

Molecular epidemiology of KPC-producing *Enterobacteriaceae* (ETB) in Argentina: An update 2006-2012

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2009

Hawser SP, IJAA. 2009;34(4):384-5.

2006

Villegas, AAC; 2006; 50(8):2880-2

2009

Monteiro J, AAC 2009 Jan;53(1):333-4.

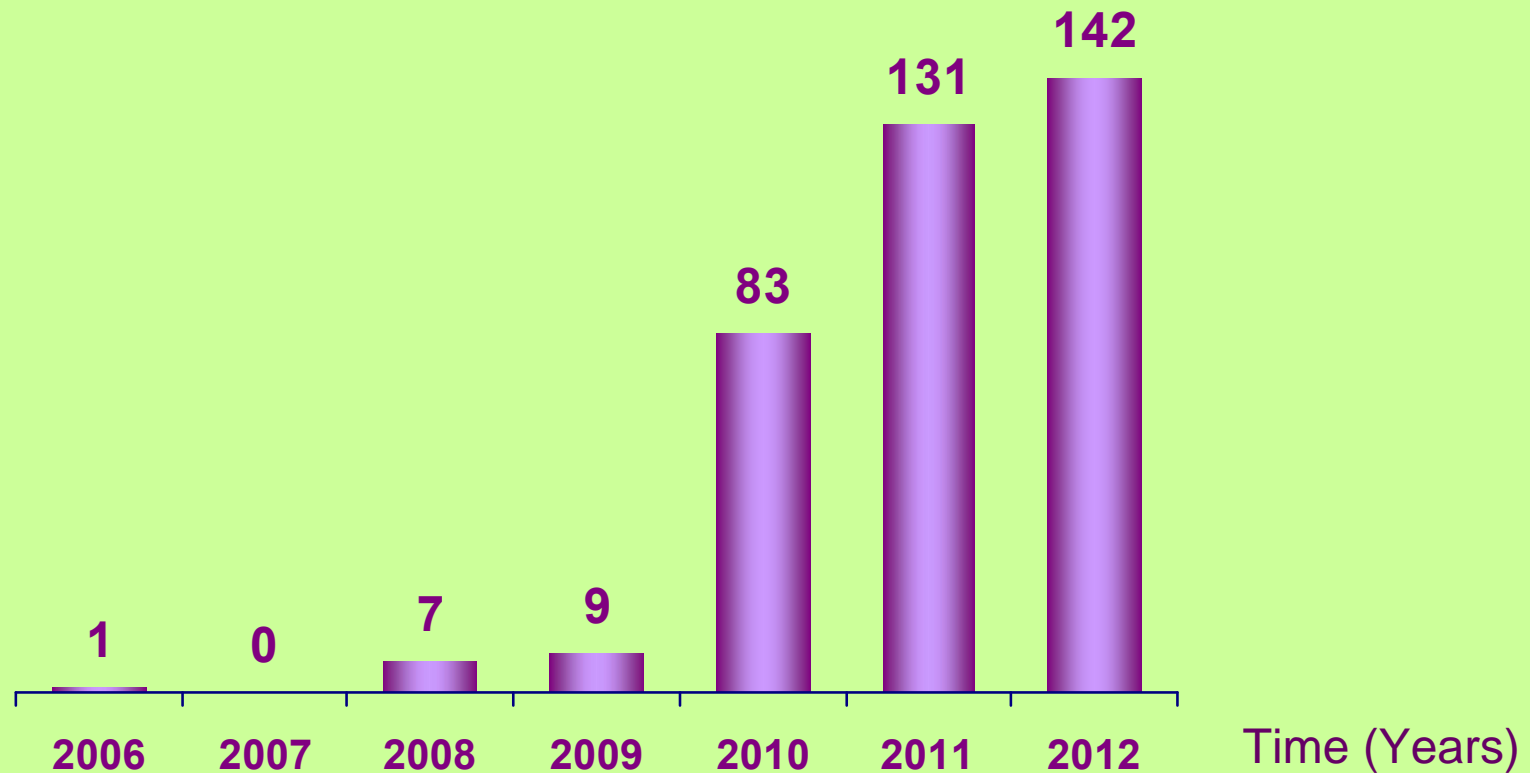
2008

Pasteran FG, EID 2008;14(7):1178-80.

AIM

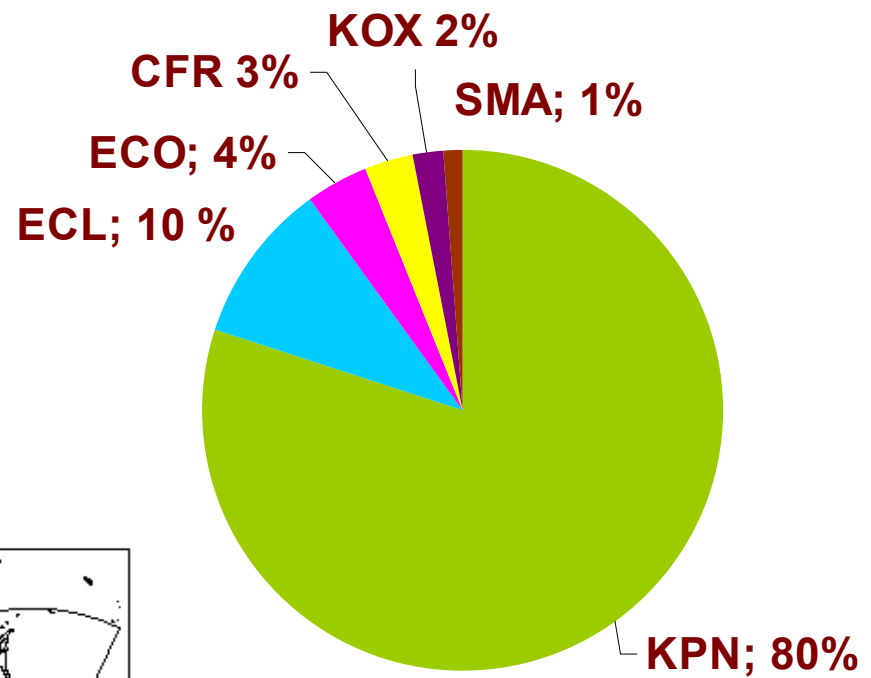
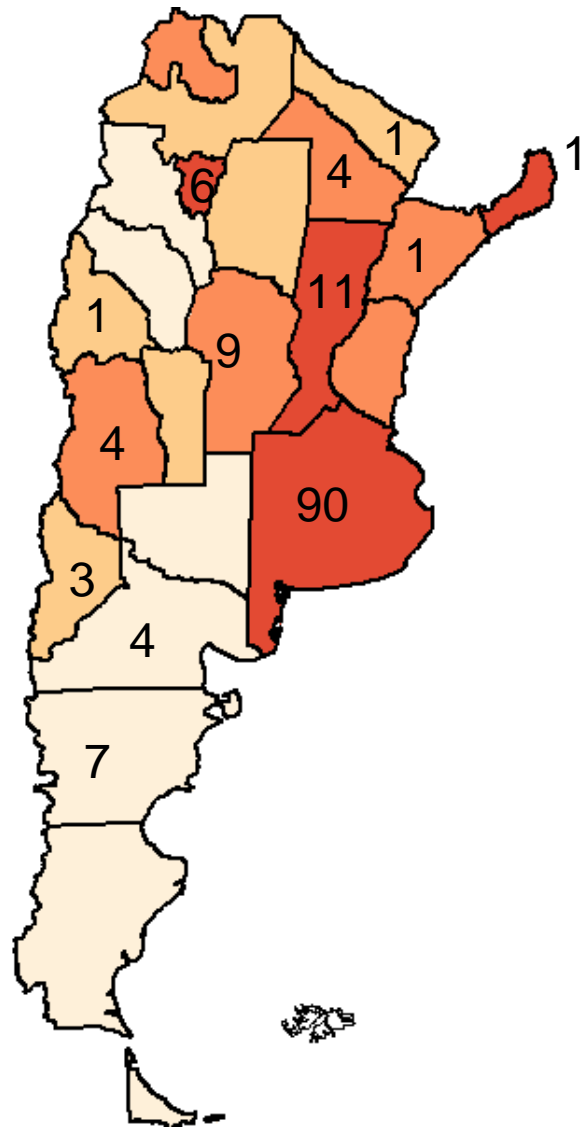
To describe the progress of KPC-producing
Enterobacteria in Argentina

Cumulative number of institutions affected by KPC in Argentina from Dec 2006 – Feb 2012.



- 142 health institutions from 14 provinces, referred at least one isolate of KPC-producing ETB to the National Reference Laboratory (NRL).
- Many of them suffered outbreaks.
- A total of 401 KPC-producing ETB were referred to the NRL for molecular confirmation and characterization.-

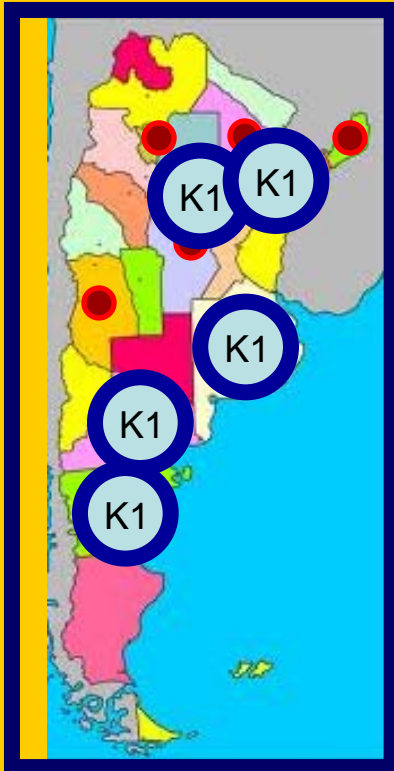
GEOGRAPHICAL DISTRIBUTION AND SPECIES OF ETB CARRYING *bla*_{KPC}



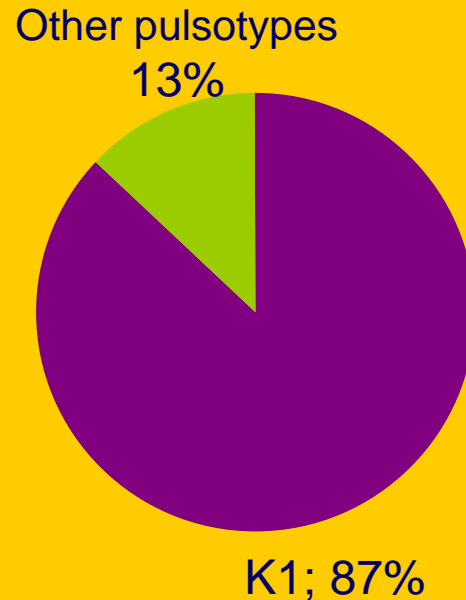
142 Health Institutions

Molecular characterization of KPC-producing *K. pneumoniae* isolates.

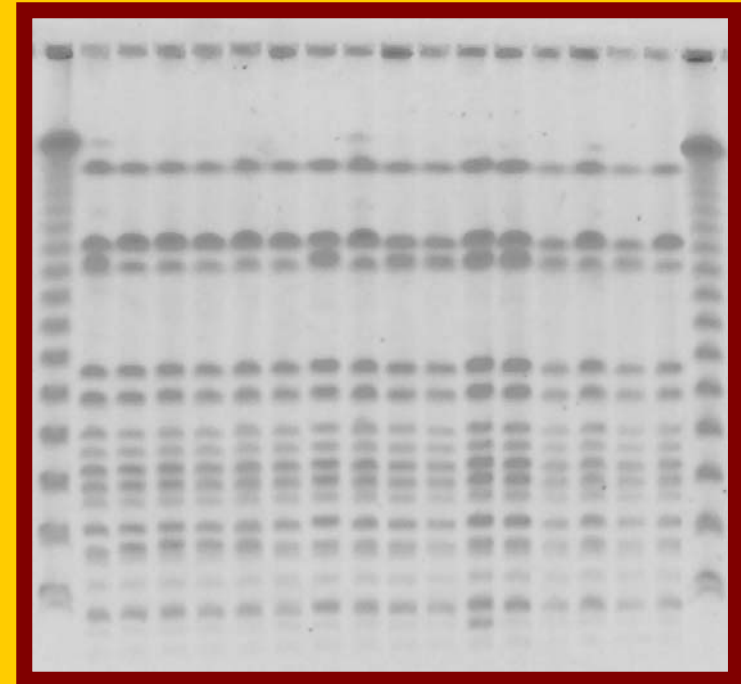
Distribution of Kpn-KPC



CLONAL RELATEDNESS
KPN PULSOTYPES



*Xba*I - PFGE



K1: ST258, *tn4401a*, *bla*_{KPC-2}

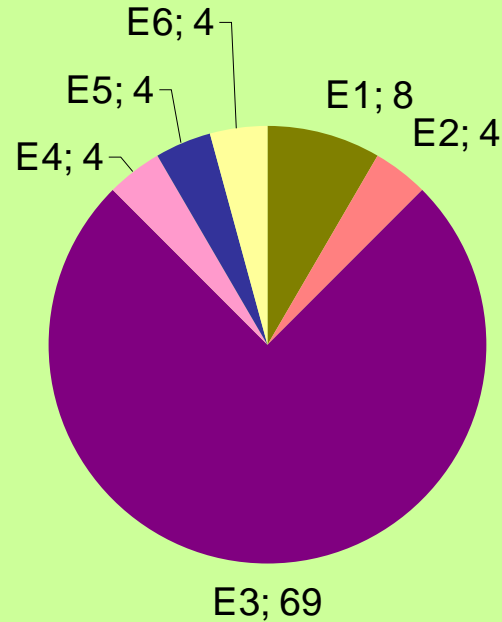
- 152/318 *K. pneumoniae* were studied by PFGE (10 provinces, 127 htals.)
- 87% belonged to PFGE type K1 and ST258, harbored *bla*_{KPC-2} and were associated with *Tn4401a*, mostly from Buenos Aires area (97%). The rest: ST11, ST476, ST526.
- PBRT of 62 selected isolates revealed that 77% of the strains harbored FIIIs plasmids. A/C, L/M and N were also detected.
- The ESBLs detected in KPN were 4/318 *bla*_{PER-2} and 6/318 *bla*_{CTX-M2}.

Molecular characterization of KPC-producing *E. cloacae* isolates.

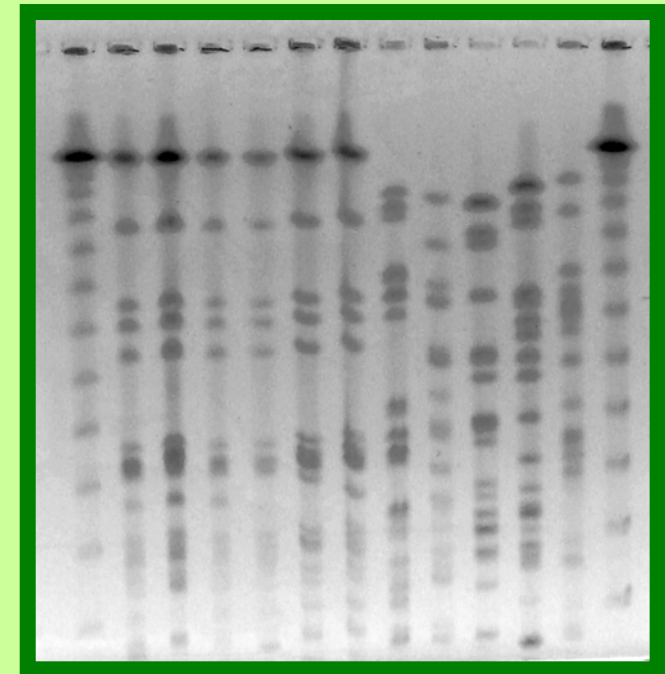
Distribution of ECL-KPC



ECL PULSOTYPES



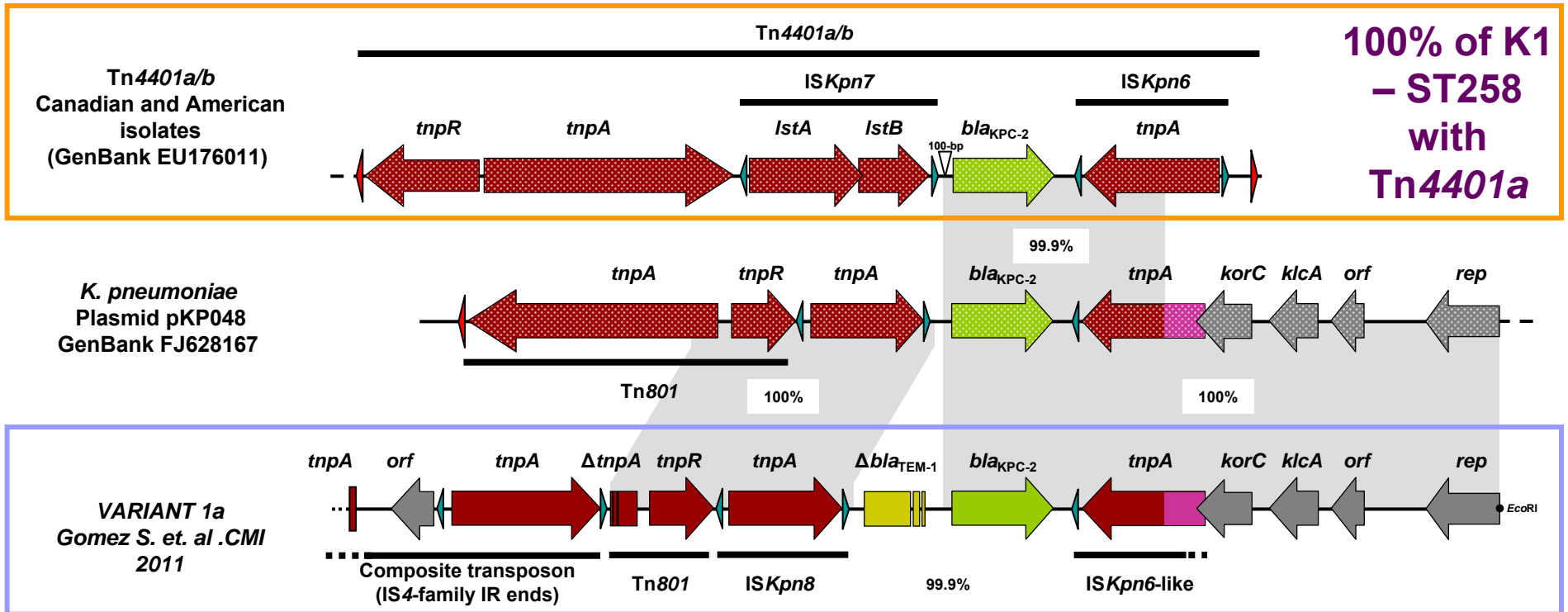
*Xba*I - PFGE



E3: 69%

- 26/42 were evaluated by PFGE: Eight clonal types were identified (8 provinces, 18 hosp) being E3 the dominant clone (18/26, 69%).
- Multiple PBRT (A/C, FII, and N) were detected.
- The ESBLs detected were: 11/42 *bla*_{PER-2}, 4/42 *bla*_{CTX-M2} and 1/42 *bla*_{CTX-M15}.

Molecular environment of KPC-producing *ETB* isolates.



• KPN-PFGE types \neq from K1 (13%): *bla_{KPC-2}* was flanked by *ISKpn8*- Δ *bla_{TEM-1}* and *ISKpn6*-like (Variant 1a) or *ISKpn8* and *ISKpn6*-like.-

* ECL: 24/26 harbored *bla_{KPC-2}* in Variant 1a, and the other 2 were harbored in genetic platforms derived from pKP048.

* ECO, KOX, CFR, SMA harbored *bla_{KPC-2}* in Variant 1a.

TIG

% Suscept. NoBL

(KPC Arg, 2006-2011
CIM agar dil.)

RIF

GIP

TET

AMK



Conclusions

- The spread of *bla*_{KPC} in Argentina continues to be clonal due to the dissemination of ST258/Tn4401a in the Metropolitan Area of Buenos Aires.
- In parallel, increasing number of provinces suffer the slow but constant spread of *bla*_{KPC-2} in diverse ETB species and genetic platforms.



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INEI-ANLIS “Dr. Carlos G. Malbrán”**