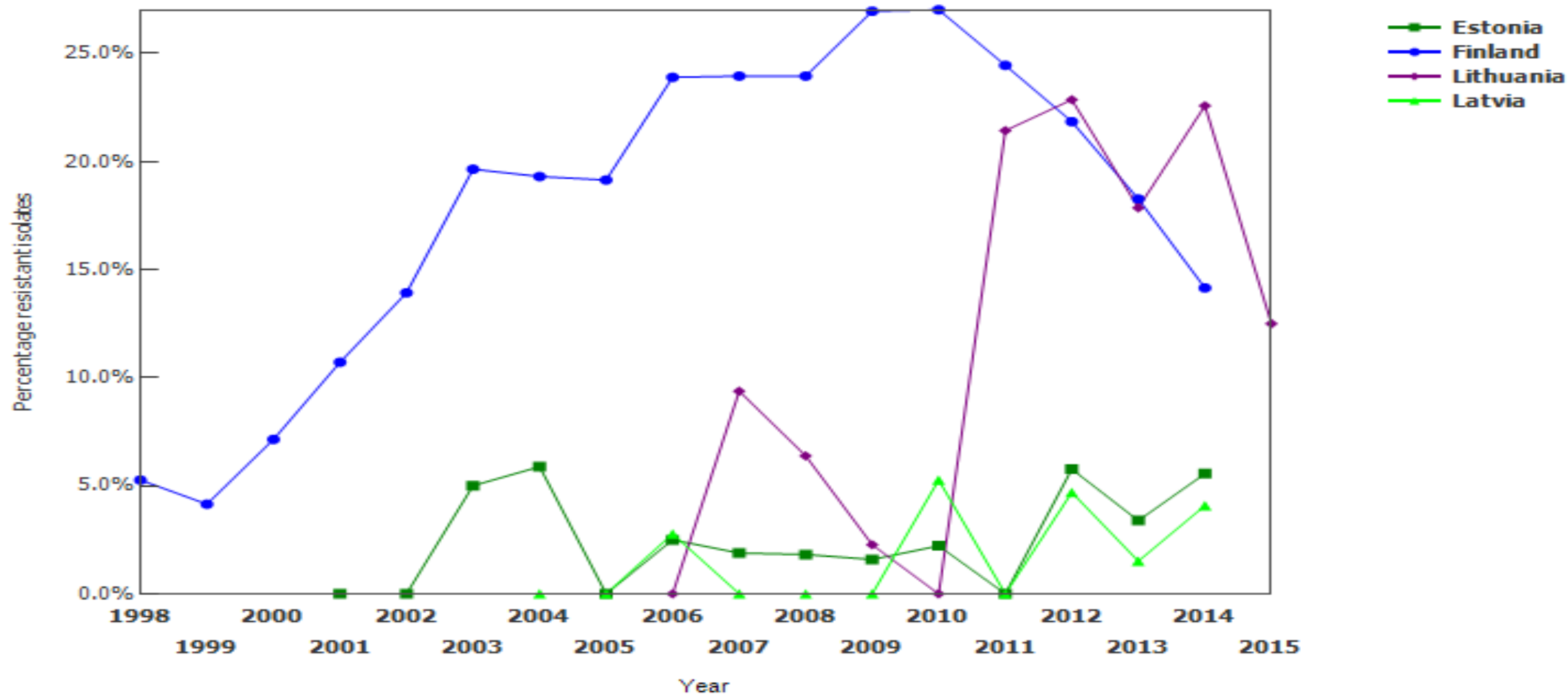




# Proportion of Penicillins Resistant (R) *Streptococcus pneumoniae* Isolates in Estonia, Latvia, Finland and Lithuania, 1998 - 2015



# Proportion of Macrolides Resistant (R) *Streptococcus pneumoniae* Isolates in Estonia, Latvia, Finland and Lithuania, 1998 - 2015



# Meie esmakordne andmete sisestamine

- Whonet 5,6 programmi tarkvara installeerimine

- programmi kasutamise oskused puudusid

Tarvitasime kolleegide abi – Annika ja Marina -  
laborite baasi andmete loomises, andmete analüüsimises  
ja teistest laboritest, kes olid alati valmis koostööks

Ees on kõige raskem osa:

- Andmete edastamine TESSy`sse esimeseks juuniks

# Meie esmakordne andmete sisestamine

- Ebaolulised, ainult meist sõltuvad probleemid:

\* (nt *Acinetobacter* spp asemel oli sisestatud *Acinetobacter baumannii*, ei teadnud, et on olemas laiendatud mikroorganismide nimikiri

\* 2015. aasta andmete sisestamine alates 01.01.2016. a vajas käsitsi muutmist, sest „Specimen date“- lisaks kuupäevale tuli sisestada ka aasta, mis muidu oli automaatne

„Age“- patsiendi vanuse arvuti arvutab ise vastavalt patsiendi sünniajale ja andmete sisestamise ajale ja sisestatud vanus erineb tegelikkusest 1 aasta võrra

# Meie esmakordne andmete sisestamine

- Veel probleeme:

*Streptococcus pneumoniae* võtsime süsteemist välja penitsilliini *non-meningitidis* murdepunktid, aga esialgset varianti taastada ei õnnestu. Seega 66 pneumokoki tüve on hinnatud *meningitidis* murdepunktide järgi. Õnneks seekord see lõplikku tulemust ei mõjutanud.

3nda põlvkonna tsefalosporiinide valik *Pseudomonas aeruginosa* puhul: TESSy andmetel ei ole meie laboritel alati tseftazidiim määratud, kuigi see on ELMÜ põhireas.

Samuti ei ole soovitatud *Pseudomonas aeruginosa* puhul kasutada diskdifusioonimeetodit vaid E-testi.

# Protokollidest, ehk täidetavatest vormidest

- Soovitav on kasutada

[EARS-Net Reporting protocol 2015, Annex 2, Isolate forms \(7\)](#) , mis on saadaval -

[ecdc.europa.eu](http://ecdc.europa.eu)



ECDC → activities → surveillance



Indicator-based surveillance



Diseases and Countries under EU surveillance



European networks of disease experts



European Antimicrobial Resistance surveillance Network (EARS-Net)



EARS-Net Documents



[EARS-Net Reporting protocol 2015, Annex 2, Isolate forms \(7\)](#)

# Küsimused arutlemiseks

- ESBL' l ei ole käibel olevas protokollis ette nähtud kohta märkimiseks. Seni, kuni me ei ole võrgustikus asja üles võtnud, palume märkida protokollis suvalisele kohale
- Sellel aastal sisestasime vaid klassikalise ESBL. AmpC jäi välja.
- MIK tulemused on saadud erinevatel meetoditel: lahjendusmeetod või E-test. Me kahtleme, kas see osa protokollis vastas tegelikule meetodile

Microbiology

Organism

eco

Escherichia coli

Serotype

Beta-lactamase

ESBL

-

Carbapenemase

-

MRSA screening test

Inducible clindamycin

Antibiotic panel

Gram negative





RSA screening test  
ducible clindamycin  
antibiotic panel

Gram negative

Disk

MIC

Etest

AMK		
EP	32	S
P	27	S
M		
FX		

AMX		
CTX	29	S
COL		
LVX		
TOB		

AMC		
CAZ		
ETP		
MEM	30	S

AMP		
CRO		
GEN	21	S
MX		

Tänne!

