

## Legionnaires' Disease Cruise Ship Questionnaire Template

*<Instructions to the interviewer appear in italics. Please read the entire questionnaire before beginning the interview.>*

*<After confirming a case of Legionnaires' disease or Pontiac fever and completing the CDC Legionellosis Case Report Form, you can use this form to collect additional epidemiologic data. **This form contains additional questions about possible cruise ship exposures.** These data may be useful in detecting outbreaks or in a future cluster/outbreak investigation. You may add this form to your state's electronic notifiable disease surveillance system in whole or in part for routine data collection. A more detailed questionnaire that you can customize to the outbreak location should be developed and used for cases associated with a known outbreak.>*

What was the patient's outcome?  Recovered  Still Ill  Died  Unknown

Was the patient a guest passenger or a crewmember of the ship?  Guest  Crew

### Interviewer identification

Interviewer's name: \_\_\_\_\_ Health department: \_\_\_\_\_

Phone: \_\_\_\_\_ Email: \_\_\_\_\_

### Patient contact information

Name: \_\_\_\_\_ Age: \_\_\_\_\_ Sex:  M  F

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ County: \_\_\_\_\_

Phone: \_\_\_\_\_ Alt. phone: \_\_\_\_\_

**Proxy contact information** *<List proxy contact information if patient is unable to be interviewed or has died.>*

Name: \_\_\_\_\_ Relationship to patient: \_\_\_\_\_

Phone: \_\_\_\_\_ Alt. phone: \_\_\_\_\_

### Template call script

Hello, my name is \_\_\_\_\_ and I'm calling from \_\_\_\_\_.  
I understand you have already spoken with someone about your recent Legionnaires' disease *<or Pontiac fever>* illness. Legionnaires' disease *<or Pontiac fever>* is a reportable disease, which means that healthcare providers must report cases to public health so that we can determine if there is a public health concern. I'd like to ask you several additional questions about your activity during the 14 days

before you got sick. The answers to the questions might help us find a source of water that contains the *Legionella* germ and is making people ill. I understand you may have already answered some of these questions previously, and you do not have to answer any of the questions again, but we appreciate your cooperation and it could help prevent others from getting sick. Do you have a few minutes to talk? If not now, when would be a good time for me to call back?

Typical symptoms of Legionnaires' disease include:

- Cough
- Shortness of breath
- Fever
- Muscle aches
- Headaches

*<If Pontiac fever, replace symptoms above with fever, muscle aches, and headaches.>*

I have that your first symptom started on *<insert onset date>* \_\_\_\_\_. Is this correct?

Yes  No  Not sure

If no, what was the first date you started feeling sick? \_\_\_\_\_

## Exposure information

*<Important: Use a calendar to calculate the exposure period. Start at the date of earliest symptom onset documented above and count backwards 14 days. See the example below.>*

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3 <b>1<sup>st</sup> day of exposure period</b>	4	5
6	7	8	9	10	11	12
13	14	15	16	17 <b>Date of onset</b>	18	19

*<Document exposure period here: \_\_\_\_\_ to \_\_\_\_\_.>*

I'd like to ask you some questions about your travel and exposures during the **14 days before you got sick**. The time period I'm asking about is between \_\_\_\_\_ and \_\_\_\_\_.

During the 14 days before you got sick, did you go on a cruise?

Yes  No  Not sure

*<If yes, complete the following table:>*

Cruise line	Ship name	Cruise dates	Cabin #

### Section 1. Possible exposures associated with the cruise

Now I'm going to ask you about your water exposures in the 14 days before you got sick. As a reminder, I'm talking about \_\_\_\_\_ to \_\_\_\_\_. We'll start with any exposures you may have had ON the cruise ship during the 14 days before you got sick. I'll ask about water exposures in ports of call later.

How many people occupied your cabin? \_\_\_\_\_ (# of people)

Was there a shower in your cabin?  Yes  No  Not sure

If no, where did you shower? \_\_\_\_\_

How many times did you use the shower or showerhead? \_\_\_\_\_ times

How long, on average, did you shower?  <5 min  5–10 min  ≥10 min

If there was one or more people sharing your room/cabin, how often did you shower or bathe first?

Always  Mostly  Sometimes  Never  Not applicable  Not sure

Was there a bathtub in your cabin?  Yes  No  Not sure

If yes:

Did your bathtub have jets?

How many times did you use the bathtub? \_\_\_\_\_ (# of times)

How many times did you use the bathtub with the jets on? \_\_\_\_\_ (# of times)

How many times was the bathtub used with the jets on by someone else while you were in the same room? \_\_\_\_\_ (# of times)

Did you visit a day spa on board the trip?  Yes  No  Not sure

<If yes, complete the following table:>

Reason for visits/treatments	Date(s)	Amount of time spent in day spa

Were there any hot tubs inside the day spa?

Yes  No  Not sure

<If yes, include these in the hot tub table below.>

Did you get in any hot tubs on board the ship?  Yes  No  Not sure

Did you spend any time near or around any hot tubs on board the ship?

Yes  No  Not sure

<If yes, to either of the above questions, please complete the following table.>

Now I am going to ask you more details about your hot tub exposures on the ship. There are several hot tubs on board, so I will ask you about each one individually.

Hot tub <Pre-fill locations from online deck plans prior to interview. (ex: 'Spa Deck' near gym)>	Did you spend any time in or around this hot tub?	On how many days were you in or around this hot tub?	How much total time did you spend in this hot tub in the 14 days before you got sick?	How much time did you spend near or around but NOT IN this hot tub in the 14 days before you got sick?	What time(s) of day were you in or around this hot tub? <Mark all that apply.>
	<input type="checkbox"/> Yes, got in <input type="checkbox"/> Yes, near or around <input type="checkbox"/> No <input type="checkbox"/> Not sure	No. of days: __ OR, <input type="checkbox"/> Everyday <input type="checkbox"/> Never	<input type="checkbox"/> <15 min <input type="checkbox"/> 15–30 min <input type="checkbox"/> 30 min–1h <input type="checkbox"/> 1–2 hrs <input type="checkbox"/> 2–4 hrs <input type="checkbox"/> >4 hrs <input type="checkbox"/> Not sure	<input type="checkbox"/> <15 min <input type="checkbox"/> 15–30 min <input type="checkbox"/> 30 min–1h <input type="checkbox"/> 1–2 hrs <input type="checkbox"/> 2–4 hrs <input type="checkbox"/> >4 hrs <input type="checkbox"/> Not sure	<input type="checkbox"/> Morning <input type="checkbox"/> Mid-day <input type="checkbox"/> Afternoon <input type="checkbox"/> Evening

Hot tub <Pre-fill locations from online deck plans prior to interview. (ex: 'Spa Deck' near gym)>	Did you spend any time in or around this hot tub?	On how many days were you in or around this hot tub?	How much total time did you spend in this hot tub in the 14 days before you got sick?	How much time did you spend near or around but NOT IN this hot tub in the 14 days before you got sick?	What time(s) of day were you in or around this hot tub? <Mark all that apply.>
	<input type="checkbox"/> Yes, got in <input type="checkbox"/> Yes, near or around <input type="checkbox"/> No <input type="checkbox"/> Not sure	No. of days: __ OR, <input type="checkbox"/> Everyday <input type="checkbox"/> Never	<input type="checkbox"/> <15 min <input type="checkbox"/> 15–30 min <input type="checkbox"/> 30 min–1h <input type="checkbox"/> 1–2 hrs <input type="checkbox"/> 2–4 hrs <input type="checkbox"/> >4 hrs <input type="checkbox"/> Not sure	<input type="checkbox"/> <15 min <input type="checkbox"/> 15–30 min <input type="checkbox"/> 30 min–1h <input type="checkbox"/> 1–2 hrs <input type="checkbox"/> 2–4 hrs <input type="checkbox"/> >4 hrs <input type="checkbox"/> Not sure	<input type="checkbox"/> Morning <input type="checkbox"/> Mid-day <input type="checkbox"/> Afternoon <input type="checkbox"/> Evening
	<input type="checkbox"/> Yes, got in <input type="checkbox"/> Yes, near or around <input type="checkbox"/> No <input type="checkbox"/> Not sure	No. of days: __ OR, <input type="checkbox"/> Everyday <input type="checkbox"/> Never	<input type="checkbox"/> <15 min <input type="checkbox"/> 15–30 min <input type="checkbox"/> 30 min–1h <input type="checkbox"/> 1–2 hrs <input type="checkbox"/> 2–4 hrs <input type="checkbox"/> >4 hrs <input type="checkbox"/> Not sure	<input type="checkbox"/> <15 min <input type="checkbox"/> 15–30 min <input type="checkbox"/> 30 min–1h <input type="checkbox"/> 1–2 hrs <input type="checkbox"/> 2–4 hrs <input type="checkbox"/> >4 hrs <input type="checkbox"/> Not sure	<input type="checkbox"/> Morning <input type="checkbox"/> Mid-day <input type="checkbox"/> Afternoon <input type="checkbox"/> Evening
	<input type="checkbox"/> Yes, got in <input type="checkbox"/> Yes, near or around <input type="checkbox"/> No <input type="checkbox"/> Not sure	No. of days: __ OR, <input type="checkbox"/> Everyday <input type="checkbox"/> Never	<input type="checkbox"/> <15 min <input type="checkbox"/> 15–30 min <input type="checkbox"/> 30 min–1h <input type="checkbox"/> 1–2 hrs <input type="checkbox"/> 2–4 hrs <input type="checkbox"/> >4 hrs <input type="checkbox"/> Not sure	<input type="checkbox"/> <15 min <input type="checkbox"/> 15–30 min <input type="checkbox"/> 30 min–1h <input type="checkbox"/> 1–2 hrs <input type="checkbox"/> 2–4 hrs <input type="checkbox"/> >4 hrs <input type="checkbox"/> Not sure	<input type="checkbox"/> Morning <input type="checkbox"/> Mid-day <input type="checkbox"/> Afternoon <input type="checkbox"/> Evening

Do you recall being near or around any decorative fountains or waterfalls while on board this ship?

Yes  No  Not sure

If yes, describe where \_\_\_\_\_

**FOR CREW ONLY:**

What is your job title and job description/duties?  
 \_\_\_\_\_  
 \_\_\_\_\_

Please describe specific water exposures that you may encounter as part of your daily tasks.  
 \_\_\_\_\_  
 \_\_\_\_\_

When did you join the crew? \_\_\_\_\_ (month), \_\_\_\_\_ (date), \_\_\_\_\_ (year)

Did you smoke on board the ship?  Yes  No

If yes, describe where \_\_\_\_\_

Section 2. Water exposures at ports of call

Now I am going to ask you about your activities and water exposures at ports of call. For each port of call, please tell me what activities you participated in while in port.

Day	Port <Pre-fill ports of call and days at sea prior to the interview if available.>	Excursion/activity	Water exposures (i.e., showers off-ship, misters, decorative fountains, water parks)
1		(prior to boarding)	
2			
3			
4			
5			
6			
7			

### Section 3. Respiratory therapy equipment

Did you use a nebulizer, CPAP, BiPAP, or any respiratory therapy equipment for the treatment of sleep apnea, COPD, asthma, or for any other reason?

Yes  No  Not sure

*<If yes, complete the following table:>*

Type of device	Location	Date(s)

If yes, does this device use a humidifier?  Yes  No  Not sure

If yes, describe what type of water you use in this device (e.g., sterile, tap, distilled) and how you clean it.

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Was anything different about your use of respiratory therapy equipment on the cruise ship when compared with home?

Yes  No  Not sure

If yes, describe the differences.

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### Section 4. Possible exposures NOT associated with the cruise

Now I'm going to ask you about exposures you may have had while traveling or at home during this 14-day period that did NOT occur on board the cruise ship or at ports of call.

During the 14 days before you got sick, did you spend any nights away from home other than on the cruise ship? (i.e., in a hotel)?

Yes  No  Not sure

&lt;If yes, complete the following table:&gt;

Accommodation name	Address	City, state/ country	Room #	Dates of stay	
				Arrival	Departure

During the 14 days before you got sick, did you visit a hotel **without** staying overnight? (e.g., dinner, wedding, employee)?

Yes  No  Not sure

&lt;If yes, complete the following table:&gt;

Accommodation name	Address	City, state/ country	Date(s)	Reason for visit

Comments: \_\_\_\_\_

\_\_\_\_\_

During the 14 days before you got sick, did you work at, get treatment in, or visit a hospital?

Yes  No  Not sure

&lt;If yes, check all that apply:&gt;

Exposure	Hospital name and location	Reason for visit	Date(s)
<input type="checkbox"/> Inpatient			Admission: _____  Discharge: _____
<input type="checkbox"/> Outpatient			

Exposure	Hospital name and location	Reason for visit	Date(s)
<input type="checkbox"/> Visitor			
<input type="checkbox"/> Employee			
<input type="checkbox"/> Volunteer			

Comments: \_\_\_\_\_

During the 14 days before you got sick, did you work at, get treatment in, or visit a doctor’s office, clinic, or dental office?

Yes  No  Not sure

*<If yes, check all that apply:>*

Type of clinic	Exposure	Name of doctor and location	Reason for visit	Date(s)
<input type="checkbox"/> Doctor’s office or clinic	<input type="checkbox"/> Outpatient <input type="checkbox"/> Visitor <input type="checkbox"/> Employee <input type="checkbox"/> Volunteer			
<input type="checkbox"/> Dentist	<input type="checkbox"/> Outpatient <input type="checkbox"/> Visitor <input type="checkbox"/> Employee <input type="checkbox"/> Volunteer			

Comments: \_\_\_\_\_

During the 14 days before you got sick, did you work at, reside in, or visit a long-term care facility?

Yes  No  Not sure

*<If yes, check all that apply:>*

Type of facility	Exposure	Name of facility and location	Date(s)
<input type="checkbox"/> Long-term care facility (nursing home, rehab facility, or skilled nursing facility)	<input type="checkbox"/> Resident <input type="checkbox"/> Inpatient <input type="checkbox"/> Visitor <input type="checkbox"/> Employee <input type="checkbox"/> Volunteer		

Comments: \_\_\_\_\_

During the 14 days before you got sick, did you work at, reside in, or visit a senior living or assisted living facility?

 Yes  No  Not sure
*<If yes, check all that apply:>*

Type of facility	Exposure	Name of facility and location	Date(s)
<input type="checkbox"/> Senior Living (retirement homes without skilled nursing or personal care)	<input type="checkbox"/> Resident <input type="checkbox"/> Visitor <input type="checkbox"/> Employee <input type="checkbox"/> Volunteer		
<input type="checkbox"/> Assisted Living (facilities providing support with activities of daily living, i.e., bathing and dressing)	<input type="checkbox"/> Resident <input type="checkbox"/> Visitor <input type="checkbox"/> Employee <input type="checkbox"/> Volunteer		

Comments: \_\_\_\_\_

During the 14 days before you got sick, did you attend any conventions or public gatherings?

 Yes  No  Not sure
*<If yes, complete the following table:>*

Type of event	Name of venue	Location	Date(s)

Comments: \_\_\_\_\_  
 \_\_\_\_\_

During the 14 days before you got sick, did you work at, reside in, or visit a congregate living facility (e.g., correctional facility, shelter, dormitory)?

- Yes  No  Not sure

<If yes, complete the following table:>

Type of event	Name of venue	Location	Date(s)

Comments: \_\_\_\_\_  
 \_\_\_\_\_

During the 14 days before you got sick, did you have exposure to any of the following, either while traveling or at home, NOT on the cruise? <Note: if the patient indicated hotel exposure in the previous section, make sure to ask about specific exposures at the hotel(s).>

- Yes  No  Not sure

<If yes, complete the following table:>

Exposures	<Check one:>			Location	Date(s)
	Yes	No	Not sure		
Hot tub, Jacuzzi®, or whirlpool spa					
Sat NEAR a working hot tub but did not get in					
Pool					
Recreational misters					
Outdoor cooling mister					
Lawn or golf course sprinkler					

Exposures	<Check one:>			Location	Date(s)
	Yes	No	Not sure		
Steam room or wet sauna					
Decorative fountain or waterfall					
Humidifier					
Shower (away from home only)					

Comments: \_\_\_\_\_

Where do you get your water at home? <Check all that apply>

- Municipal water system
- Private well
- Unknown
- Other (specify): \_\_\_\_\_

Do you recall any general construction, plumbing projects, water main breaks, or water line work either at your home or at any other locations during the 14 days before you got sick?

- Yes
- No
- Not sure

<If yes, complete the following table:>

Type of work	Location	Date(s)

Comments: \_\_\_\_\_

During the 14 days before you got sick, did you shop at a grocery store where there were mister machines spraying the fruits and vegetables?

- Yes
- No
- Not sure

<If yes, complete the following table:>

Name of store	Location	Date(s)

Comments: \_\_\_\_\_

\_\_\_\_\_

During the 14 days before you got sick, did you work in a garden, have contact with potting soil, or visit a garden center?

Yes  No  Not sure

<If yes, complete the following table:>

Activity	Details	Date(s)

Comments: \_\_\_\_\_

\_\_\_\_\_

During the 14 days before you got sick, did you visit an area with large buildings, such as shopping centers, high-rise offices or hotels, or industrial buildings?

Yes  No  Not sure

<If yes, complete the following table:>

Name	Location	Date(s)

Comments: \_\_\_\_\_

Do you work or volunteer full- or part-time?

Yes  No

<If yes, complete the following table:>

Job description	Name of employer	Location	Any exposure to misty water?

Comments: \_\_\_\_\_

Specifically, do you work in any of the following settings?

Exposures	<Check one:>			Location	Date(s)
	Yes	No	Not sure		
Construction					
Industrial/manufacturing plant with water spray cooling or processes					
Building water system/device operation or maintenance (e.g., cooling towers, plumbing, hot tubs)					
Water-related leisure activities (e.g., hotels, cruise ships, water parks)					
Waste water treatment plant					
Truck driving (long haul)					
Dishwashing (e.g., in a commercial or industrial kitchen)					
Custodial services (e.g., housekeeping, janitorial work)					
Other job with water exposures					

Comments: \_\_\_\_\_

## Associates with symptoms

Do you know anyone with symptoms similar to yours?

Typical symptoms of Legionnaires' disease include:

- Cough
- Shortness of breath
- Fever
- Muscle aches
- Headaches

*<If Pontiac fever, replace with fever, muscle aches, and headache.>*

Yes  No  Not sure

If yes, may we contact them to ask a few additional details about their illness?

Yes  No

*<If yes, complete the following table:>*

Name	Phone	State of residence	Details shared

## Medical history and health behaviors

Now I'm going to ask a few questions about your medical history and health behaviors. Have you ever been told by a healthcare provider that you had:

Underlying medical condition	<Check one:>			Comments
	Yes	No	Not Sure	
Chronic lung disease (COPD, emphysema)				
Asthma				
Diabetes				
Heart disease or heart failure				
Chronic kidney disease				
Liver disease				

Underlying medical condition	<Check one:>			Comments
	Yes	No	Not Sure	
Stroke				
Dementia				
Risk for aspiration				
Weakened immune system due to medications or treatment (e.g., chemotherapy, radiation therapy, immunosuppressive medications)				
Weakened immune system due to underlying illness (e.g., HIV, immunoglobulin deficiency, splenectomy, sickle cell anemia)				
Hematologic cancer (e.g., lymphoma, leukemia, multiple myeloma)				
Solid organ cancer				
Bone marrow transplant				
Solid organ transplant				
Other conditions				

Behaviors	<Check one:>		Quantity per day (packs or drinks)	Duration (years)
	Yes	No		
Are you currently a smoker?				
Are you a former smoker?				
Do you drink alcohol?				

That is the end of the questionnaire! Thank you for your time. Do you have any questions about Legionnaires' disease <or Pontiac fever> that I can help answer? If you have any questions or remember any further details, you may reach me at \_\_\_\_\_. Thank you.