

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

Authors: Wioleta Kitowska; Ana Cristina Gonzalez-Perez; Joana Sequeira Neto; Mari Kanerva; Heikki Kaukavuori; Irmeli Lindström; Heikki Frilander; Timothée Dub; Lotta Siira, Pneumococcal Shipyard Outbreak Team

Supplementary material S4: Questionnaire for controls

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

Date of completion: _____

Questionnaire ID: _____

This questionnaire is part of an outbreak investigation into pneumococcal disease at the Turku Shipyard. The investigation is carried out by the Finnish Institute for Health and Welfare (THL) together with the Wellbeing Services County of Southwest Finland (Varha) with support from the Finnish Institute of Occupational Health (TTL) and the occupational health services of Meyer Turku.

In addition to the shipyard workers who were ill, we invite workers who were not hospitalised with pneumonia to participate in the investigation. Your participation will be useful to understand why the disease was identified among shipyard workers.

Filling out the questionnaire is voluntary. Any information you share with 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. Any questions regarding the investigation can be addressed to the THL/Varha investigation team on site at the shipyard. By filling in the questionnaire, the participant confirms that consent to participate is given.

Section A: Respondent information

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

The below information concerns the period of August – October 2023 (questions 5-9):

5. Accommodation while working in Turku Shipyard:

<input type="checkbox"/> Hotel/hostel	<input type="checkbox"/> With family members (how many: ____)
<input type="checkbox"/> Apartment/studio	<input type="checkbox"/> With other roommates that do not work at Turku Shipyard (how many: ____)
<input type="checkbox"/> House	
<input type="checkbox"/> Other: _____	
6. While working in Turku Shipyard, did you live:

<input type="checkbox"/> Alone	7. Did you experience any of the following symptoms around August – October 2023:
<input type="checkbox"/> With work colleagues (how many: ____)	<input type="checkbox"/> No symptoms

- ☐ Fever (>38 °C)
- ☐ Shivering/chills
- ☐ Cough or worsening cough
- ☐ Shortness of breath
- ☐ Chest pain or tightness
- ☐ Other respiratory symptoms: _____

8. What date did the symptoms start (if any)?
(dd/mm/year): _____
9. Were you hospitalised with pneumonia
anytime in the period of August – October
2023?
- ☐ Yes
- ☐ No

Section B: Occupational details / work-related questions

10. When did you start working at Turku Shipyard? (month, year) _____
11. 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): _____
12. 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
13. 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): _____
14. Can you describe your main tasks/work in the shipyard?
- The below information concerns the period of August – October 2023.**
- 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: _____

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

The below information concerns period of August –October 2023.

☐ **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 area (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 area (varustelu LVI ja keittiöalueet)
- ☐ Deck outfitting (kansivarustelu)

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

☐ **Hull production (Runkotuotanto)**

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

☐ **Other:** _____

16. 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

17. 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

18. 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

19. 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





20. 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 August – October 2023.

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 (for example from mineral wool)					
	Dust from cleaning, brushing, or sweeping					
	Other:					
Outdoors	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 (for example from mineral wool)					
	Dust from cleaning, brushing, or sweeping					
	Other:					

21. 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 August – October 2023.

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						

22. 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 August – October 2023 (questions 23-27).

23. 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

24. Smoking status:

- ☐ Non-smoker
- ☐ Former smoker
- ☐ Current smoker

25. If in question 24 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

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

- ☐ Yes
- ☐ No

27. 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

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

- ☐ Yes
- ☐ No

29. 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

30. 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

31. If in question 28, 29, or 30 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