

WGS- How we got started

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(with thanks to Niall De Lappe)

Don't know much about

- I don't know how to sequence DNA
- I don't know how to analyse DNA sequences
- My role was seeing that it mattered, how it could be used and trying to find a way to get it to happen

Starting Point 2015

- Small number of excellent medical scientists
- 15 yrs of experience as a reference laboratory
- Broad range of phenotypic typing skills
- Range last generation molecular typing skills (PFGE, MLVA, PCR)
- Very limited experience with sequence analysis (phage DNA)

2016

- No sequencer and no money to buy one
 - No funding for new posts
 - No new budget for consumables
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- Write a funding application or try to get started?

2016 - Decisions

- Train existing staff in new skills rather than seek to hire in
- Apply the Quality Management Principles we applied to other assays
- Running the sequencer would not be a problem when we got one
- Learning to do the analysis would be the challenge
- Institutional IT support was key

2016 – First Steps

- Found money to buy a commercial IT system for sequence analysis
- Company provided training course and materials
- Sent a small number of *Salmonella enterica* for sequencing by external provider and got raw read-files returned
- Support from neighbouring national reference laboratory services and academic partners

2017 – Progress

- Began to send progressively more isolates for external sequencing and in house data analysis
- Began to report WGS results to referring laboratories and use in public health investigations
- Began to build appreciation of value and confidence that we could deliver

2018 – Funding Sequencing in House

- Secured funding for on Illumina sequencing instrument in 2018
- Implemented sequencing of all isolates of
- Discontinued routine use of all methods other than WGS

Since 2019

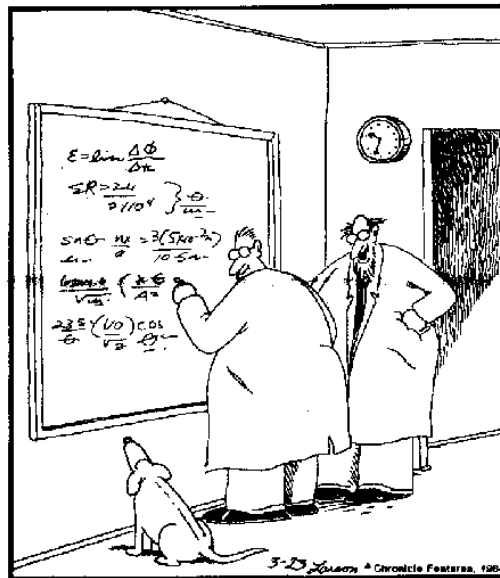
- Secured funding for a second instrument
- MOU with colleagues in agriculture to support comparison of isolates
- EQA programmes
- **Key continuing challenges**
- Funding instrument replacement
- Longer turn-around times
- Maintaining quality and timely reporting
- Maintaining staffing
- Accreditation
- IT systems/permissions for file transfer

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THE FAR SIDE

By GARY LARSON



"Ohhhhhh ... Look at that, Schuster ...
Dogs are so cute when they try to comprehend
quantum mechanics."