

The impact of occupational exposures on infection rates during the COVID-19 pandemic: a test-negative design study with register data of 207 034 Dutch workers¹

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1. *Supplementary material*
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Table S1. JEM scores of the study population for the entire study period and for each pandemic wave¹

Transmission risk factors	Total N(%)	Wave 1 N(%)	Wave 2 N(%)	Wave 3 N(%)
Number of contact				
- No risk	68198(32.9)	48278(32.6)	35074(33.1)	12030(34.8)
- Low risk	51129(24.7)	35647(24.1)	25814(24.3)	7595(22)
- Elevated risk	43907(21.2)	32377(21.9)	23099(21.8)	7112(20.6)
- High risk	43800(21.2)	31667(21.4)	22095(20.8)	7864(22.7)
Nature of contacts				
- No risk	68196(32.9)	48276(32.6)	35072(33.1)	12030(34.8)
- Low risk	50296(24.3)	34495(23.3)	25032(23.6)	7318(21.1)
- Elevated risk	75880(36.7)	56022(37.9)	40010(37.7)	12937(37.4)
- High risk	12662(6.1)	9176(6.2)	5968(5.6)	2316(6.7)
Contaminated workspaces				
- No risk	72590(35.1)	51624(34.9)	37573(35.4)	12922(37.3)
- Low risk	52463(25.3)	36322(24.5)	26406(24.9)	7696(22.2)
- Elevated risk	33137(164.0)	24979(16.9)	17653(16.6)	5286(15.3)
- High risk	48844(23.6)	35044(23.7)	24450(234.0)	8697(25.1)
Location				
- No risk	67471(32.6)	47767(32.3)	34753(32.8)	11925(34.5)
- Low risk	8676(4.2)	5941(4)	4216(4.0)	1337(3.9)
- Elevated risk	16058(7.8)	11102(7.5)	8194(7.7)	2286(6.6)
- High risk	114829(55.5)	83159(56.2)	58919(55.5)	19053(55.1)
Mitigation factors				
Social distancing				
- No risk	69100(33.4)	48888(334.0)	35537(33.5)	12179(35.2)
- Low risk	48559(23.5)	34123(23.1)	24560(23.2)	7442(21.5)
- Elevated risk	66387(32.1)	48521(32.8)	34546(32.6)	10467(30.3)
- High risk	22988(11.1)	16437(11.1)	11439(10.8)	4513(134.0)
Face covering				
- No risk	69313(33.5)	49039(33.1)	35645(33.6)	12220(35.3)
- Low risk	96123(46.4)	70302(47.5)	49517(46.7)	16217(46.9)
- Elevated risk	41598(20.1)	28628(19.3)	20920(19.7)	6164(17.8)
- High risk				
Precarious work				
Income insecurity				
- No risk	162024(78.3)	116188(78.5)	83860(79.1)	26911(77.8)
- Low risk	22540(10.9)	16042(10.8)	11444(10.8)	3832(11.1)
- Elevated risk	5514(2.7)	3878(2.6)	2605(2.5)	916(2.6)
- High risk	16956(8.2)	11861(8)	8173(7.7)	2942(8.5)
Migrant workers				
- No risk	10158(4.9)	7763(5.2)	5881(5.5)	1645(4.8)
- Low risk	132137(63.8)	95092(64.3)	68275(64.4)	22615(65.4)
- Elevated risk	55794(26.9)	38998(26.4)	27596(26)	9037(26.1)
- High risk	8945(4.3)	6116(4.1)	4330(4.1)	1304(3.8)

¹Wave 1: June 2020 to February 8 2021, Wave 2: February 9 2021 to June 28 2021, Wave 3 June 29 2021 to August 31 2021

Table S2. Correlation between JEM scores for the entire study period

	Number of contacts	Nature of contacts	Contaminated workspaces	Location	Social distance	Face covering	Income insecurity	Migrants
Number of contacts	1.00							
Nature of contacts	0.90	1.00						
Contaminated workspaces	0.93	0.88	1.00					
Location	0.82	0.88	0.78	1.00				
Social distance	0.89	0.91	0.89	0.83	1.00			
Face covering	0.58	0.62	0.58	0.78	0.69	1.00		
Income insecurity	0.37	0.27	0.41	0.27	0.23	0.24	1.00	
Migrants	-0.15	-0.17	-0.11	-0.05	-0.14	0.15	0.24	1.00

Non-Western	1.56 (1.50 - 1.62)	1.53 (1.48 - 1.59)	1.68 (1.60 - 1.77)	1.66 (1.58 - 1.74)	1.46 (1.37 - 1.55)	1.42 (1.33 - 1.52)	1.34 (1.20 - 1.50)	1.33 (1.18 - 1.49)
Western	1.00 (0.96 - 1.04)	1.00 (0.96 - 1.04)	0.98 (0.93 - 1.04)	0.99 (0.93 - 1.04)	1.01 (0.94 - 1.08)	1.00 (0.93 - 1.07)	1.09 (0.96 - 1.24)	1.08 (0.95 - 1.23)
Household position								
Single household	ref	ref	ref	ref	ref	ref	ref	ref
Single parent	0.98 (0.92 - 1.04)	0.98 (0.92 - 1.05)	0.98 (0.90 - 1.07)	0.98 (0.90 - 1.07)	0.95 (0.86 - 1.06)	0.96 (0.86 - 1.07)	1.15 (0.94 - 1.41)	1.17 (0.95 - 1.43)
Part of a couple	1.16 (1.12 - 1.21)	1.17 (1.12 - 1.22)	1.25 (1.18 - 1.32)	1.25 (1.19 - 1.32)	1.09 (1.02 - 1.17)	1.10 (1.02 - 1.17)	1.00 (0.89 - 1.13)	1.02 (0.90 - 1.15)
Other	1.18 (1.11 - 1.25)	1.15 (1.09 - 1.22)	1.20 (1.11 - 1.30)	1.18 (1.09 - 1.28)	1.05 (0.96 - 1.16)	1.03 (0.94 - 1.14)	1.18 (0.99 - 1.39)	1.12 (0.95 - 1.33)
Children living at home								
None	ref	ref	ref	ref	ref	ref	ref	ref
Children below 12 years	0.75 (0.73 - 0.78)	0.76 (0.74 - 0.79)	0.77 (0.74 - 0.81)	0.78 (0.74 - 0.81)	0.81 (0.76 - 0.85)	0.81 (0.77 - 0.86)	0.63 (0.56 - 0.71)	0.64 (0.57 - 0.72)
Children above 12 years	1.34 (1.30 - 1.37)	1.34 (1.30 - 1.37)	1.34 (1.30 - 1.39)	1.34 (1.30 - 1.39)	1.40 (1.34 - 1.47)	1.40 (1.34 - 1.47)	1.19 (1.07 - 1.32)	1.19 (1.07 - 1.32)
Children in both age groups	1.23 (1.18 - 1.28)	1.23 (1.18 - 1.28)	1.28 (1.22 - 1.35)	1.28 (1.22 - 1.36)	1.21 (1.13 - 1.30)	1.22 (1.14 - 1.31)	1.14 (0.98 - 1.32)	1.14 (0.98 - 1.32)
Province								
Groningen	ref	ref	ref	ref	ref	ref	ref	ref
Drenthe	1.08 (0.98 - 1.19)	1.08 (0.98 - 1.19)	1.12 (0.98 - 1.27)	1.12 (0.98 - 1.27)	1.08 (0.92 - 1.26)	1.08 (0.92 - 1.27)	0.93 (0.67 - 1.29)	0.93 (0.67 - 1.29)
Flevoland	1.33 (1.20 - 1.47)	1.34 (1.21 - 1.48)	1.54 (1.35 - 1.76)	1.56 (1.36 - 1.78)	1.11 (0.93 - 1.32)	1.11 (0.93 - 1.32)	1.11 (0.8 - 1.54)	1.11 (0.80 - 1.55)
Friesland	1.24 (1.13 - 1.35)	1.23 (1.13 - 1.35)	1.16 (1.02 - 1.32)	1.16 (1.02 - 1.32)	1.31 (1.13 - 1.52)	1.30 (1.12 - 1.51)	1.39 (1.05 - 1.84)	1.40 (1.06 - 1.86)
Gelderland	1.37 (1.27 - 1.48)	1.38 (1.28 - 1.48)	1.43 (1.29 - 1.58)	1.43 (1.29 - 1.58)	1.33 (1.17 - 1.51)	1.34 (1.18 - 1.52)	1.31 (1.04 - 1.65)	1.31 (1.04 - 1.64)
Limburg	1.64 (1.52 - 1.77)	1.63 (1.51 - 1.77)	1.64 (1.47 - 1.82)	1.63 (1.46 - 1.81)	1.70 (1.49 - 1.94)	1.70 (1.49 - 1.94)	1.53 (1.20 - 1.95)	1.52 (1.19 - 1.94)
Noord-Brabant	1.57 (1.46 - 1.69)	1.57 (1.46 - 1.69)	1.62 (1.46 - 1.79)	1.62 (1.47 - 1.79)	1.55 (1.37 - 1.75)	1.54 (1.36 - 1.75)	1.47 (1.18 - 1.83)	1.47 (1.18 - 1.84)
Noord-Holland	1.58 (1.46 - 1.70)	1.58 (1.47 - 1.70)	1.56 (1.41 - 1.73)	1.57 (1.42 - 1.74)	1.59 (1.40 - 1.80)	1.59 (1.40 - 1.80)	1.72 (1.38 - 2.15)	1.72 (1.38 - 2.15)
Overijssel	1.38 (1.27 - 1.49)	1.38 (1.27 - 1.49)	1.54 (1.38 - 1.72)	1.55 (1.39 - 1.72)	1.18 (1.02 - 1.35)	1.17 (1.02 - 1.35)	1.30 (1.02 - 1.67)	1.31 (1.02 - 1.67)
Utrecht	1.28 (1.19 - 1.39)	1.29 (1.20 - 1.40)	1.39 (1.25 - 1.55)	1.40 (1.26 - 1.56)	1.16 (1.01 - 1.33)	1.16 (1.02 - 1.33)	1.23 (0.97 - 1.56)	1.24 (0.97 - 1.57)
Zeeland	1.33 (1.20 - 1.47)	1.32 (1.20 - 1.46)	1.16 (1.01 - 1.34)	1.16 (1.01 - 1.34)	1.55 (1.32 - 1.82)	1.55 (1.32 - 1.82)	1.39 (1.01 - 1.91)	1.39 (1.01 - 1.92)
Zuid-Holland	1.72 (1.60 - 1.86)	1.73 (1.61 - 1.86)	1.75 (1.58 - 1.93)	1.76 (1.59 - 1.94)	1.74 (1.54 - 1.97)	1.74 (1.54 - 1.97)	1.63 (1.31 - 2.03)	1.65 (1.32 - 2.05)
Urbanity								
Non-urban	ref	ref	ref	ref	ref	ref	ref	ref
Mildly	0.96 (0.92 - 1.00)	0.96 (0.92 - 1.00)	0.98 (0.92 - 1.03)	0.98 (0.92 - 1.03)	0.94 (0.87 - 1.00)	0.94 (0.87 - 1.01)	0.99 (0.85 - 1.16)	1.00 (0.85 - 1.17)
Moderate	0.94 (0.90 - 0.99)	0.95 (0.90 - 0.99)	0.96 (0.90 - 1.02)	0.96 (0.91 - 1.03)	0.91 (0.85 - 0.98)	0.92 (0.85 - 0.99)	0.96 (0.81 - 1.14)	0.96 (0.81 - 1.13)
High	0.90 (0.86 - 0.94)	0.90 (0.86 - 0.94)	0.90 (0.84 - 0.95)	0.90 (0.85 - 0.96)	0.88 (0.82 - 0.94)	0.89 (0.83 - 0.95)	0.99 (0.85 - 1.16)	0.98 (0.84 - 1.15)
Very High	0.84 (0.80 - 0.88)	0.84 (0.80 - 0.88)	0.86 (0.81 - 0.92)	0.87 (0.81 - 0.93)	0.74 (0.69 - 0.81)	0.75 (0.70 - 0.82)	1.01 (0.85 - 1.19)	1.00 (0.84 - 1.18)

¹ Partially adjusted analyses are corrected for a previous positive test, all personal characteristics and residence area.; ² Fully analyses are corrected for a previous positive test, all personal characteristics, residence area and occupational exposure.² Wave 1: June 2020 to February 8 2021, Wave 2: February 9 2021 to June 28 2021, Wave 3 June 29 2021 to August 31 2021. * Due to collinearity, number of contacts was not included in the fully adjusted models; Bold indicates statistical significant (P<0.05).