

**“Second reported outbreak of pneumococcal pneumonia among shipyard employees in Turku, Finland, August – October 2023: a case-control study”**

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**Supplementary material S3: Questionnaire for cases**

**Questionnaire for pneumococcal disease outbreak at the Turku Shipyard in Turku, Finland, August – October 2023**

Date of completion: \_\_\_\_\_ Case ID: \_\_\_\_\_  
Interviewer: \_\_\_\_\_

Good day, my name is [name of interviewer]. I am calling on behalf of [name of institute]. Is this Mr/Ms [name of case]? I am calling regarding the pneumonia you have recently been treated for in Turku University Hospital.

We are investigating the recent situation at the shipyard because we received reports that you were not the only person that got sick.

We would appreciate your input by answering a questionnaire. Answering the questions is voluntary, your participation will be useful to understand why the disease was identified among shipyard workers. Would you help us by participating?

**(Yes)**

Just for your information, any details you provide will be handled completely confidentially and will not be shared with your employer or any other party. Any information about you will have a number on it instead of your name. In reports of the findings, no individual participants will be identifiable. Any questions regarding the investigation can be addressed to [the interviewer] or to the THL/Varha investigation team. By answering the questions, you confirm that consent to participate is given.

**(Yes, but not right now)**

I will call you back, what time and day would you prefer?

**(No)**

Just for your information, any details you provide the investigation team will be handled completely confidentially and will not be shared with your employer or any other party. Any information about you will have a number on it instead of your name. In reports of the findings, no individual participants will be identifiable. In case you change your mind regarding your participation, you can contact this number [xxx].

**Section A: Respondent information**

1. Date of birth (dd/mm/year): \_\_\_\_ / \_\_\_\_ / \_\_\_\_
2. Sex: \_\_\_\_\_
3. Nationality: \_\_\_\_\_
4. Country of permanent residence: \_\_\_\_\_

5. What date did the respiratory symptoms start? (dd/mm/year): \_\_\_\_\_

**The below information concerns the period of 3 months before start of symptoms (questions 6-7):**

6. Accommodation while working in Turku Shipyard:

- ☐ Hotel/hostel
- ☐ Apartment/studio
- ☐ House
- ☐ Other: \_\_\_\_\_

7. While working in Turku Shipyard, did you live:

- ☐ Alone
- ☐ With work colleagues (how many: \_\_\_\_\_)
- ☐ With family members (how many: \_\_\_\_\_)
- ☐ With other roommates that do not work at Turku Shipyard (how many: \_\_\_\_\_)

## Section B: Occupational details / work-related questions

8. When did you start working at Turku Shipyard? (month, year) \_\_\_\_\_

9. Were you employed by Meyer Turku or by a contractor in the **year 2023**?

- ☐ Meyer Turku
- ☐ Contractor (if a contractor, please specify **name** of the contractor and which **country** the contractor is based in): \_\_\_\_\_

10. Before working at Turku Shipyard did you work in any other shipyard in the **year 2023**?

- ☐ Yes (if yes, please specify where and when): \_\_\_\_\_
- ☐ No

11. Have you had an occupational health check before starting to work at Turku Shipyard?

- ☐ Yes
- ☐ No (if no, when was your last occupational health check (try to be as specific as possible: month/year): \_\_\_\_\_)

12. Can you describe your main tasks/work in the shipyard?

**The below information concerns the period of 3 months before start of symptoms:**

Please mark all performed activities during this period:

- ☐ hitsaaja -welder
- ☐ levyseppä –plater
- ☐ operaattori (automatisoidun hitsaus/polttoleikkauskoneen käyttö)- operator (in automated use of welding/oxy-fuel cutting machine)
- ☐ putkiasentaja- plumber/pipefitter
- ☐ koneasentaja- mechanic
- ☐ sähköasentaja- electrician
- ☐ lvi-asentaja- HVAC-technician/mechanic
- ☐ sisustusasentaja – interior technician/mechanic
- ☐ maalari ja ruiskumaalari –(industrial) painters or spray-painters
- ☐ kunnossapito (sähkö-, nosturi-, koneasentaja)- maintenance and repair (electricians, crane-mechanics, mechanics)
- ☐ varastomiehiä- storage workers
- ☐ kuljetusmiehiä (trukki, nosturi)- transportation (crane and forklift-drivers)
- ☐ siivooja – cleaner
- ☐ hiekkapuhallus - sandblasting
- ☐ Any other activities: \_\_\_\_\_

13. Which sector of the shipyard do you work in?

**The below information concerns the period of 3 months before start of symptoms:**

☐ **Outfitting ship on wet dock (Varustelutyö laiturissa olevassa laivassa)**

- ☐ Machinery & Technical decks (konevarustelu)
- ☐ Interior & Passenger decks (varustelutyö, sisustus ja hyttikannet)
- ☐ Electrical outfitting (sähkövarustelu)
- ☐ HVAC & catering, kitchen areas (varustelutyö, LVI ja keittiöalueet)
- ☐ Deck outfitting (kansivarustelu)

☐ **Outfitting ship on dry dock (Varustelutyö allasvaiheen laivassa)**

- ☐ Machinery & Technical decks (konevarustelu)
- ☐ Interior & Passenger decks (varustelu sisustus ja hyttikannet)
- ☐ Electrical outfitting (sähkövarustelu)
- ☐ HVAC & catering, kitchen areas (varustelu LVI ja keittiöalueet)
- ☐ Deck outfitting (kansivarustelu)

☐ **Outfitting outside in tents (Lohkavarustelutyö ulkona teltoissa)**

☐ **Hull production (Runkotuotanto)**

- ☐ Part fabrication (osavalmistus)
- ☐ Block assembly (lohkonkoonti)
- ☐ Grand block assembly (suurlohkokoonti)
- ☐ Hull assembly (rungenkoonti)
- ☐ Surface treatment, (pintakäsittely)

☐ **Other:** \_\_\_\_\_

14. Average amount of time spent at workplace per workday:

- ☐ More than 10 hours/day
- ☐ 8 – 10 hours/day
- ☐ 4 – 7 hours/day
- ☐ Less than 4 hours/day

15. Which statement best describes your **main/general** working conditions (if it varies a lot, please check all that apply):

- ☐ I do not work near other people (>30 m)
- ☐ I work with others but not closely (e.g., private room)
- ☐ I work slightly close (e.g., shared room) to other persons
- ☐ I work moderately close (at arm's length) to other persons
- ☐ I work very close (near touching) to other persons

16. Which best describes your working environment:

- ☐ Only indoors
- ☐ Mainly indoors (more than 4 hours/day)
- ☐ Mainly outdoors (more than 4 hours/day)
- ☐ Only outdoors
- ☐ Both equally

17. Average time in hours spent on welding:

- ☐ More than 5 hours/day
- ☐ 3-5 hours/day
- ☐ 1-2 hours/day
- ☐ Not applicable/does not weld

18. Have you inhaled any of the following agents in your workplace? For each type of exposure, please choose what best applies to your daily work situation (please put "x" in the correct column in each row). Please note that exposures have been divided into those taking place indoors and outdoors.




**The below information concerns the period of 3 months before start of symptoms.**

| Place   | Exposure type                               | Never exposed | Occasionally exposed | Exposed less than half your working time | Exposed half or more of your working time | Don't know/not sure |
|---------|---|---------------|----------------------|--|---|---------------------|
| Indoors | Welding fumes                               |               |                      |  |   |                     |
|         | Metal fumes from other sources than welding |               |                      |  |   |                     |
|         | Paint or solvent fumes                      |               |                      |  |   |                     |

|          |  |  |  |  |  |  |
|----------|--|--|--|--|--|--|
|          | Metal dust   |  |  |  |  |  |
|          | Wood dust  |  |  |  |  |  |
|          | Sand or stone dust   |  |  |  |  |  |
|          | Fire smoke   |  |  |  |  |  |
|          | Tobacco smoke  |  |  |  |  |  |
|          | Fibre insulation material dust<br>(for example from mineral<br>wool) |  |  |  |  |  |
|          | Dust from cleaning, brushing,<br>or sweeping                         |  |  |  |  |  |
|          | Other:   |  |  |  |  |  |
| Outdoors | Welding fumes  |  |  |  |  |  |
|          | Metal fumes from other<br>sources than welding                       |  |  |  |  |  |
|          | Paint or solvent fumes   |  |  |  |  |  |
|          | Metal dust   |  |  |  |  |  |
|          | Wood dust  |  |  |  |  |  |
|          | Sand or stone dust   |  |  |  |  |  |
|          | Fire smoke   |  |  |  |  |  |
|          | Tobacco smoke  |  |  |  |  |  |
|          | Fibre insulation material dust<br>(for example from mineral<br>wool) |  |  |  |  |  |
|          | Dust from cleaning, brushing,<br>or sweeping                         |  |  |  |  |  |
|          | Other:   |  |  |  |  |  |

19. Have you used the following respiratory personal protective equipment at your work when you or other workers nearby are welding, grinding or doing other work producing dust or fumes? For each type of protective equipment please choose what best applies to your daily work situation (please put "x" in the correct column in each row).

*The below information concerns the period of 3 months before start of symptoms.*

| Type of protective equipment   |   | Always | Most of the time | Occasionally | Never | Not available |
|--|---|--------|------------------|--------------|-------|---------------|
| Disposable half mask with particle filters (FFP2 or FFP3)                                      |    |        |                  |              |       |               |
| Half mask with P2-P3 filters, non-powered  |    |        |                  |              |       |               |
| Powered filtering (P) device incorporating a mask, a helmet, or a hood                         |  |        |                  |              |       |               |
| Continuous flow compressed air line breathing device with welding mask, helmet or hood or mask |  |        |                  |              |       |               |

20. How often have you borrowed/used the same respiratory protective equipment as your workmate?

- ☐ Every day  
☐ 3-4 times a week  
☐ Once or twice a week  
☐ Only occasionally  
☐ Never

### Section C: Other risk factors (tick any that apply)

*The below information concerns the period of 3 months before start of symptoms (questions 21-25).*

21. How often do you drink any alcohol (beer, wine, spirits, etc.)?

- ☐ Daily or almost daily  
☐ 2-3 times a week

- ☐ Once a week  
☐ 2-3 times a month  
☐ Once a month  
☐ Less than once a month

☐ Never

22. Smoking status:

- ☐ Non-smoker  
☐ Former smoker  
☐ Current smoker

23. If in question 22 you answered "former/current smoker": on average how many cigarettes per day do you or did you smoke?

- ☐ Less than 1 cigarette a day  
☐ 1-5 cigarettes a day  
☐ 6-10 cigarettes a day  
☐ 11-20 cigarettes a day  
☐ More than 20 cigarettes a day

24. Do you use vaping devices such as e-cigarettes or e-vaporizers?

- ☐ Yes  
☐ No

25. Pre-existing health conditions (if you use prescribed medication for other health conditions, please fill in "other"):

- ☐ Dysfunction or absence of the spleen

☐ Long-term (chronic) respiratory/lung disease (such as asthma or COPD)

☐ Long-term (chronic) kidney disease

☐ Long-term (chronic) heart disease

☐ Long-term (chronic) liver disease

☐ Diabetes

☐ Taking immunosuppressive medication like corticosteroid tablets, prednisolon, hydrocortisone tablets, dexamethasone tablets, or biological treatment

☐ Immunodeficiency due to illness (such as HIV, leukemia, lymphoma, or other)

☐ Any blood (haematological) disease

☐ Other (please specify): \_\_\_\_\_

☐ None

## Section D: Vaccination status

26. Were you vaccinated against pneumococcal disease in **October 2023**?

- ☐ Yes  
☐ No

27. Were you vaccinated against pneumococcal disease **while working at Turku Shipyard or in connection with starting work at Turku Shipyard**?

- ☐ Yes, (when: \_\_\_\_\_)  
☐ Yes, I'm not sure when  
☐ No  
☐ I don't know/not sure

28. Were you ever vaccinated against pneumococcal disease **before working at Turku Shipyard**?

- ☐ Yes, (when: \_\_\_\_\_)  
☐ Yes, I'm not sure when  
☐ No  
☐ I don't know/not sure

29. If in question 26, 27, or 28 you answered "yes": what type of vaccine was used for the vaccination?

☐ PPV23 (Pneumovax)

☐ PCV20 (Apexxnar)

☐ PCV13 (Prevenar 13)

☐ Other: \_\_\_\_\_

☐ I don't know/not sure

**Thank you for your participation!!!**