Clinical Parasitology Update

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Cyclospora

• Sixteen *Cyclospora* species

• Only *Cyclospora cayetanensis* found in humans.

• “high risk regions”
  - the Caribbean, Central and South America, Turkey, Indian subcontinent and South East Asia.

8 -10µm
Symptoms include;
- diarrhoea (5 to 62 days; mean 18 days)
- nausea / vomiting
- lethargy
- abdominal cramping
- satiety

Cotrimoxazole
(sulfamethoxazole and trimethoprim)
Laboratory Diagnosis

- *Cyclospora* oocysts = 8um – 10um

- Do not stain well with auramine phenol *(used for Cryptosporidium)*
Pre-2015  1-2 cases per year

2015  79 cases reported in the UK;  
      21 from Scotland

2016  440 cases reported in the UK;  
      175 from Scotland

2017  104 cases reported in the UK;  
      51 from Scotland
Resorts visited by US cases in red, by UK ones in blue
This programme will be available shortly after broadcast

Mexico v Scotland

Introduced by Rob Maclean, with Steven Thompson and Michael Stewart.

Alex McLeish’s Scotland face Mexico in the second game of a mini-tour which kicked off with a game against Peru. It will be played at the…

Show more
Next Steps

- SMVN Notification
  - Sent 30\textsuperscript{th} May 2018

- reminder to raise awareness of *Cyclospora*

- laboratories are **NOT** requested to forward all *Cyclospora*-positive stools to the SPDRL.

- Only send if unsure of the identity

- Communications continue with authorities in Mexico and other bodies
Cyclospora Developments

- UK-wide collaborations with CDC Atlanta for molecular profiling of Cyclospora
Scottish Health Protection Network
Giardia Working Group

“seen animalcules a-moving very prettily….”

“Their bodies were somewhat longer than broad, and their belly was flat-like, furnisht with sundry little paws….”
• 150 - 280 lab-confirmed *Giardia* per year

• 400 – 800 lab-confirmed *Cryptosporidium*
<table>
<thead>
<tr>
<th>Laboratory reports</th>
<th>Rate per 100,000</th>
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<tr>
<td>AA</td>
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<tr>
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<tr>
<td>TY</td>
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<tr>
<td>Scotland</td>
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</table>
- twice as many males than females (177 males, 92 females)

- evident in all age bands
- No clear seasonal pattern for *Giardia*

- Slight increase in cases around weeks 30-36
Scottish Data

Study 1

- 13/47 (28%) of samples were negative by microscopy but positive for *Giardia* antigen

- 34/47 (72%) of *Giardia* positive samples would have been missed if traditional criteria were used.
Study 2

- 28 laboratory confirmed microscopy positive cases

- 26 cases (93%) would have been excluded from Giardia testing if traditional clinical information criteria had been applied.

- Nine cases stated foreign travel - only two from 'high risk' regions
Scottish Health Protection Network
Giardia Working Group

- Consider the public health implications of the changes in laboratory testing across Scotland

- Review information collected by Health Protection teams and current management of *Giardia* across Scotland.
  - *Giardia* surveillance with NHS Grampian
  - UK Standards for Microbiology Investigations
  - Treatment resistance
Identify gaps in the current knowledge;

Giardia “Special Interest” Group
- explore the molecular epidemiology of *Giardia* in humans and companion animals
- resistance testing

Make recommendations for consideration;
- National Gastrointestinal Zoonoses Group
- UK Enteric Protozoa Group
Giardia Nomenclature
Scottish laboratories report;

• *Giardia species*

• *Giardia intestinalis*

• *Giardia lamblia*

• *Giardia duodenalis*
Antony van Leeuwenhoek (1632 –1723)

- 1681
  - Examined his own faeces
Vilem Lampi (1824–1895)

• 1859 Describe the parasite from stools of children

• *Cercomonas intestinalis*

• Deemed “commensal”
• 1875 Devaine  
  - a flagellate in rabbits *Hexamita duodenalis*

• 1882 Kunstler  
  - genus “Giardia” in tadpoles *Giardia agilis*

• 1888 Blanchard  
  - *Lamblia intestinalis* in commemoration of the first description by Lambl

• 1914 Alexeieff showed the parasite infecting humans was the same genus as that observed by Kunstler i.e. *Giardia intestinalis*
Charles Wardell Stiles
1867 – 1941

Secretary of the
International Commission
on Zoological Nomenclature

1915 - Giardia lamblia
(commemorate Professor A. Giard and Dr. Lambl)
By 1950’s, 50 species of *Giardia* were described ………..

one host = one species
1952 Francis Pasquale Filice
Filice proposed *Giardia duodenalis* for humans and mammals.

75% of reports from Scotland state *Giardia lamblia*.
• Rules of Zoological Nomenclature *Giardia duodenalis* has priority (in use by CDC Atlanta)

• World Health Organisation uses *G.intestinalis*

• PHE notifiable diseases report uses *G.lamblia*

S.N.A.I.L Group

Schistosomiasis National Advisory Investigation and Liaison Group
S.N.A.I.L Group

- Health Protection Scotland
- Public Health
- Healthcare Scientists
- Infectious Diseases Consultants
- Microbiologists
- General Practitioners
- Travel Nurses
- Travel Companies?
• national clinical guidance on best practice in screening, diagnosis and management

• enhanced surveillance system

• diagnostic research

• raise awareness of schistosomiasis
“Making a Microbe”
Glasgow Science Festival "Science Sunday"
10th June 2018
Brief Updates
Entamoeba histolytica

Microscopy
- report as;
Entamoeba histolytica / Entamoeba dispar

Molecular speciation assay
- Available at the SPDRL, Glasgow
- Replaces antigen testing
- No need to freeze samples
- Samples do not need to be <48 hours old
Teaching

Webinars on;

- Protozoa
- Helminths
- Ecto-parasites
- Malaria
- Blood Parasites
Open Farm Sunday

10th June 2018