APZEC Database

www.apzec.ca

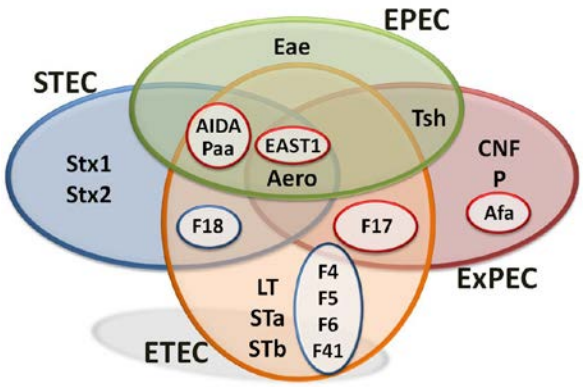
What is APZEC?

Animal pathogenic and zoonotic *E. coli* (APZEC) are *E. coli* which are pathogenic in animals or which are harmless in the animal reservoir but are potentially pathogenic in humans.

The APZEC approach

Isolates are examined for the detection of the presence of **20 virulence genes** associated with the most important pathotypes causing disease in animals. **Antimicrobial resistance** is also determined, and **demographic and clinical data** are gathered resulting in an integrated profile.

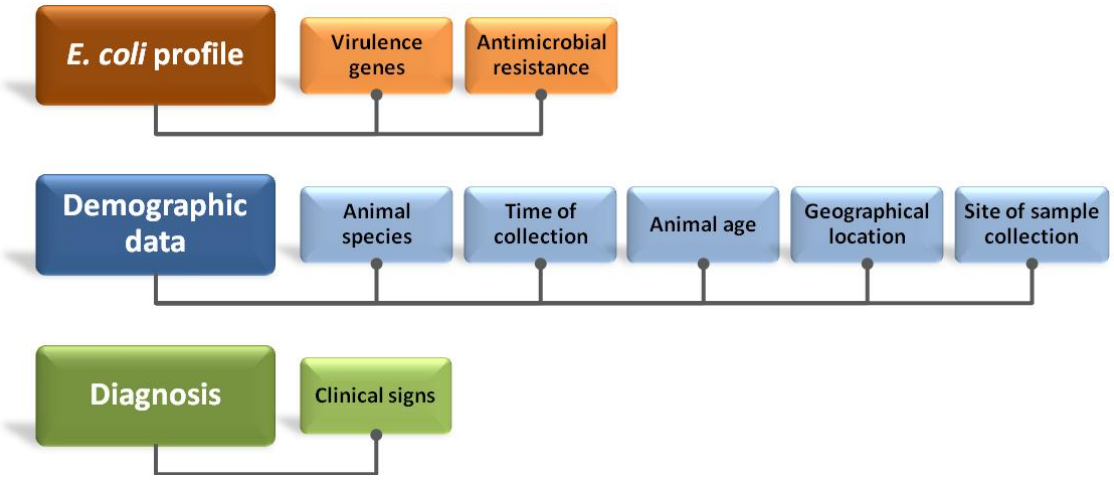
Virulence factors used to generate data for the APZEC database. Pathogenic *E. coli* belong to the enterotoxigenic *E. coli* (ETEC), enteropathogenic *E. coli* (EPEC), Shiga toxin-producing *E. coli* (STEC), and extraintestinal pathogenic *E. coli* (ExPEC) pathotypes. Pathotypes are defined by the factors **without circles**. Additional virulence factors (**blue circles**) identify patho-virotypes permitting a clinical diagnosis in animals. Additional virulence factors (**red circles**) identify virotypes permitting a more accurate surveillance



What is the APZEC Database?

The APZEC Database is an **epidemiological tool** providing an overview of virotypes and antimicrobial resistance of pathogenic *E. coli* in animals, based on virulence gene profiles, and antimicrobial resistance of pathogenic *E. coli* from clinical cases and healthy animals at the farm and abattoir level in prevalence studies worldwide.

Data currently being stored in the APZEC Database



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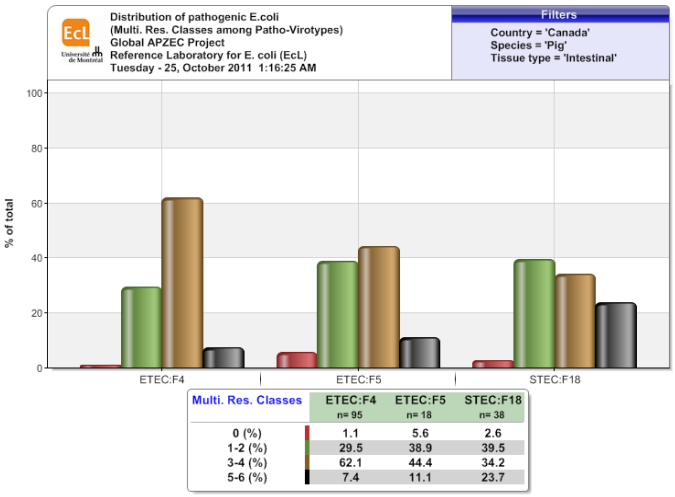
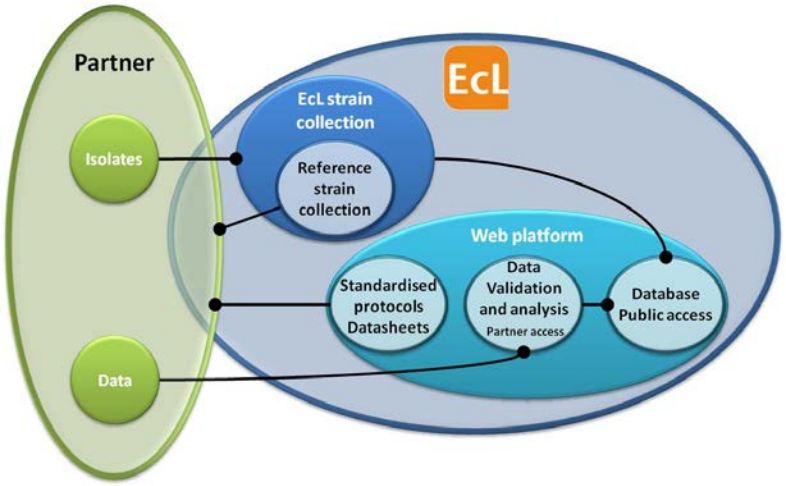
The database currently contains data for over **2,400 isolates** from all production and companion animal species, mostly from **pigs, cattle, and poultry** in Quebec (Canada), from 2008. This is the prototype for the on-going global database. The second phase is now being initiated in which data is now being added on a **worldwide basis**. Data are currently those generated at the **OIE Reference Laboratory for *E. coli* (EcL)**. Other participating laboratories submit isolates to the EcL and may eventually submit data directly to the central data base.



Example of chart generated by the APZEC Database



How database works

Data are accessible on the web platform (www.apzec.ca), as interactive drill down and multi-series charts and an interactive mapping system. **Preset multi-series charts** have been prepared to show the most frequently observed trends. The **protocols and primers** used for the generation of the isolate data, and **control strains** used in the described procedures are also available on the web platform, to promote harmonization between participating laboratories. Control strains and some EcL **collection strains** are also available on request.

Why the APZEC Database?

The database serves as an **indicator of animal health** and as a **tool for monitoring trends** in virulence and antimicrobial resistance in APZEC. More specifically, it will provide guidance in the setting up of appropriate strategies for the diagnosis and control of infection in animals on-farm and in the evaluation of the effectiveness of these strategies. Thus, the database will contribute to **improving animal health**, the adoption of a more judicious use of antimicrobials in animals, and to **reducing the danger to human health** due to transfer of APZEC and antimicrobial resistance genes.

Contact us

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