

VTEC Network preparedness for molecular typing data collection

EU Reference Laboratory for Escherichia coli

Dept. of Veterinary Public Health and Food Safety

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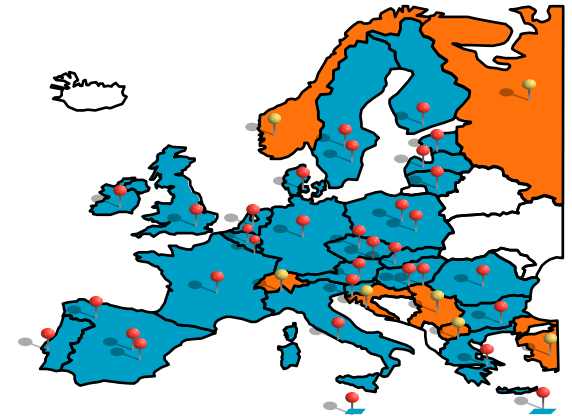


www.iss.it/vtec

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VTEC Network preparedness for molecular typing

- Inventory of the expertise and activities on molecular typing of the NRLs (January 2014)
- Proficiency tests (EQA) on PFGE (3 rounds in 2012-2014)
- Training on PFGE for NRLs staff

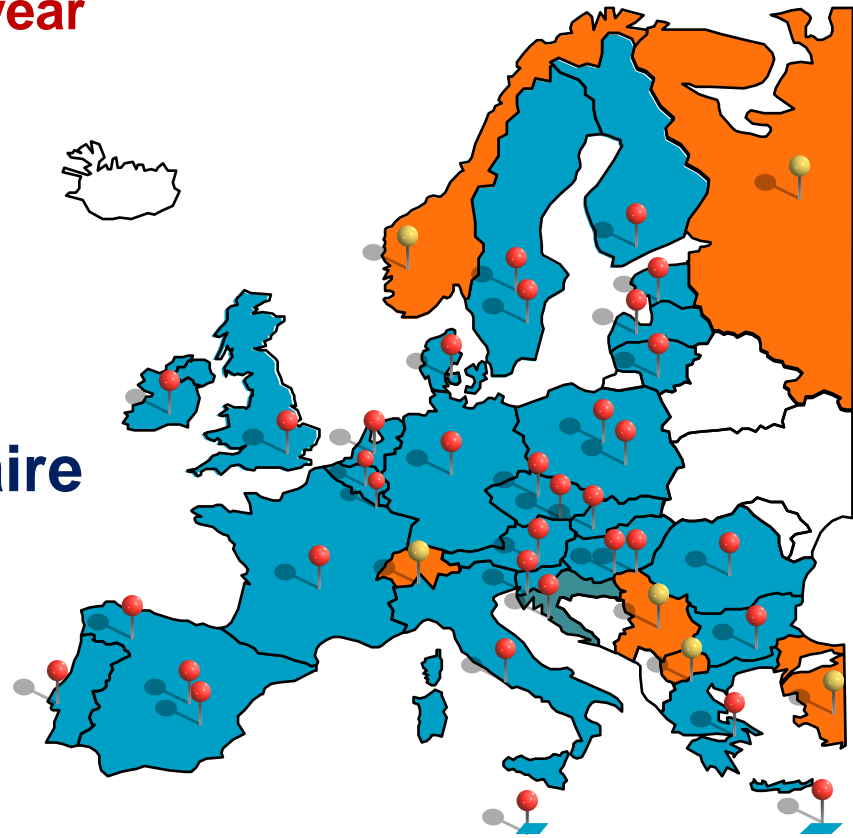


Inventory of molecular typing activities carried out by the NRLs

A questionnaire administered to the 35 NRLs for *E. coli* in December 2013

- Number of strains collected per year
- Availability of typing techniques

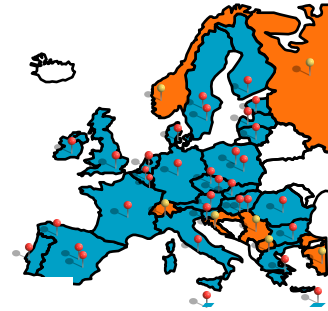
100% returned the questionnaire



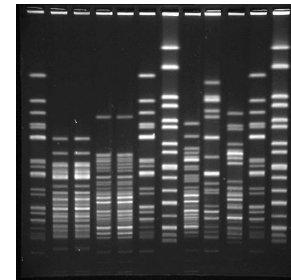
Inventory of molecular typing activities carried out by the NRLs

Availability of molecular typing techniques/facilities

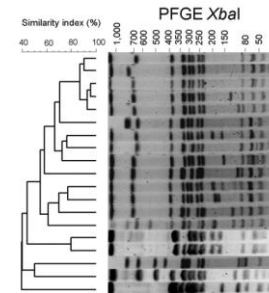
35 NRLs - December 2013



- **PFGE :** 27 NRLs (77%)
- **O157 MLVA:** 8 NRLs (23%)
- **NGS:** 7 NRLs (20%)

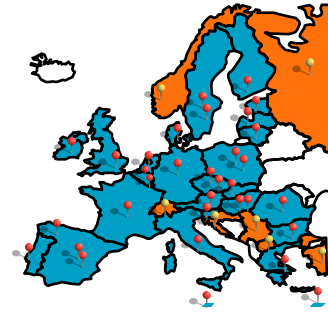


- **Bionumerics software:** 28 NRLs (80%)
- **Other softwares:** 7 NRLs (20%)



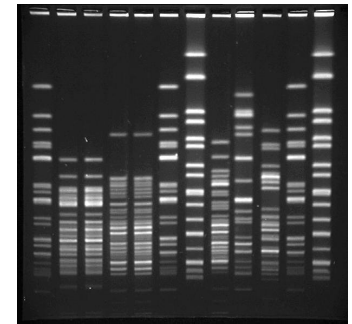
Inventory of molecular typing activities carried out by the NRLs

VTEC strains potentially available within the NRL network - 35 NRLs - December 2013



Approx. number of strains collected per year from:

- Food: 1,300 strains
- Animals: 2,000 strains
- Environment: 3,000 strains
- Total: 6,000 strains

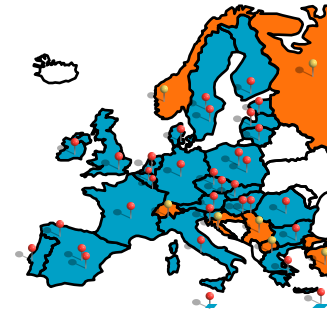


Note:

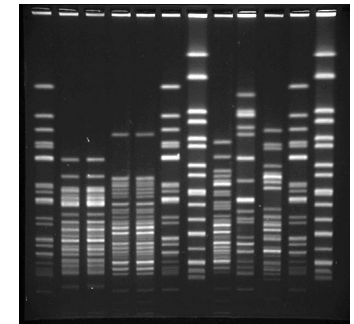
*Highly variable, depending on specific survey/control activities
planned for the year by some NRLs*

Inventory of molecular typing activities carried out by the NRLs

**VTEC strains collected by the NRLs in the period
2012 – 2013, by serogroup - 34 NRLs - December 2013**



- **O157: 1,761 strains**
- **O26: 254 strains**
- **O103: 155 strains**
- **O145: 31 strains**
- **O111: 16 strains**
- **Others: 2,424 strains**
- **Total: 4,641 strains**

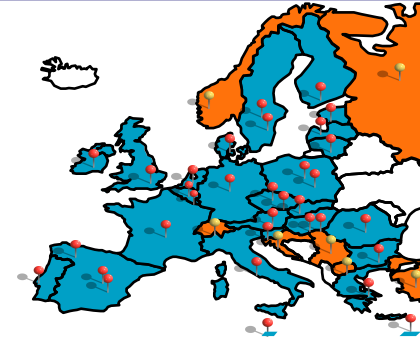


Note: Highly variable, depending on specific survey/control activities

Proficiency tests on PFGE

➤ PT-PFGE 1 (with PT10, January-March 2013)

- 16 EU NRLs + Norway and Switzerland
- 11 *E.coli* strains
- Conducted jointly with the ECDC-FWD network

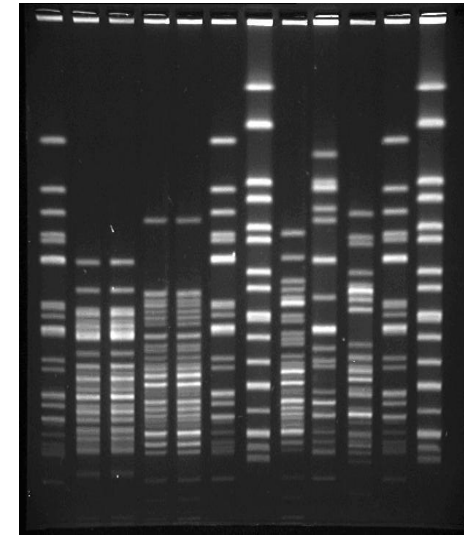


➤ PT-PFGE 2 (with PT11, June-September 2013)

- 23 EU NRLs + Norway and Switzerland
- 6 *E.coli* strains

➤ PT-PFGE 3 (with PT13, April-June 2014)

- 25 EU NRLs + Norway and Switzerland
- 7 *E.coli* strains



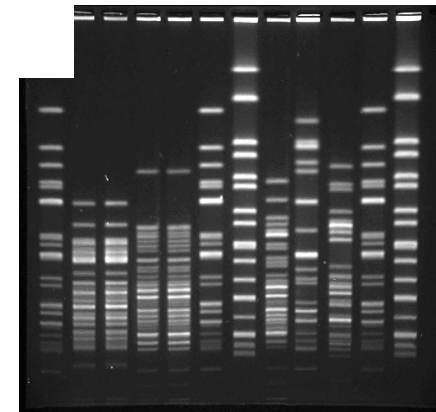
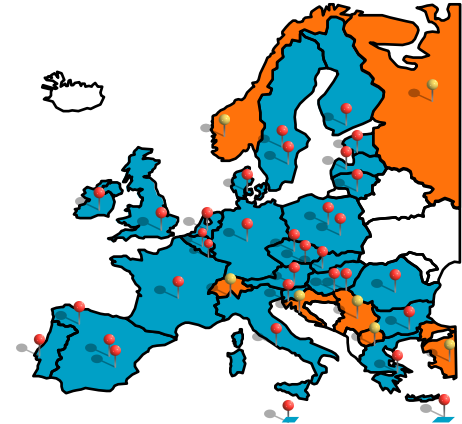
Participation of the NRLs in the EQA on molecular typing

➤ Participation in proficiency tests on

PFGE: 28 NRLs (80%)

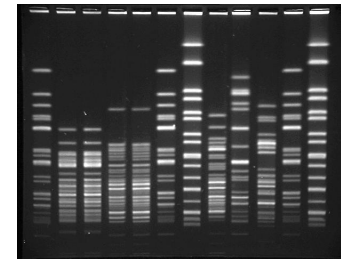
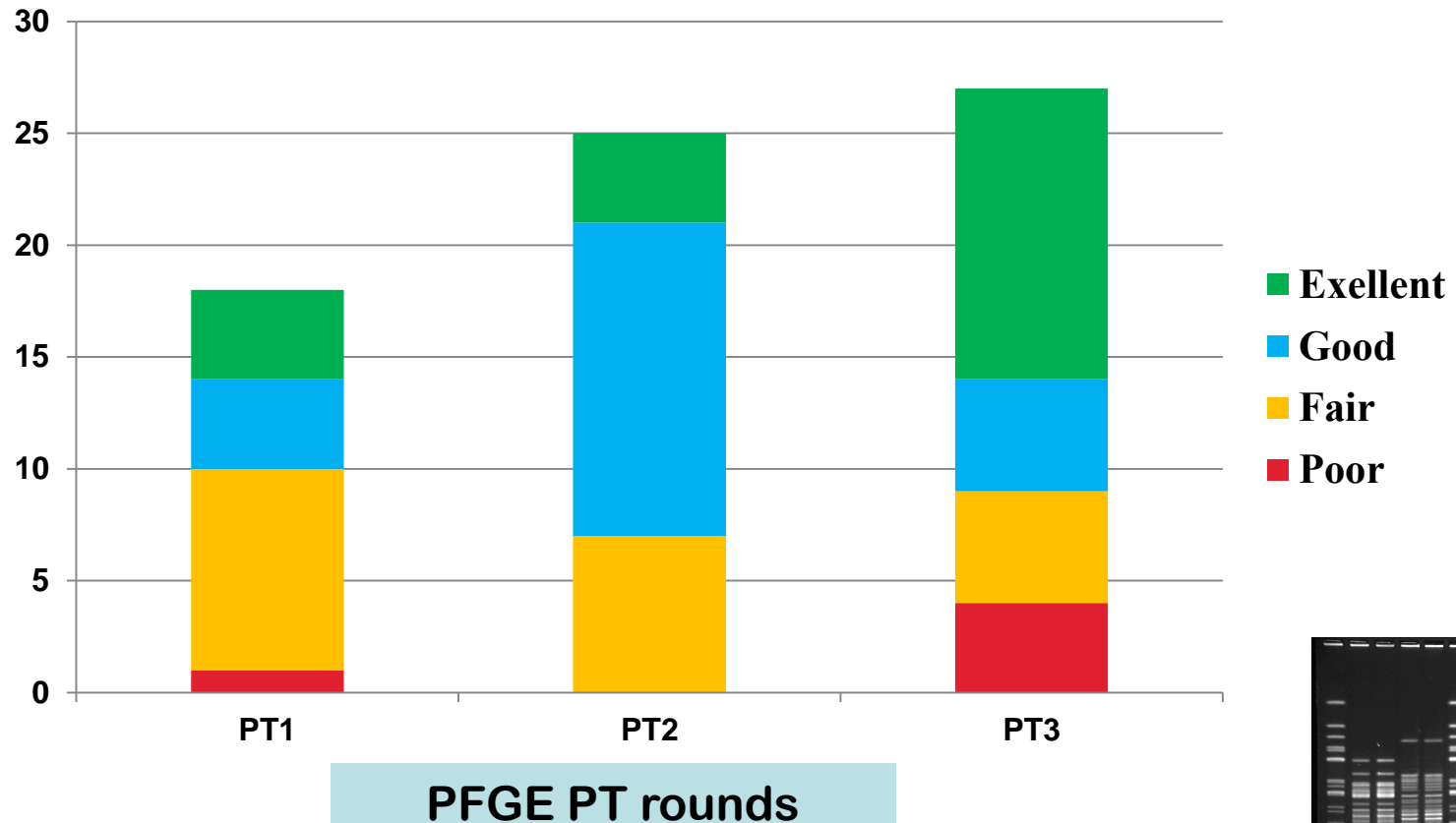
➤ Evaluation NRL's proficiency:

- **Excellent**
- **Good**
- **Fair**
- **Poor**

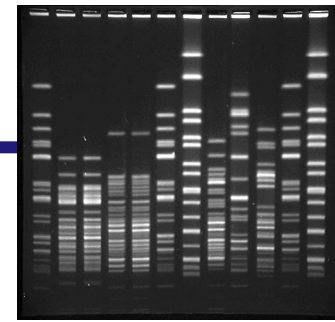


PFGE Proficiency testing (EQA)

Increase in number of participants and performance

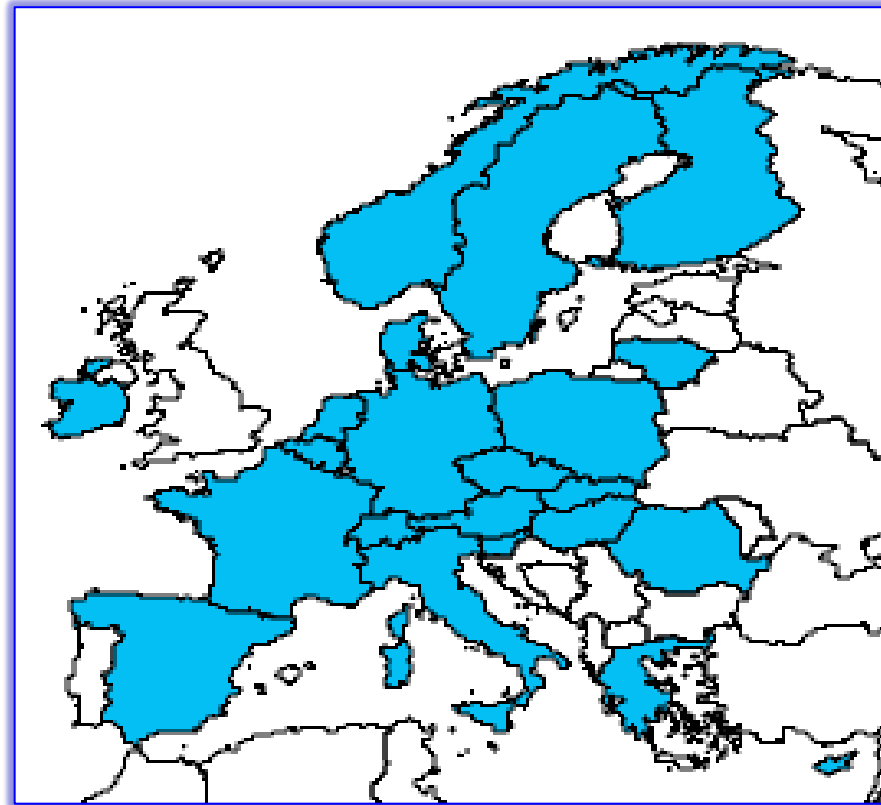


PFGE Proficiency testing (EQA)



Participation in proficiency tests on PFGE:

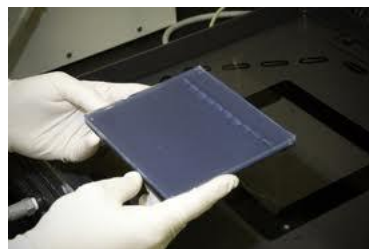
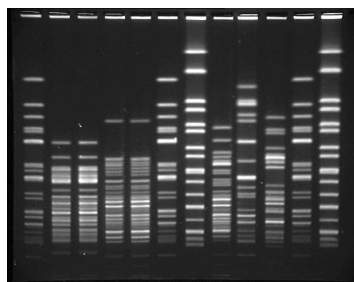
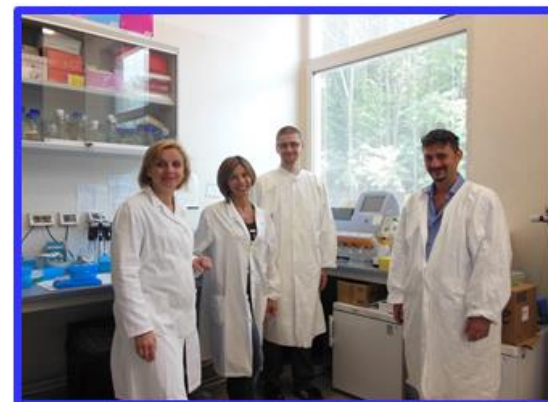
28 NRLs (80%)



Training on PFGE for NRLs staff

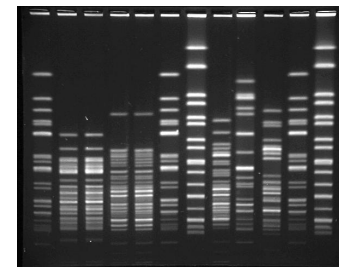
Standard 1-week program on molecular typing of VTEC by PFGE

- ✚ Preparation of plugs from pure cultures
- ✚ DNA restriction with XbaI endonuclease
- ✚ Agarose gel preparation and PFGE electrophoresis
- ✚ Gel staining and images capture



Training on PFGE for the NRLs staff

- Supported by the DG SANCO budget
- Between 2012 and 2014, visits from **14 NRLs** of **12 EU Member States** (5 trainees in 2014)



Training at the EU-RL VTEC

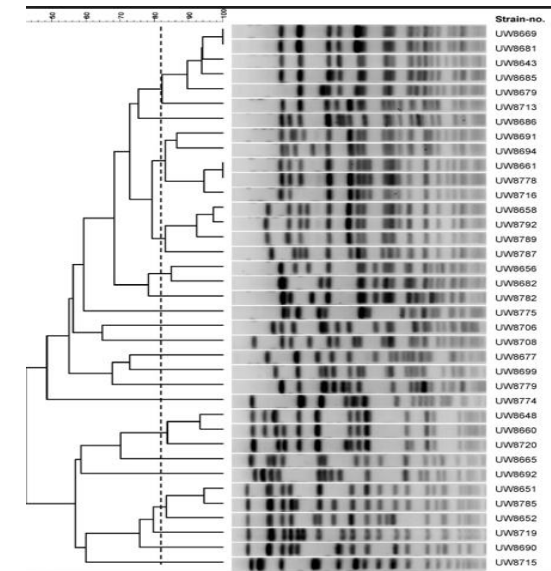
12-13 June 2014

✓ Training course on the use of the software

package **BioNumerics** for PFGE

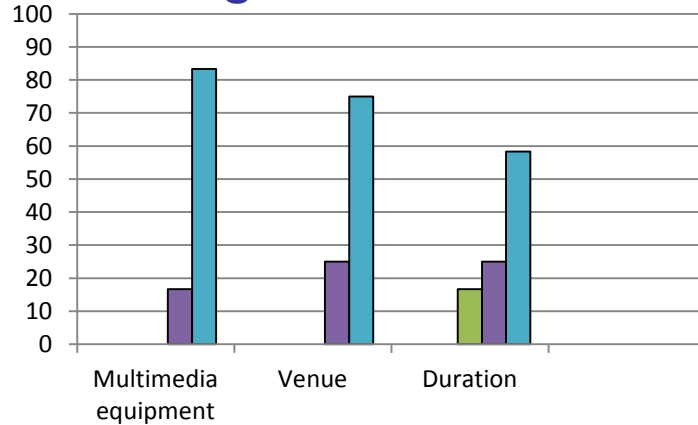
✓ 12 Participants – 10 from 9 NRLs and 2 from non-EU

countries

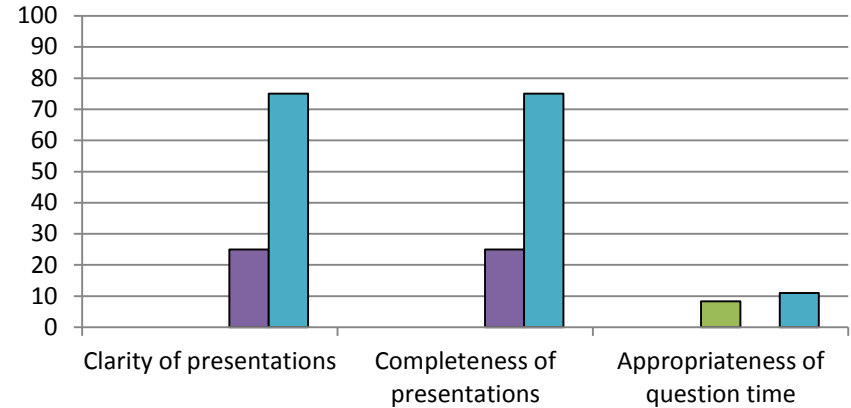


Bionumerics course - Satisfaction Survey

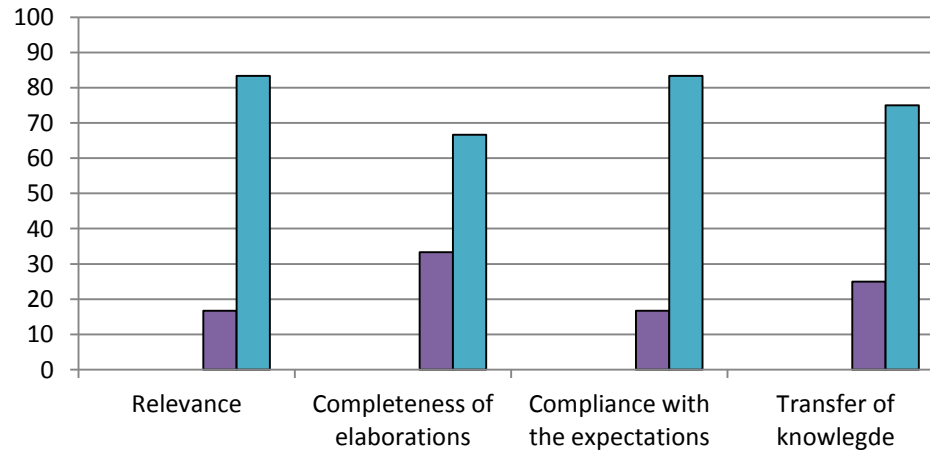
Organisation



Presentations



Topics



■ Very poor
 ■ Poor
 ■ Good
 ■ Very good
 ■ Excellent



Participation of the NRLs in the EU-RL initiatives on molecular typing

- Participation in proficiency tests on PFGE: 28 NRLs (80%)
- PFGE training at the EU-RL: 14 NRLs (40%)
- BioNumerics training: 9 NRLs (26%)

