

Supplementary Material

Supplementary File 1. Standardised shigellosis exposure questionnaire

Standardised shigellosis exposure questionnaire used by Health Protection Teams (HPTs) participating in a national pilot

Shigella flexneri/dysenteriae/boydii questionnaire

1: QUESTIONNAIRE DETAILS

Interviewer name:		Interview date :	
Interviewer organisation:		Interviewer Telephone:	
Person interviewed name and relationship to case:			

2: CASE CLASSIFICATION AND ID

PHE reference no. e.g. HPZone					
Environmental health ID no.(if relevant)					
If relevant: GUM clinic name		GUM clinician		GUM clinic no.	
Local laboratory result: Culture					
PCR					
Local laboratory specimen number		Local Laboratory name			
Reference laboratory result					
		Confirmed	Probable	Possible	
Classification	<i>Shigella flexneri</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<i>Shigella dysenteriae</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<i>Shigella boydii</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<i>Shigella species</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

3: PERSONAL AND IDENTIFYING DETAILS

First name:				Family name/Surname:				
Address:								
Postcode:			Tel (h):			Tel (m):		
Email:								
Sex:	M <input type="checkbox"/>	F <input type="checkbox"/>	Date of birth (dd/mm/yyyy):			Age:	yrs	
NHS No:			GP name:					
GP address:						GP Tel:		
Are there any children living in the household? (other than the case)			Y <input type="checkbox"/>	N <input type="checkbox"/>	How many? <input type="checkbox"/>			

Public Health England is committed to ensuring all individuals are treated equally and fairly, and therefore we ask all people the following questions about their ethnicity and sexual orientation. This also helps us to identify and investigate outbreaks.

Ethnicity:				
White	<input type="checkbox"/> British	<input type="checkbox"/> Irish		<input type="checkbox"/> Other (please state)
Mixed	<input type="checkbox"/> White/Black Caribbean	<input type="checkbox"/> White/Black African	<input type="checkbox"/> White/Asian	<input type="checkbox"/> Other (please state)
Asian/Asian British	<input type="checkbox"/> Indian	<input type="checkbox"/> Pakistani	<input type="checkbox"/> Bangladeshi	<input type="checkbox"/> Other (please state)
Black/Black British	<input type="checkbox"/> Caribbean	<input type="checkbox"/> African		<input type="checkbox"/> Other (please state)
Chinese	<input type="checkbox"/> Chinese			
Other	<input type="checkbox"/> (please state)			

Sexual identity (if over 18 years old)
I will now read out a list of terms people sometimes use to describe how they think of themselves.
<input type="checkbox"/> Heterosexual or straight
<input type="checkbox"/> Gay or lesbian
<input type="checkbox"/> Bisexual
<input type="checkbox"/> Other
As I read the list again please say 'yes' when you hear the option that best describes how you think of yourself. (Pause briefly after each option during second reading).
<input type="checkbox"/> Spontaneous don't know/refusal

4: RISK GROUPS

Occupation			
Work/School/Nursery name:		Tel:	
Contact person			
Address:			
Postcode:		Date last attended:	

Does the patient fit into any of the following categories (tick all that apply)?:

Group A	<input type="checkbox"/>	Any person of doubtful personal hygiene or with unsatisfactory toilet, hand washing or hand drying facilities at home, work or school. Particular consideration should be given as to whether individual infant-school-aged children (aged 6 or 7 years) are able to satisfactorily observe good personal hygiene. Health protection personnel (LA and HPU) should agree locally on how to make this assessment in engagement with parents or teachers/carers.
Group B	<input type="checkbox"/>	All children aged five years old or under including those who attend school, pre-school, nursery or other childcare or minding groups.
Group C	<input type="checkbox"/>	People whose work involves preparing or serving unwrapped food to be served raw or not subjected to further heating.
Group D	<input type="checkbox"/>	Clinical, social care or nursery staff who work with young children, the elderly, or other particularly vulnerable people, and whose activities increase the risk of transferring infection via the faecal-oral route. Such activities include helping with feeding or handling objects that could be transferred to the mouth
No risk group	<input type="checkbox"/>	

5: CLINICAL DETAILS

Onset date:		Still ill:		If no, →	Duration of illness (days):	.
Symptoms:	Diarrhoea	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Vomiting	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Fever	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Blood in stools	Yes <input type="checkbox"/>	No <input type="checkbox"/>
	Abdominal pain	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Mucus in stool	Yes <input type="checkbox"/>	No <input type="checkbox"/>
Healthcare sought from:	<input type="checkbox"/> GP visit	<input type="checkbox"/> A&E	<input type="checkbox"/> Sexual health clinic	<input type="checkbox"/> Other (specify):		
Date of stool sample:						
Admitted to hospital for this illness:	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Admission date:			
Hospital name:					Duration of stay (d):	
Treated with antibiotics:	Yes <input type="checkbox"/>	No <input type="checkbox"/>	If Y, specify:			
Has the patient heard of <i>Shigella</i> before?	Yes <input type="checkbox"/>	No <input type="checkbox"/>				

6: TRAVEL

6.1 In the FOUR (<i>boydii, flexneri</i>) or SEVEN (<i>dysenteriae</i>) days prior to illness, did you arrive or return to the UK from ABROAD ?			Yes <input type="checkbox"/>	No <input type="checkbox"/>
Specify countries visited (from most recent)				
Country/Region	Date arrived	Date departed	Details	
6.1 In the FOUR (<i>boydii, flexneri</i>) or SEVEN (<i>dysenteriae</i>) days prior to illness, did you travel elsewhere WITHIN the UK?				
Town/Resort	Date arrived	Date departed	Details	

7: OTHER RISK FACTORS

7.1 In the FOUR (<i>boydii, flexneri</i>) or SEVEN (<i>dysenteriae</i>) days prior to illness, did you have any contact with:			
Anyone with diarrhoea?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	If yes, details:
Children under 5 years?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	If yes, details:
Visitors from UK or overseas?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	If yes, details:
Attend a gym/ swimming pool/other communal sports facilities?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	If yes, where?

8: SEXUAL CONTACT (ONLY for MALE cases aged 18 years or older. If under 18 years please go straight to section 9). Please ask about sexual contact regardless of travel history or other identified risk factors.

8.1 We ask all adult men with Shigella about sexual contact as Shigella can be sexually transmitted via the faecal-oral route. Men who have sex with men (MSM) are at greater risk of acquiring the infection than others and there have been outbreaks of shigella among the MSM population.

Did you have sexual contact with anyone in the FOUR (<i>boydii, flexneri</i>) or SEVEN (<i>dysenteriae</i>) days prior to illness			Yes <input type="checkbox"/>	No <input type="checkbox"/>
IF yes, was this with a	Male <input type="checkbox"/>	and/or	Female <input type="checkbox"/>	Prefer not to answer <input type="checkbox"/>

8.2 Public Health Advice: If the case is a MSM - please remember to provide them information on how to reduce transmission as per PHE leaflet (link below) and recommend they attend their local sexual health clinic for STI screening.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/323532/Shigella_leaflet.pdf

If the case has been abroad to areas with a high risk for shigella infection in the **FOUR** (*boydii*, *flexneri*) or **SEVEN** (*dysenteriae*) days prior to illness, **AND/OR** sexual transmission has been identified as a likely source, please go straight to section 10.

High risk area - South America, Asia (including the Middle East) and Africa: Low risk areas - Europe, North America and Australia:

9: FOOD AND WATER HISTORY

9.1 Food prepared at home

Please list all food eaten in the **FOUR** (*boydii*, *flexneri*) or **SEVEN** (*dysenteriae*) before you became unwell. Describe what was eaten and when in the appropriate section on the chart. If possible give details of the shop where it was bought. **Routine cooking kills *Shigella* bacteria so particular attention should be given to raw and uncooked food, as well as baby foods.**

Days pre-onset	Date	Breakfast	Lunch	Evening meal	Snacks
1					
2					
3					
4					
5					
6					
7					

9.2 In the **FOUR** (*boydii*, *flexneri*) or **SEVEN** (*dysenteriae*) days before you became unwell, did you eat any food that was not prepared at home, either in this country or abroad (e.g. hotels, restaurants, cafes, pubs; school and work canteens; takeaways, fast food outlets; barbecues and picnics; social events; other people's homes)? If yes, enter details below

Date	Description of food	Establishment where food obtained

9.3 In the **FOUR** (*boydii*, *flexneri*) or **SEVEN** (*dysenteriae*) days before you became unwell, what was the source of your drinking water? (tick all that apply)

Mains <input type="checkbox"/>	Private <input type="checkbox"/>	Bottled <input type="checkbox"/>
Filtered <input type="checkbox"/>	Well <input type="checkbox"/>	Spring <input type="checkbox"/>
Other (specify) <input type="checkbox"/>		

10: PLEASE COMPLETE CONTACT SHEET ON THE FOLLOWING PAGE

11: FURTHER INFORMATION

Is this case part of an outbreak?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Setting
Are there any other possible exposures to infection not already discussed		
May we contact you again if we need to ask any further questions?	Yes <input type="checkbox"/> No <input type="checkbox"/>	

Please remember for provide public health advice to reduce risk of ongoing transmission

	Name	Address	Date of birth	Relationship to case*	Gender (M/F)	Symptoms (Y/N)	Type of Symptom	Date of Onset	Risk Group (A/B/C/D/No)	GP Details	Exclusion req'd (Y/N)	Contact advised re. exclusion (Y/N)
6												
7												
8												

Significant contact is defined as household/workplace/school contact and/or those who have been exposed to the similar circumstances as the case i.e. travelled with the case.

Supplementary File 2. Phylogeny of 25-SNP 'adult male' cluster 34.42.42.42.%

Mid-point rooted maximum likelihood phylogenetic tree containing all isolates belonging to an 'adult male' 25-SNP cluster (34.42.42.42.%, N=313). Isolates are labelled by SNP address. 10-SNP single linkage clusters containing at least one case with a questionnaire are coloured at the tips by cluster (9 clusters, 273 cases in total). Branch tips that are not coloured represent cases that did not cluster with another case at the 10-SNP threshold (n=33 cases), or 10-SNP single linkage clusters that did not contain a case with a questionnaire (2 'adult male' clusters, 7 cases in total). Selected demographic data and sexual risk are represented as coloured strips. Sexual risk data are presented for cases with a questionnaire.

10-SNP clusters

- 34.42.42.42.285.% (adult male)
- 34.42.42.42.291.% (adult male)
- 34.42.42.42.344.% (community)
- 34.42.42.42.356.% (adult male)
- 34.42.42.42.371.% (adult male)
- 34.42.42.42.378.% (adult male)
- 34.42.42.42.42.% (adult male)
- 34.42.42.42.440.% (adult male)
- 34.42.42.42.537.% (community)

Age group

- <18
- 18-24
- 25-34
- 35-44
- 45+

Sex

- Male
- Female

Sexual risk

- Gay man
- Reported sex with man
- Heterosexual man
- Not known

