



Chicken linked multidrug resistant *Campylobacter jejuni* infections among Chinese children

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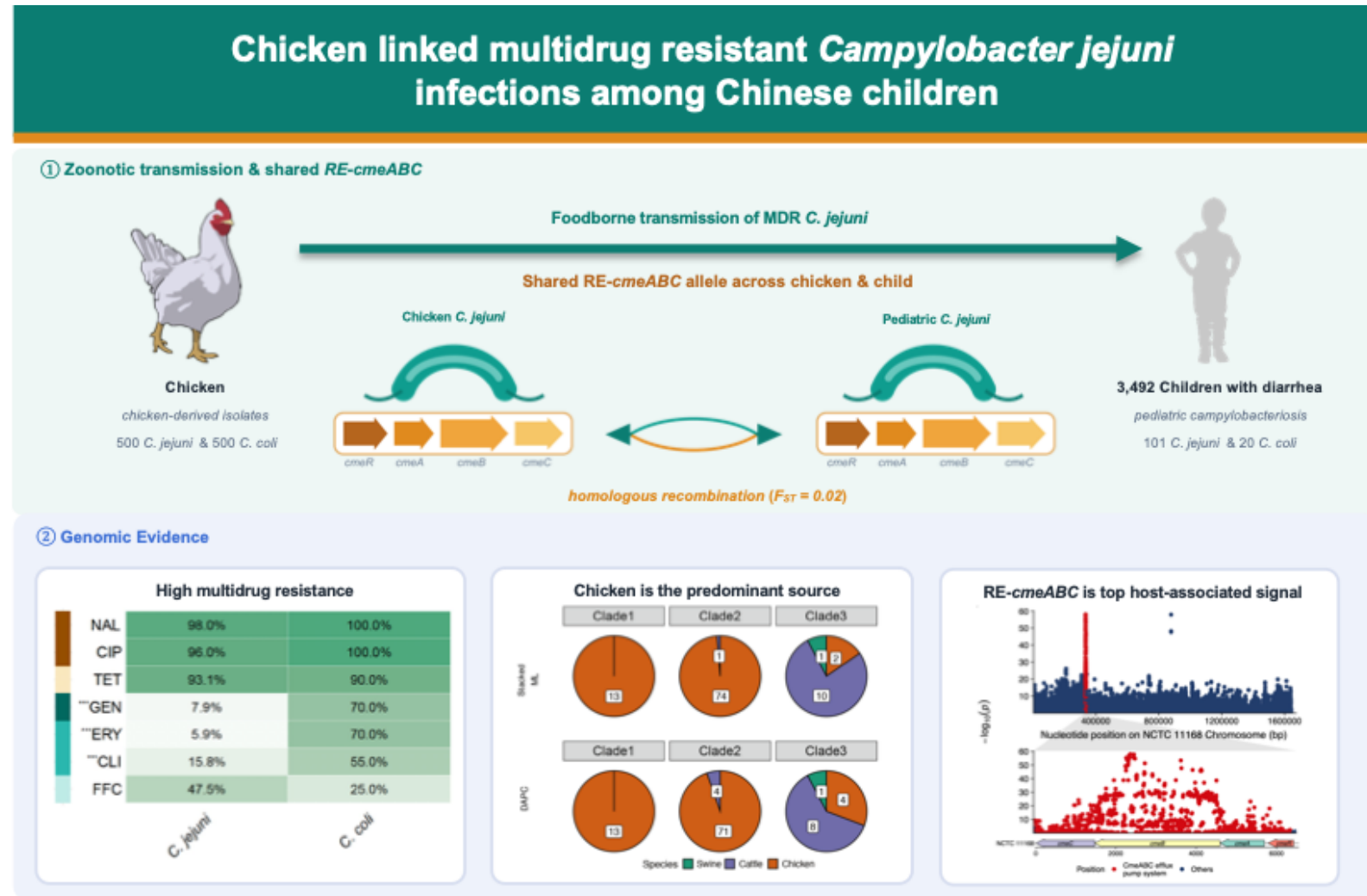
Introduction

Campylobacter is an important cause of foodborne diarrhea, particularly in children.

Increasing multidrug resistance complicates treatment of severe or persistent infections.

Sources and genetic features of pediatric infections in China remain unclear.

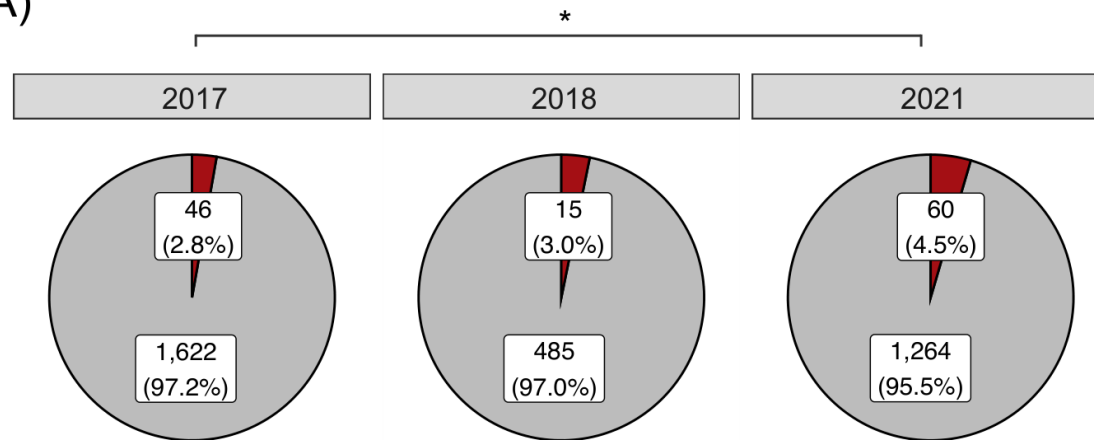
We combined susceptibility testing and genomics to examine resistance and possible animal sources.



C. jejuni predominated among the isolates

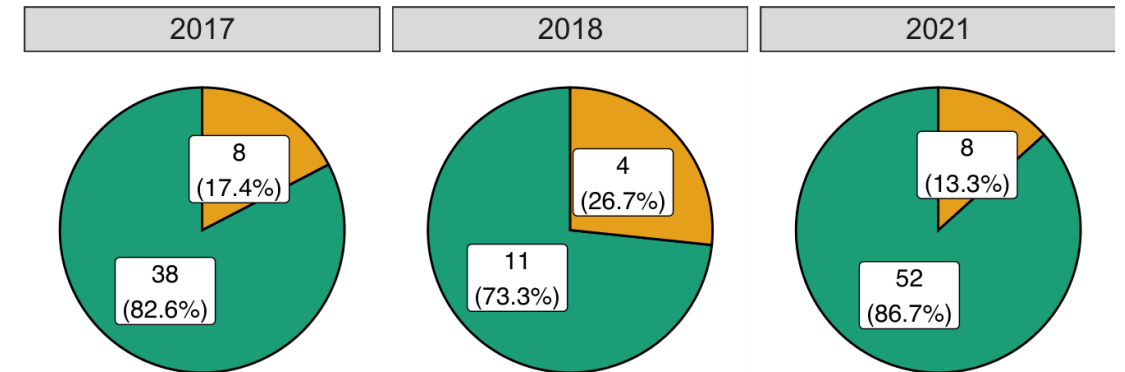
Of the 121 *Campylobacter* isolates recovered, 101 were *C. jejuni*.

(A)



Species  *Campylobacter* spp.  Others

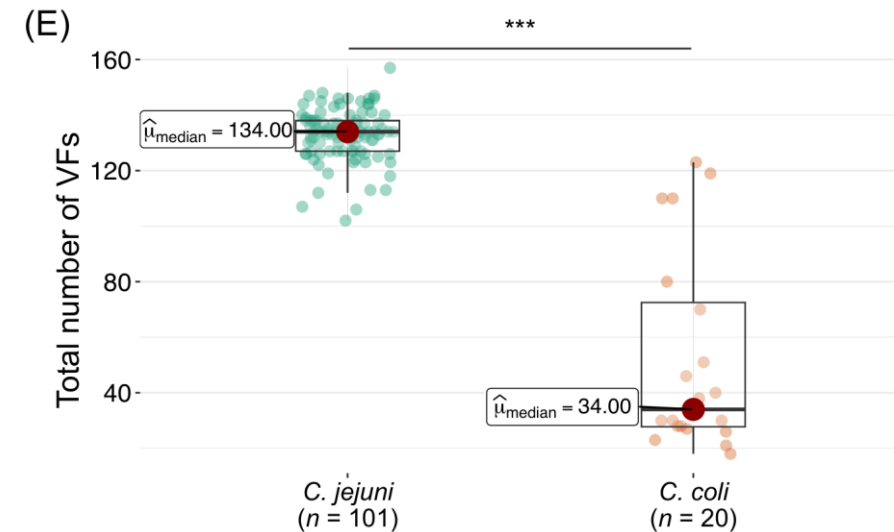
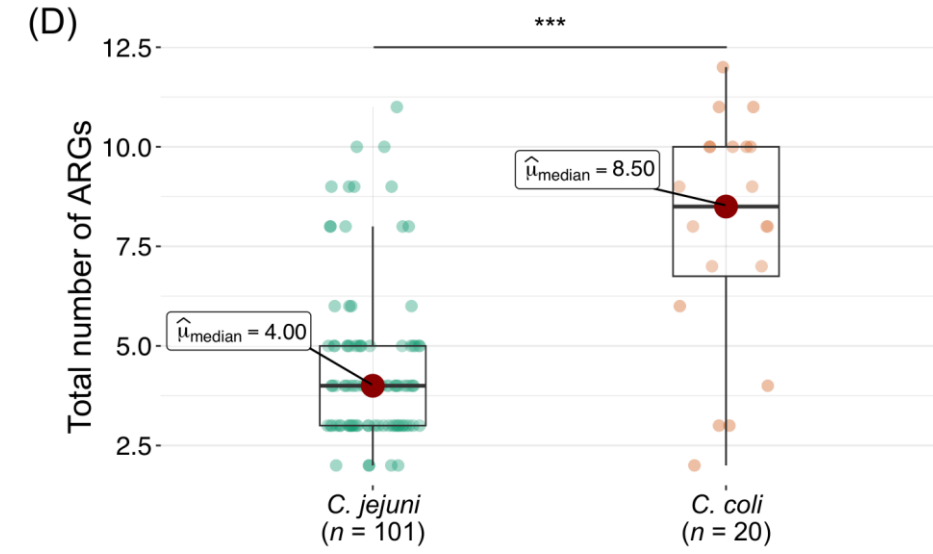
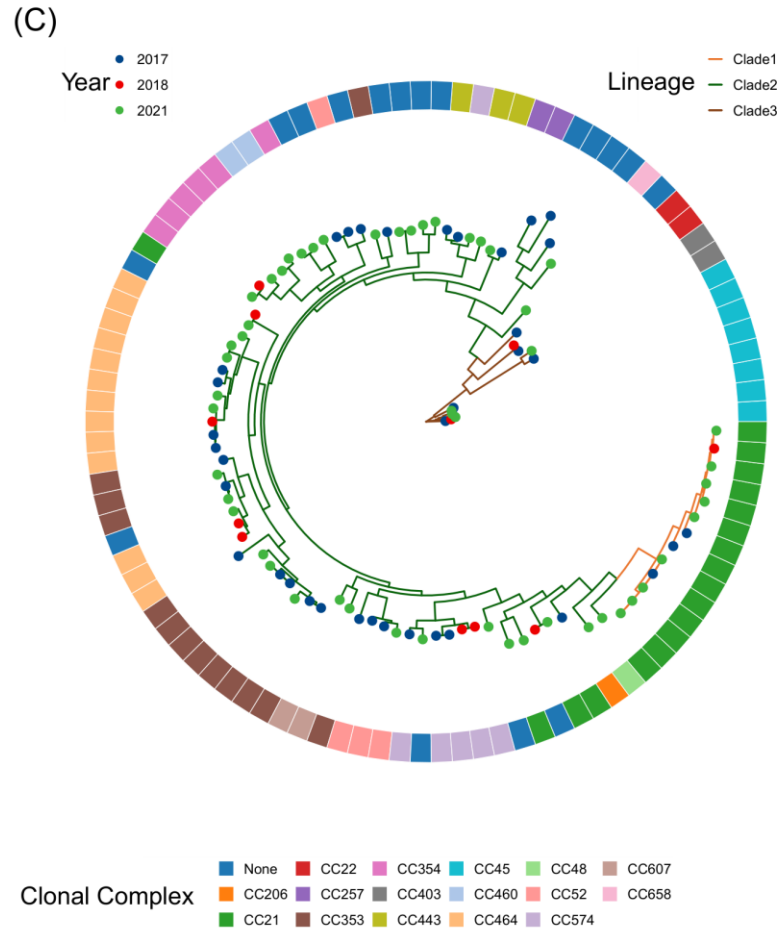
(B)



Species  *C. jejuni*  *C. coli*

Diverse lineages and distinct gene profiles

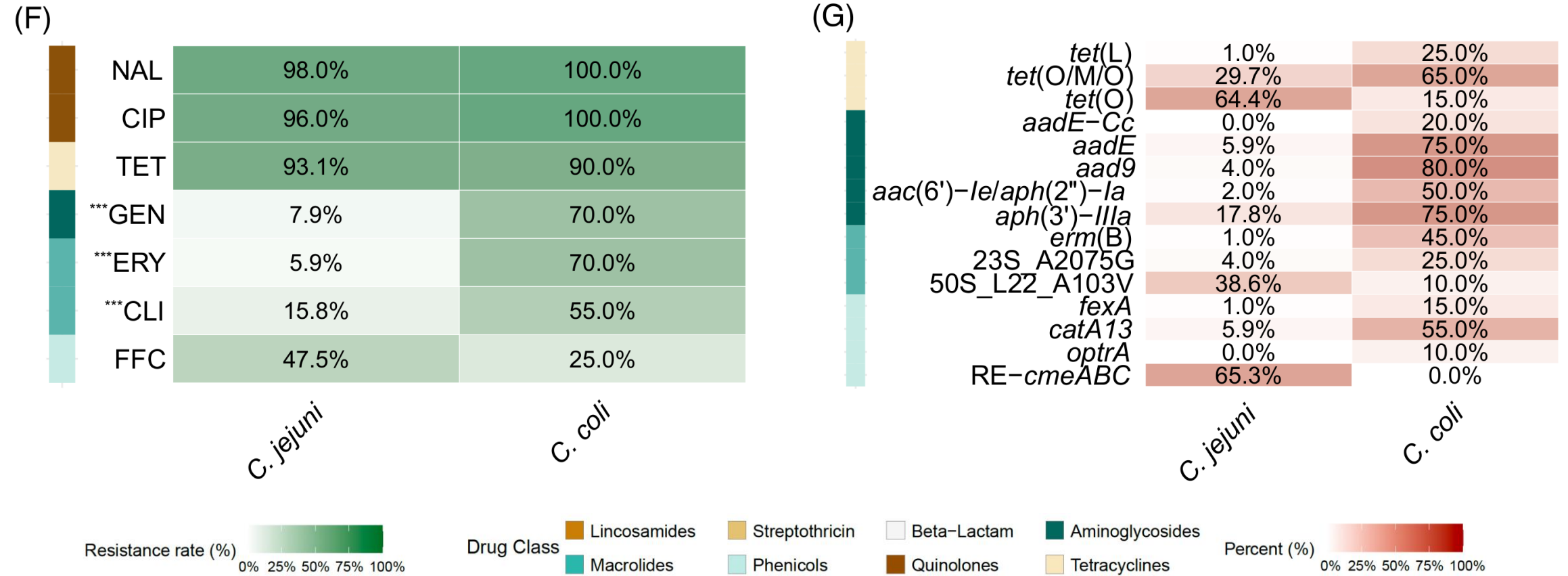
C. jejuni had diverse lineages, while *C. coli* carried more resistance genes.



High resistance was associated with RE-*cmeABC*



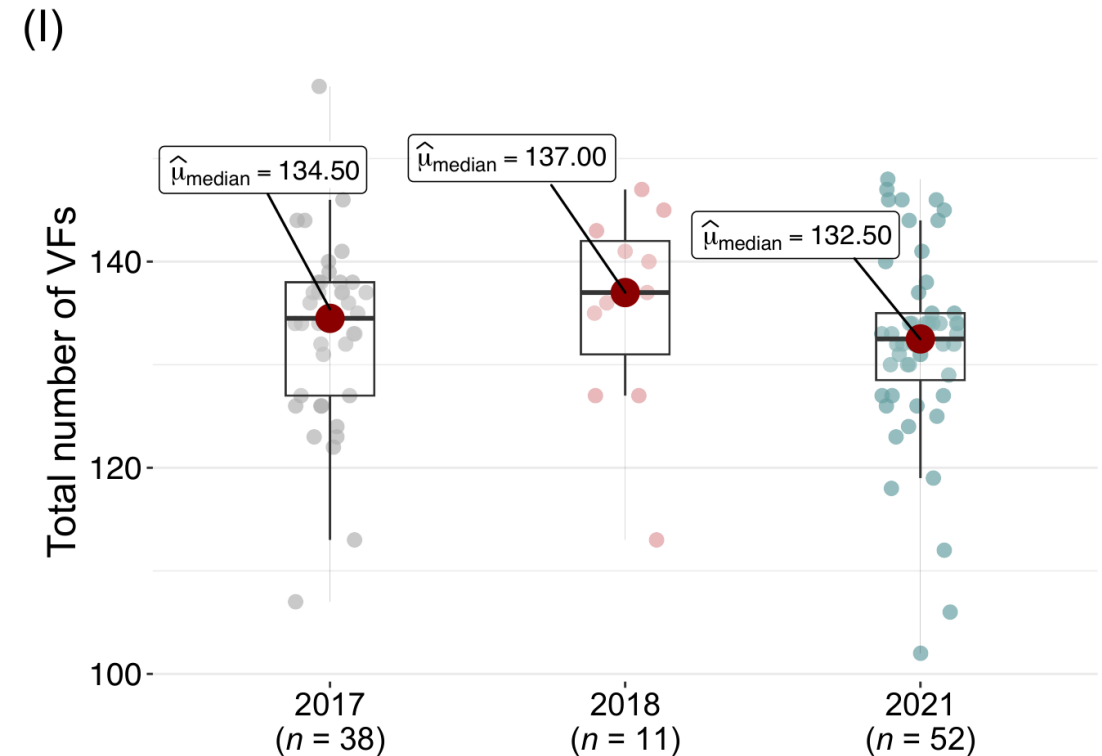
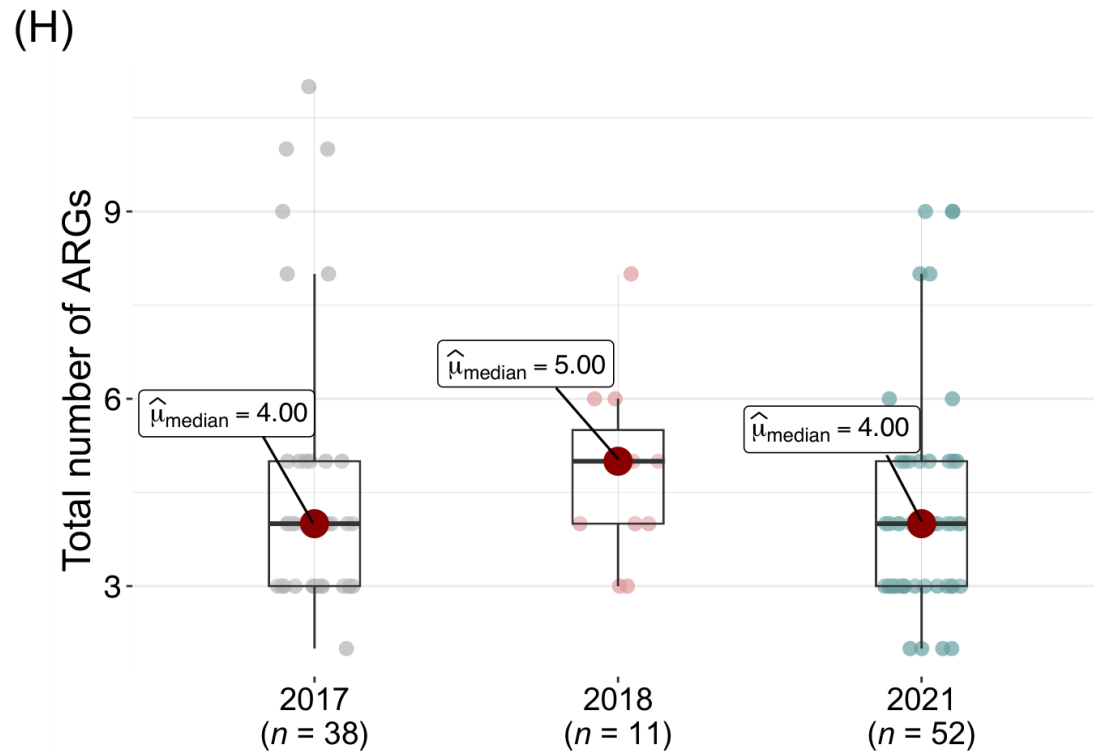
C. jejuni had high ciprofloxacin and tetracycline resistance, but lower erythromycin resistance.



Multidrug resistance was significantly more frequent in RE-*cmeABC* carriers.

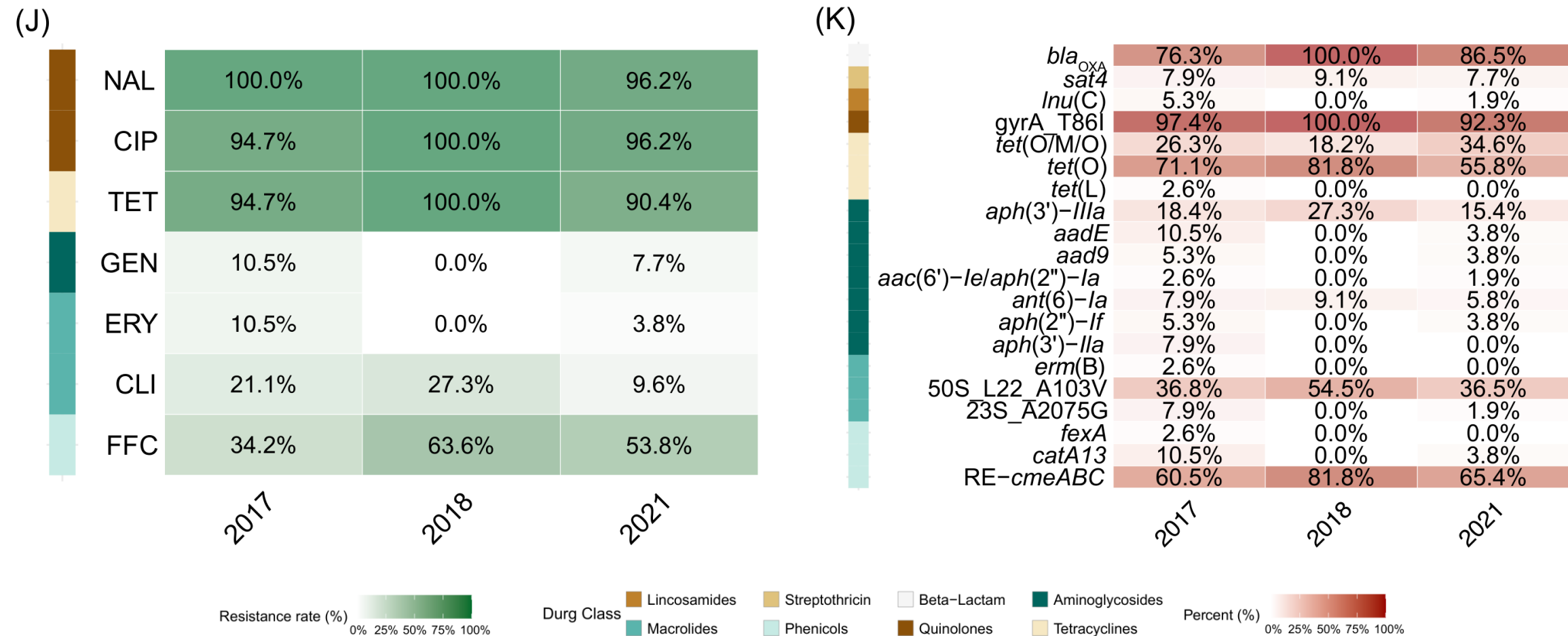
Overall gene counts were similar across years

Resistance-gene and virulence-factor counts did not differ significantly across years.



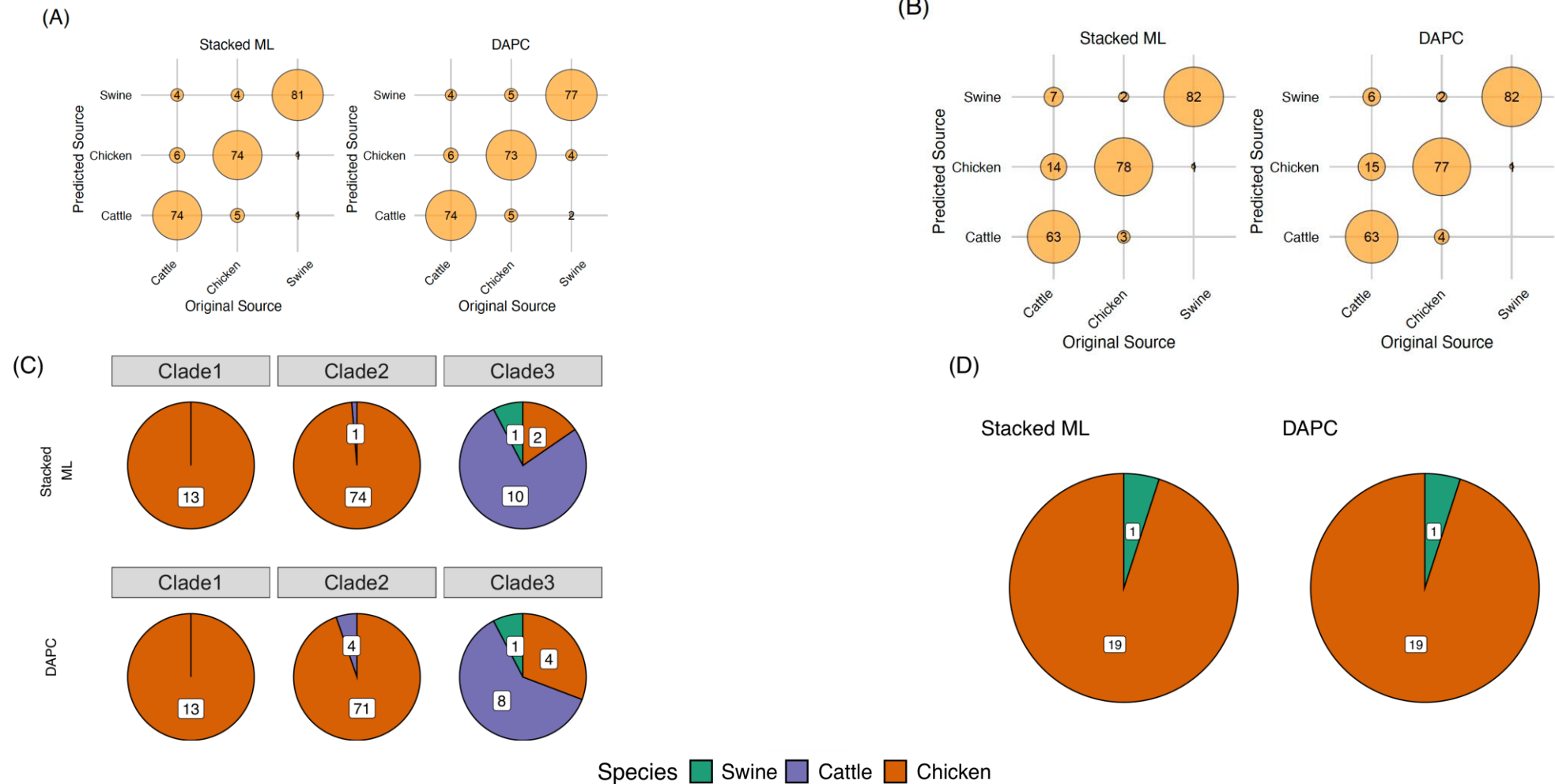
Drug-specific resistance patterns varied

Florfenicol resistance rose from 34.2% in 2017 to 53.8% in 2021.



Both attribution methods supported a chicken association

ML and DAPC assigned 88.1% and 87.1% of pediatric *C. jejuni* isolates to chicken.

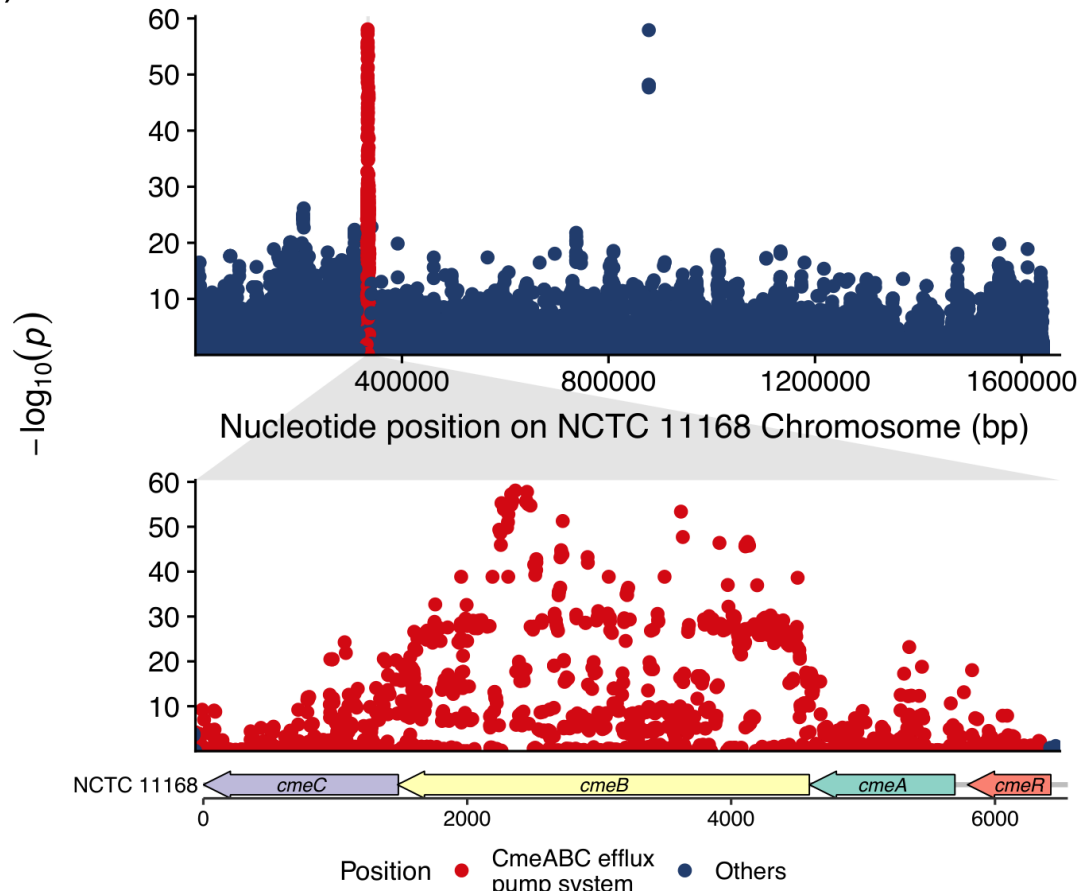


RE-*cmeABC* was associated with resistance and host origin

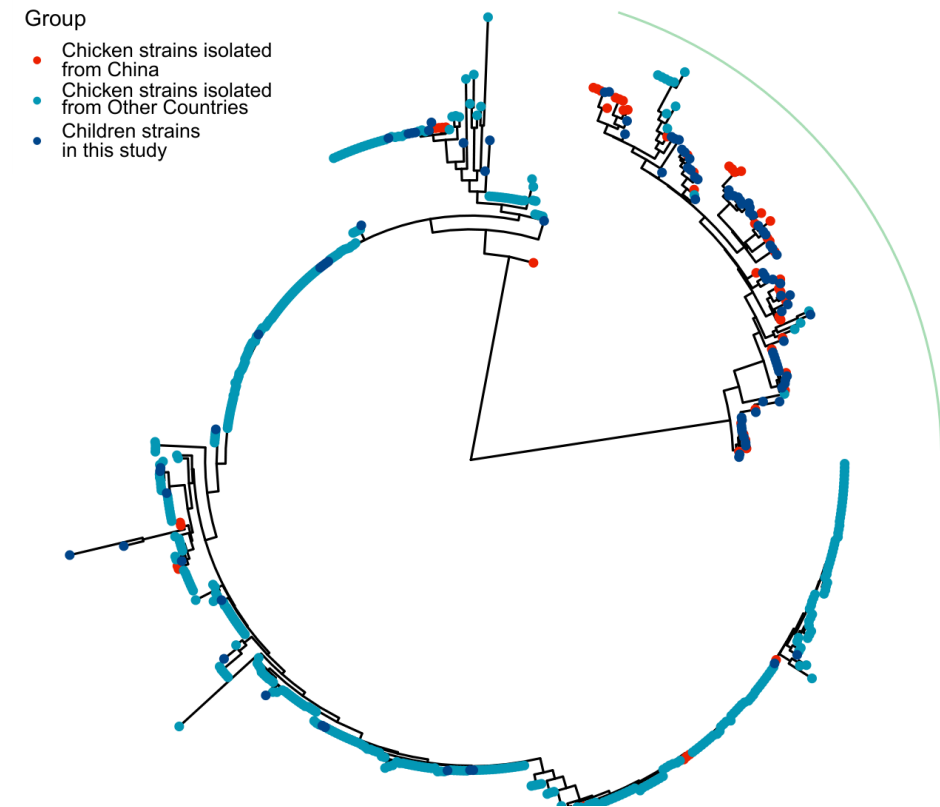


Pediatric alleles clustered closely with alleles from Chinese chicken isolates.

(E)



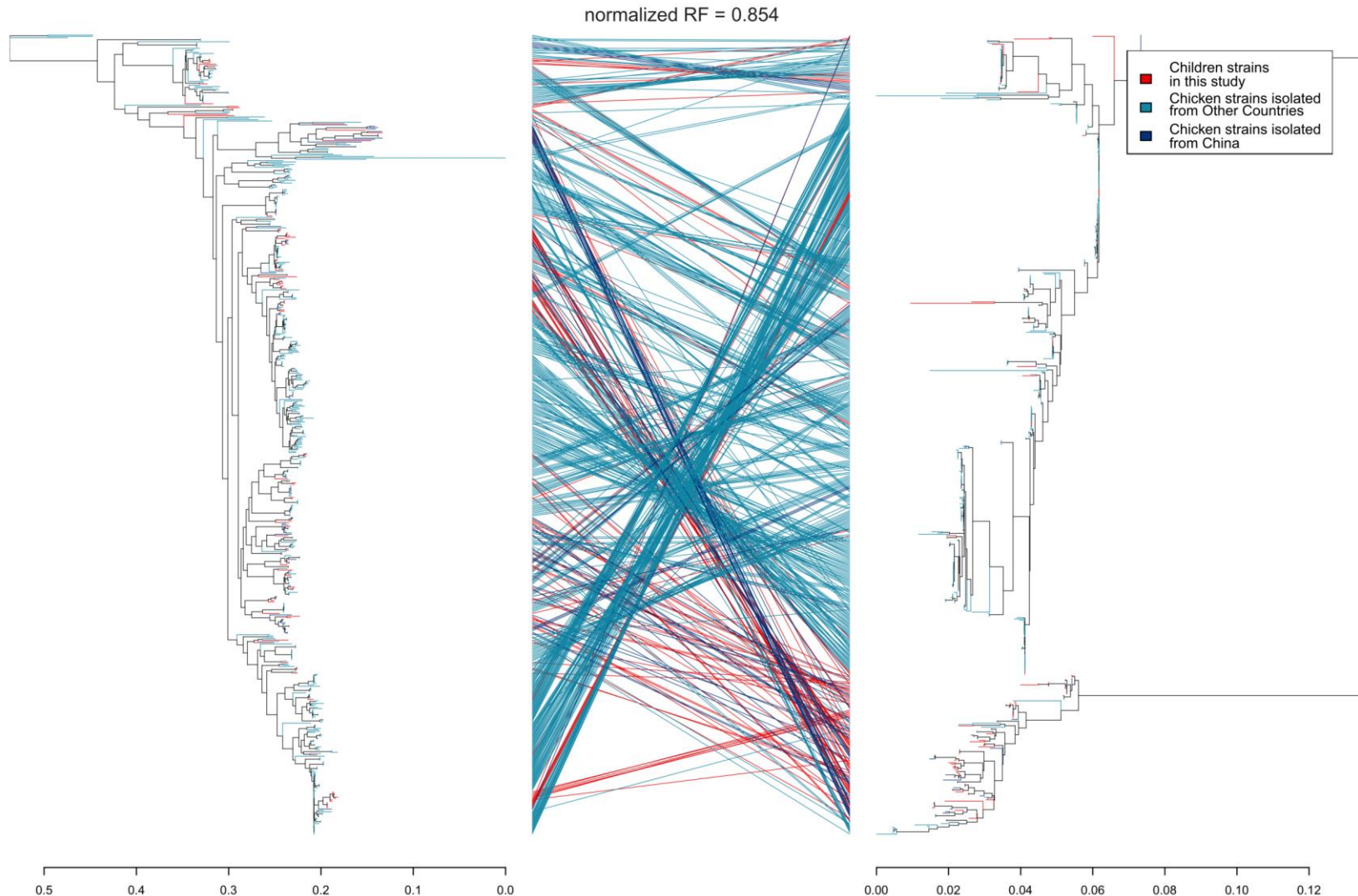
(F)



Phylogenetic discordance supports a role for recombination

The core-genome and *cmeR-cmeABC* operon trees showed distinct evolutionary histories.

(G)



The evidence supports homologous recombination at this locus.

Both attribution methods supported a chicken association among pediatric *C. jejuni* isolates in this study.

RE-*cmeABC* was associated with multidrug resistance and chicken-associated lineages.

The findings support species identification, susceptibility-guided treatment, and surveillance across the food chain.

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