

Sorveglianza Resistenze Laboratorio AUSL Romagna

Dati 2015 - 2019

Antibiogramma Molecolare

- Determina la presenza di geni di resistenza
 - Non serve il batterio vitale
 - Bassi LOD (dipendente da numero di target e da reazione)
 - Non influenzato da on going therapy
 - TAT molto rapido
 - Determina ciò che “noi vogliamo, non quello che c’è”
 - Singolo target
 - Pannelli (quanto completi)
 - Sensibilità della reazione
 - Mutazioni

Article

Comparison of four commercial screening assays for detection of bla_{KPC}, bla_{NDM}, bla_{IMP}, bla_{VIM} and bla_{OXA48} from rectal secretion collected by swabs.

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A total of 1015 non-duplicated rectal swab specimens were prospectively collected using ESwab™ (COPAN Italia S.p.A., Brescia, Italy). The samples were transported to the Laboratory upon collection, processed within 24 hours and reported in *Table 1. Detailed results of study specimens*

Assay	Assay results	Routine screening tests		
		Positive	Negative	Total
Allplex Enter-DR assay	Positive	25	17	42
	Negative	0	940	940
	Total	25	957	982
	Invalid			22
Amplidiag CARBAR+MCR kit	Positive	20	11 ^a	31 ^a
	Negative	4	949	953
	Total	24	959	983
	Invalid			32
AusDiagnostics MT CRE EU assay	Positive	19	5	24
	Negative	0	810	810
	Total	19	815	834
	Invalid			3
EasyScreen ESBL/CPO Detection Kit	Positive	22	5	27
	Negative	0	751	751
	Total	22	756	778
	Invalid			40

^a A specimen was KPC positive for routine screening, while with Amplidiag kit resulted positive for KPC and VIM targets.

Table 2. Assay performance

Assay	Sensitivity (%[95%CI])	Specificity (%[95%CI])	PPV (%[95%CI])	NPV (%[95%CI])	Overall % agreement (%[95%CI])	Kappa statistic
Allplex Enter-DR assay	100 (86.28- 100)	98.22 (97.17-98.96)	59.52 (47.86-70.20)	100	98,27 (97.24- 98.99)	0,74
Amplidiag CARBAR+MCR kit	83.33 (62.62-95.26)	98.85 (97.96-99.43)	64.52 (49.59-77.07)	99.58 (98.98-99.83)	98.48 (97.50-99.14)	0.72
AusDiagnostics MT CRE EU assay	100 (82.35-100)	99.39 (98.57-99.80)	79.17 (61.33-90.10)	100	99.40 (98.61- 99.81)	0.88
EasyScreen ESBL/CPO Detection Kit	100 (84.56-100)	99.34 (98.46-99.78)	81.48 (64.75-91.33)	100	99.36 (98.51-99.79)	0,89

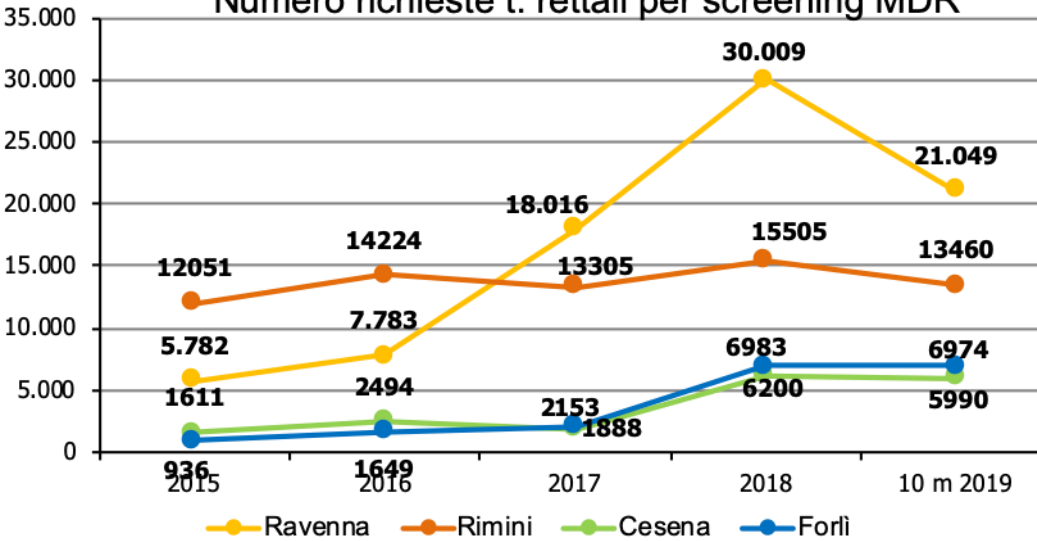
Table 3. Main characteristics of four commercial molecular kits for detecting carbapenemase genes in rectal swabs

	Allplex Entero-DR Assay	Amplidiag CARBAR+MCR kit	Ausdiagnostics MT CRE EU Assay	EasyScreen ESBL/CPO Detection Kit
Sample throughput	up to 94 tests/ batch	up to 64 tests/ batch	24 up to 64 tests/ batch	up to 80 tests / batch
Hands on time	45min	1h	20 min. ^a	3h
Assay run time	4 h	5h	2h ^a	6h
Extraction control	Yes	yes	yes	yes
PCR control	Yes	yes	yes	yes
intrinsic control	Yes	no	yes	yes
Other targets	vanA; vanB; CTX-M	AcOXA; MCR 1/2; GES-CPO;	SME; OXA-23,51,58-like; CTX-M group 1 and group 9; GES	TEM; DHA; CTX-M; CMY SHV; OXA 23; 51-like
Traceability	Yes	yes	Depending on DNA extraction system	no

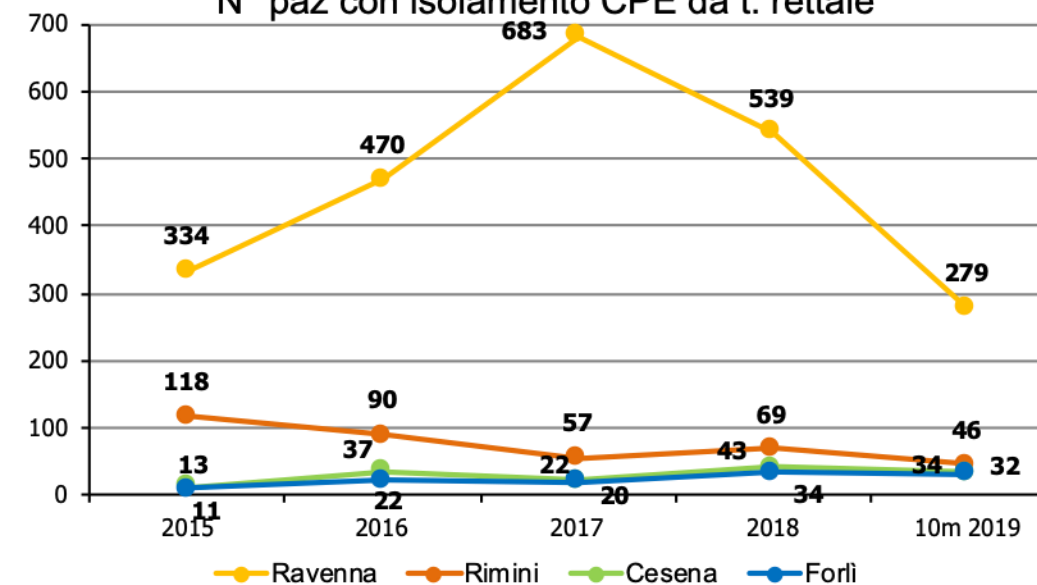
^a without extraction step.

Andamento CPE per tamponi rettali

Numero richieste t. rettali per screening MDR



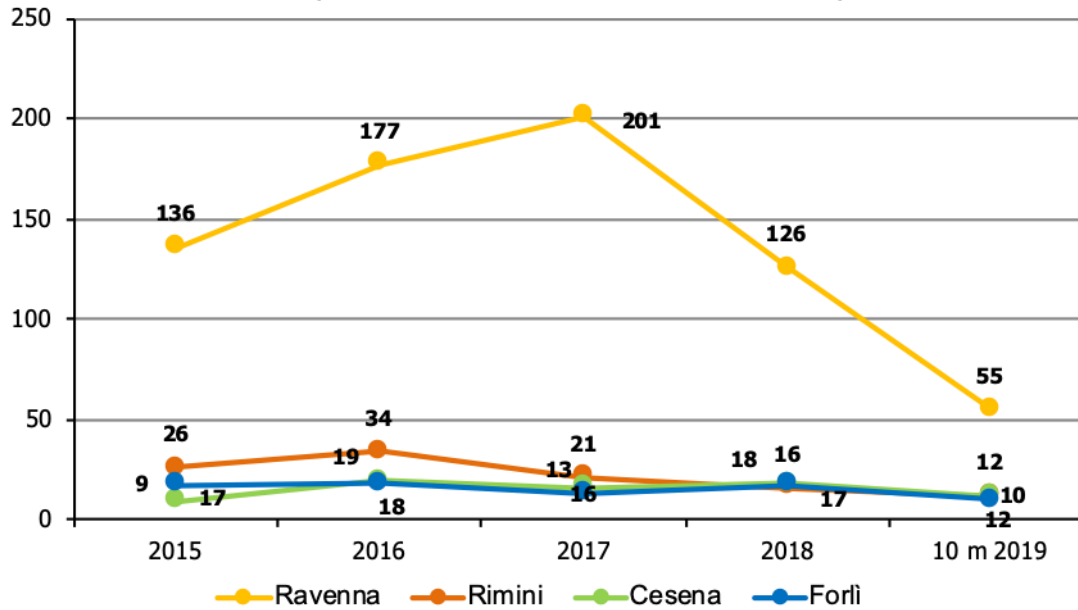
N° paz con isolamento CPE da t. rettale



		2015	2016	2017	2018	10 m 2019
Ravenna	KPC	309	446	668	513	259
	OXA48	4	6	3	5	6
	NDM				1	1
	VIM				12	12
	MBL	28	25	12	16	2
Rimini	KPC	103	75	47	57	35
	OXA48	1	2	2	2	6
	NDM				2	3
	VIM				3	3
	MBL	15	14	8	6	1
Cesena	KPC	11	36	12	33	28
	OXA48			9	7	4
	NDM				2	1
	VIM				1	1
	MBL	2	1	1	1	1
Forlì	KPC	7	16	16	22	19
	OXA48		1		1	3
	NDM				2	1
	VIM				5	11
	MBL	5	6	5	6	

Andamento CPE nei campioni clinici

N° pazienti con isolamenti CPE nei campioni clinici



Ambito	Microrganismo	Fenotipo	2015	2016	2017	2018	10 m 2019
Ravenna	Klebsiella pneumoniae	KPC	130	173	187	113	51
		OXA48	1	2			1
		VIM					1
	Escherichia coli	MBL	3	2	4	1	1
		KPC	3	3	14	7	2
		VIM				1	
Rimini	Klebsiella pneumoniae	KPC	24	29	19	14	9
		VIM					1
		MBL		4	1		1
	Escherichia coli	KPC				1	
		MBL	2				
	Cesena	Klebsiella pneumoniae	KPC	8	18	9	14
OXA48					3	2	
MBL			1		1		
Escherichia coli		KPC				1	
		OXA48			1	1	
		MBL			1		
Forlì	Klebsiella pneumoniae	KPC	8	12	13	8	4
		OXA48	2				
		VIM					1
		MBL	4	2	1	2	
	Escherichia coli	KPC	1			1	
		OXA48	1				
		MBL	1			1	
		VIM					1

Cluster E.hormachei NDM+ (4 pazienti)

ott-nov 2019 Centro Ustioni Cesena Ausl della Romagna

Paziente	Data di nascita	Sesso	Data prelievo	Unità operativa	Materiale	Microorganismo	NDM
BA	18/12/1952	M	09/10/2019	21-CE CENTRO USTIONI	Secreto rettale	Enterobacter hormaechei	+
BA	18/12/1952	M	11/10/2019	21-CE CENTRO USTIONI	Secreto rettale	Enterobacter hormaechei	+
BA	18/12/1952	M	16/10/2019	21-CE CENTRO USTIONI	Secreto rettale	Enterobacter hormaechei	+
BA	18/12/1952	M	23/10/2019	21-CE CENTRO USTIONI	Secreto rettale	Enterobacter hormaechei	+
BS	07/05/1950	M	06/11/2019	21-CE CENTRO USTIONI	Secreto rettale	Enterobacter hormaechei	+
RG	08/07/1941	F	06/11/2019	21-CE CENTRO USTIONI	Secreto rettale	Enterobacter hormaechei	+
BS	07/05/1950	M	07/11/2019	21-CE CENTRO USTIONI	Ess. cutaneo	Enterobacter hormaechei	+
RG	08/07/1941	F	07/11/2019	21-CE CENTRO USTIONI	Ess. cutaneo	Enterobacter hormaechei	+
BS	07/05/1950	M	15/11/2019	21-CE CENTRO USTIONI	Ess. cutaneo	Enterobacter hormaechei	+
RG	08/07/1941	F	15/11/2019	21-CE CENTRO USTIONI	Ess. cutaneo	Enterobacter hormaechei	+
BS	10/08/1954	F	20/11/2019	21-CE CENTRO USTIONI	Secreto rettale	Enterobacter cloacae	+

S. aureus-MR ed Enterococchi-VRE

Ausl della Romagna

S.AUREO	2016			2017			2018			11 m 2019		
	Totali	MR	%	Totali	MR	%	Totali	MR	%	Totali	MR	%
screening (t.nasale)	370	31	8.4	789	56	7.1	1014	51	5.0	789	47	6.0
basse vie resp.	621	151	24.3	656	163	24.8	679	153	22.5	549	94	17.1
pus, mat.chir. e protesici	308	56	18.2	351	78	22.2	386	72	18.7	318	39	12.3
sangue	472	107	22.7	550	131	23.8	618	167	27.0	562	118	21.0
ENTEROCOCCHI	2016			2017			2018			11 m 2019		
App.urinario	Totali	VRE	%	Totali	VRE	%	Totali	VRE	%	Totali	VRE	%
E.faecalis	1540	1	0.1	1966	5	0.3	1861	13	0.7	1673	5	0.3
E.faecium	111	9	8.1	139	23	16.5	169	34	20.1	177	35	19.8
Sangue	Totali	VRE	%	Totali	VRE	%	Totali	VRE	%	Totali	VRE	%
E.faecalis	230	0	0.0	242	1	0.4	270	1	0.4	273	2	0.7
E.faecium	100	8	8.0	85	14	16.5	104	20	19.2	104	23	22.1

Incidenza annuale di CPE per 100000 abitanti

