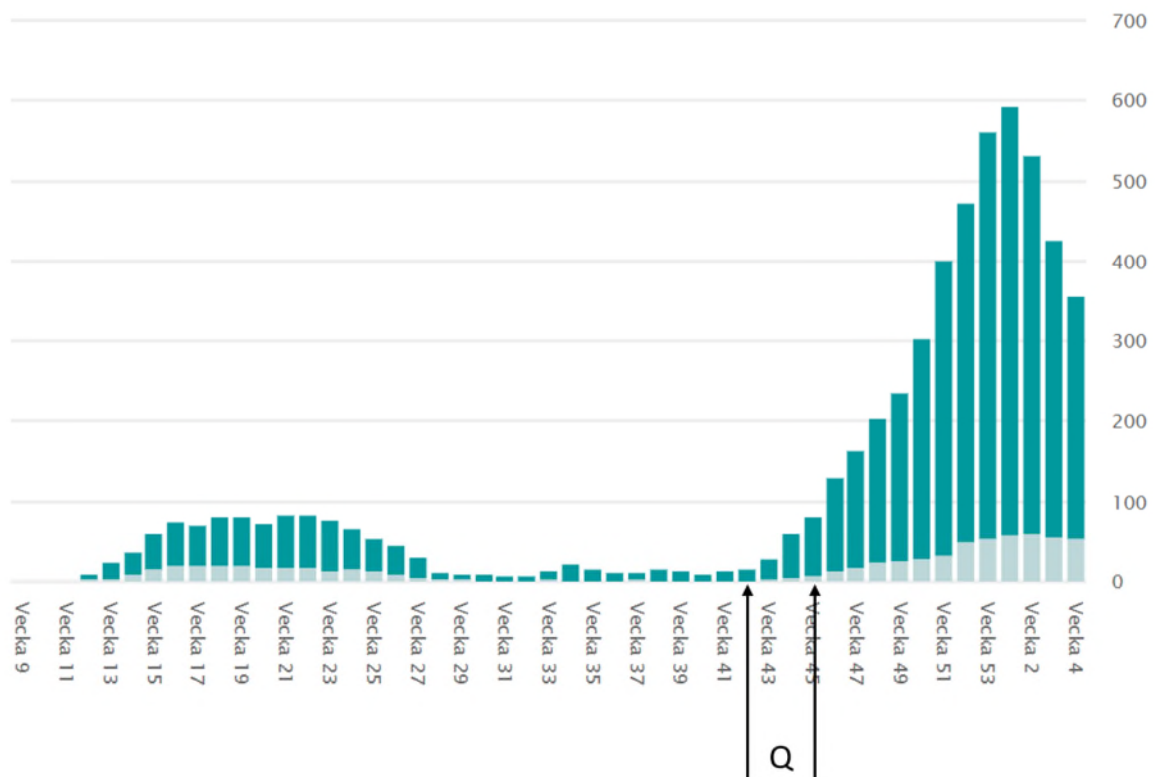


Fig S1. Number of patients with Covid-19 in hospital care in Region Skåne from 2020-W09 till 2021-W04



Vecka = week nr (according to ISO standard 8601) ; Q = questionnaire survey

- Number of Covid-19 patients not in intensive care units
- Number of Covid-19 patients in intensive care units.

Data from www.skane.se/digitala-rapporter

Figure S2 - Flow chart for inclusion in the present study

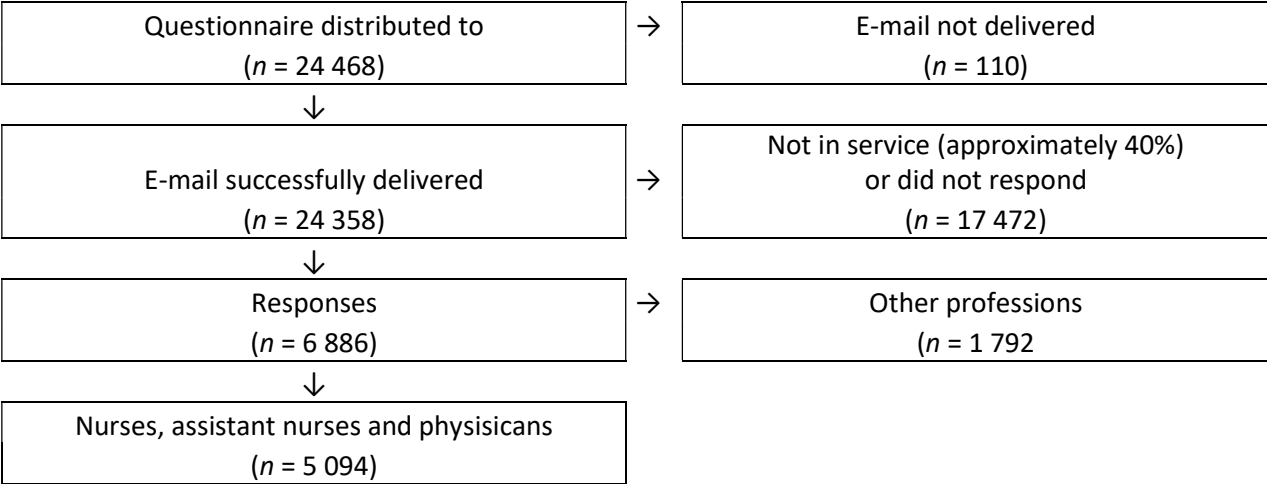


Table S1 Wet work exposures and background characteristics in healthcare workers (HCW) stratified by the occurrence of hand eczema

	Resp ^a n	Hand eczema within the last 12 months		p ^b
		No n (%)	Yes n (%)	
Exposures				
- occupational				
<i>Hand washing with soap</i>				
				<0.001
0-10/d	1,879	1,388 (38)	491 (33)	
11-20/d	2,046	1,477 (41)	569 (39)	
>20/d	1,169	760 (21)	409 (28)	
Total	5,094	3,625 (100)	1,469 (100)	
<i>Alcoholic hand disinfectant use</i>				
				<0.001
0-20/d	693	540 (15)	153 (10)	
21-50/d	2,099	1,558 (43)	541 (37)	
>50/d	2,302	1,527 (42)	775 (53)	
Total	5,094	3,625 (100)	1,469 (100)	
<i>Disposable nonsterile gloves, wear time</i>				
				<0.001
< 1h/d	1,592	1,207 (33)	385 (26)	
1-3h/d	1,954	1,390 (38)	564 (38)	
> 3h/d	1,548	1,028 (28)	520 (35)	
Total	5,094	3,625 (100)	1,469 (100)	<0.001
<i>Disposable nonsterile gloves, number of pairs</i>				
0-10/d	1,476	1,106 (31)	370 (25)	
11-20/d	1,284	931 (26)	353 (24)	
> 20/d	2,316	1,573 (44)	743 (51)	
Total	5,076	3,610 (100)	1,466 (100)	
- non-occupational				
<i>Hand washing with soap</i>				
				<0.001
0-10/d	2,368	1,759 (49)	609 (42)	
11-20/d	2,147	1,507 (42)	640 (44)	
>20/d	556	341 (10)	215 (15)	
Total	5,071	3,607 (100)	1,464 (100)	
<i>Alcoholic hand disinfectant use</i>				
				<0.001
0-5/d	2,428	1,777 (49)	651 (45)	
6-10/d	1,199	874 (24)	325 (22)	
>10/d	1,441	955 (27)	486 (33)	
Total	5,068	3,606 (100)	1,462 (100)	
Background characteristics				
<i>Sex</i>				
				0.17 ^c
Female	4,244	3,003 (83)	1,241 (85)	
Male	841	615 (17)	226 (15)	
Total	5,085	3,618 (100)	1,467 (100)	

<i>Age (years)</i>				<0.001
18-29	659	380 (11)	279 (19)	
30-39	1,108	677 (19)	431 (29)	
40-49	1,149	827 (23)	322 (22)	
50-59	1,364	1,060 (29)	304 (21)	
60-70	804	671 (19)	133 (9)	
Total	5,084	3,615 (100)	1,469 (100)	
<i>History of AD</i>				<0.001 ^c
No	3,318	2,580 (77)	738 (56)	
Yes	1,367	784 (23)	583 (44)	
Unknown	409	261	148	
Total	5,094	3,625 (100)	1,469 (100)	
<i>Weekly working hours</i>				<0.001 ^c
<30	689	533 (15)	156 (11)	
≥30	4,384	3,076 (85)	1,308 (89)	
Total	5,073	3,609 (100)	1,464 (100)	

d = day ; h = hours ; ^a number of respondents to the different questionnaire items; ^b *p* for trend if not otherwise indicated; ^c χ^2 -test

Table S2 Odds ratios (OR) for "hand eczema within the past 12 months" in healthcare workers (HCW)

	n ^a	univariate		multivariate (n 4610)	
		OR (95% CI)	p	OR (95% CI)	p
Wet work exposures					
- occupational					
<i>Soap</i>					
5,094					
0-10/d		1	<00.1	1	<00.1
11-20/d		1.09 (0.95-1.25)		1.16 (0.97-1.37)	
>20/d		1.52 (1.3-1.78)		1.78 (1.43-2.21)	
<i>Alcoholic hand disinfectant</i>					
5,094					
0-20/d		1	<00.1	1	0.92
21-50/d		1.23 (1-1.5)		1 (0.79-1.26)	
>50/d		1.79 (1.47-2.19)		1.03 (0.8-1.33)	
<i>Disposable nonsterile gloves, wear time</i>					
5,094					
< 1h		1	<00.1	1	0.02
1-3h		1.27 (1.09-1.48)		1.18 (0.99-1.4)	
> 3h		1.59 (1.36-1.85)		1.33 (1.1-1.61)	
<i>Disposable nonsterile gloves, number of pairs</i>					
5,076					
0-10/d		1	<00.1	1	0.82
11-20/d		1.13 (0.96-1.34)		0.97 (0.79-1.18)	
> 20/d		1.41 (1.22-1.64)		1.03 (0.84-1.25)	
- non-occupational					
<i>Soap</i>					
5,071					
0-5/d		1	<00.1	1	0.18
6-10/d		1.43 (1.12-1.82)		1.29 (0.98-1.69)	
>10		1.78 (1.41-2.25)		1.22 (0.92-1.62)	
<i>Alcoholic hand disinfectant</i>					
5,068					
0-5/d		1	<00.1	1	0.35
6-10/d		1.02 (0.87-1.19)		0.93 (0.78-1.11)	
>10/d		1.39 (1.21-1.6)		1.07 (0.9-1.28)	
Background characteristics					
<i>Sex</i>					
5,085					
Male		1	0.166	1	0.88
Female		1.13 (0.95-1.33)		0.99 (0.82-1.19)	
<i>Age</i>					
5,084					
18-29		1	<00.1	1	<00.1
30-39		3.7 (2.91-4.72)		3.49 (2.65-4.59)	
40-49		3.21 (2.57-4.01)		3.11 (2.42-3.98)	
50-59		1.96 (1.57-2.46)		1.94 (1.51-2.49)	
60-70		1.45 (1.16-1.81)		1.25 (0.97-1.6)	
<i>History of AD</i>					
4,685					
No		1	<00.1	1	<00.1
Yes		2.6 (2.27-2.98)		2.51 (2.18-2.89)	
<i>Weekly working hours</i>					
5,073					
<30		1	<00.1	1	
≥30		1.45 (1.20-1.76)		1.26 (1.02-1.55)	0.03

AD = atopic dermatitis ; d = day ; = hour(s) ; ^a number of respondents included in the univariate analysis. The multivariate model included sex, age, history of weekly working hours, hand washing with soap at work and away from work, alcoholic hand disinfectant use at work and away from work, and disposable nonsterile glove wear time. Disposable nonsterile glove wear time was not included in the analysis of the variable "Number of pairs of disposable nonsterile gloves"

Table S3 Correlations between skin exposures in healthcare workers.

	<i>r</i> (Spearman)
<i>Correlations between different occupational exposures</i>	
Soap – alcoholic hand disinfectant	0.37
Soap – disposable gloves, wear time	0.33
Soap – disposable gloves, number of pairs	0.35
Alcoholic hand disinfectant – disposable gloves, wear time	0.36
Alcoholic hand disinfectant – disposable gloves, number of pairs	0.49
Face masks (hours) – soap	0.19
Face masks (hours) – alcoholic hand disinfectant	0.26
Face masks (hours) – disposable gloves, wear time	0.41
Face masks (hours) – disposable gloves, number of pairs	0.31
<i>Correlations between occupational and non-occupational exposures</i>	
Soap: occupational – non-occupational	0.63
Alcoholic hand disinfectant: occupational –non-occupational	0.37
Face masks (hours): occupational – non-occupational	0.13
All analyses $p < 0.001$	

Table S4 Face mask exposure and background characteristics in healthcare workers stratified by occurrence of facial skin disease

	Resp ^a n	Facial skin disease within the past 12 months		p
		No n (%)	Yes n (%)	
Exposures				
- occupational				
<i>Face masks, wear time</i>				
< 1h/d	2,300	1,842 (48)	458 (39)	< 0.001 ^c
1-3h/d	1,141	895 (23)	246 (21)	
> 3h/d	1,602	1,125 (29)	477 (40)	
Total	5,043	3,862 (100)	1,181 (100)	
<i>Face masks, numbers</i>				
≤5/d	2,502	1,989 (52)	513 (44)	< 0.001 ^c
6-20/d	1,730	1,296 (34)	434 (37)	
>20/d	,800	567 (15)	233 (20)	
Total	5,032	3,852 (100)	1,180 (100)	
- non-occupational				
<i>Face masks, wear time</i>				
0	4,527	3,478 (90)	1,049 (89)	0.65 ^c
< 0.5h/d	297	222 (6)	75 (6)	
> 0.5h/d	232	175 (5)	57 (5)	
Total	5,056	3,875 (100)	1,181 (100)	
Background characteristics				
<i>Sex</i>				
Female	4,220	3,213 (83)	1,007 (85)	0.05 ^b
Male	840	666 (17)	174 (15)	
Total	5,060	3,879 (100)	1,181 (100)	
<i>Age (years)</i>				
18-29	657	418 (11)	239 (20)	< 0.001 ^c
30-39	1,102	784 (20)	318 (27)	
40-49	1,146	880 (23)	266 (23)	
50-59	1,357	1,115 (29)	242 (21)	
60-70	797	680 (18)	117 (10)	
Total	5,059	3,877 (100)	1,182 (100)	
<i>History of AD</i>				
No	3,301	2,630 (73)	671 (62)	< 0.001 ^b
Yes	1,359	952 (27)	407 (38)	
Total	4,660	3,582 (100)	1,078 (100)	
<i>Weekly working hours</i>				
<30	688	547 (14)	141 (12)	0.06 ^b
≥30	4,360	3,325 (86)	1,035 (88)	
Total	5,048	3,872 (100)	1,176 (100)	

AD = atopic dermatitis ; ^a number of respondents to the different questionnaire items ; ^b p for χ^2 -test; ^c p for trend

Table S5 Odds ratios for facial skin disease within the past 12 months in relation to occupational face masks exposure in healthcare workers - univariate and multivariate logistic regression

		n ^a	Face mask exposure at work		
			Low < 1h/d	Medium 1-3h/d OR (95% CI)	High >3h/d OR (95% CI)
Any facial skin disease	Univariate	4,586	1	1.11 (0.93-1.32)	1.71 (1.47-1.98)
	Multivariate	4,195	1	1.17 (.097-1.41)	1.74 (1.48-2.04)
Facial eczema	Univariate	4,582	1	1.04 (0.76-1.42)	1.49 (1.16-1.92)
	Multivariate	4,183	1	1.10 (0.80-1.53)	1.43 (1.08-1.88)
Facial seborrhoeic dermatitis	Univariate	4,582	1	1.32 (0.89-1.94)	1.09 (0.75-1.57)
	Multivariate	4,183	1	1.33 (0.87-2.02)	1.25 (0.83-1.87)
Acne	Univariate	4,582	1	1.57 (1.15-2.14)	2.20 (1.69-2.87)
	Multivariate	4,183	1	1.62 (1.16-2.26)	1.83 (1.37-2.45)
Rosacea	Univariate	4,582	1	1.03 (0.71-1.50)	1.40 (1.03-1.91)
	Multivariate	4,183	1	1.20 (0.80-1.80)	1.51 (1.07-2.13)
Facial abrasions or wounds	Univariate	4,582	1	2.08 (1.12-3.89)	5.35 (3.24-8.83)
	Multivariate	4,183	1	2.00 (1.04-3.83)	5.33 (3.18-8.95)

h = hour; d = day; OR = odds ratio; CI = confidence interval; ^a number of respondents included in the regression analyses. Multivariate logistic regression with correction for gender, age, a history of atopic dermatitis, weekly working hours, and face mask exposure outside work.

Table S6 – Background characteristics stratified on healthcare workers (HCWs) engaged in daily care of Covid-19 patients *versus* not engaged in daily care of Covid-19 patients

	Resp ^a n	Care of Covid-19 patients		p
		No n (%)	Yes n (%)	
<i>Sex</i>				
Female	4,236	3,636 (84)	600 (80)	0.01 ^b
Male	840	693 (16)	147 (20)	
Total	5,076	4,329 (100)	747 (100)	
<i>Age (years)</i>				
18-29	659	519 (12)	140 (19)	<0.001 ^c
30-39	1,107	919 (21)	188 (25)	
40-49	1,147	977 (23)	170 (23)	
50-59	1,361	1,189 (28)	172 (23)	
60-70	801	720 (17)	81 (11)	
Total	5,075	4,324 (100)	751 (100)	
<i>History of AD</i>				
No	3,311	2,801 (65)	510 (68)	0.21 ^b
Yes	1,365	1,178 (27)	187 (25)	
Unknown	409	355 (8)	54 (7)	
Total	5,085	4,334 (100)	751 (100)	
<i>Weekly working hours</i>				
<30 h/w	685	604 (14)	81 (11)	0.02 ^b
>=30 h/w	4,379	3,713 (86)	666 (89)	
Total	5,064	4,317 (100)	747 (100)	

^a Number of respondents to the different questionnaire items; ^b χ^2 -test ; ^c p for trend

Appendix - Questions providing the data for the present study ¹

Only one alternative can be ticked if not stated otherwise

Are you:

- a woman
- a man
- other gender

Year of birth?

How many years have you worked in healthcare?

At the moment, how many hours per week do you work?
....hours

Do you on a daily basis care for or examine patients with COVID-19 infection?

- Yes
- No

What is your profession today?

Nurse	Biomedical technician
Assistant nurse	Physiotherapist
Physician	Occupational therapists
Midwife	Social worker
Medical secretary	Other profession - please specify

Has the COVID-19 pandemic changed how often you wash your hands with soap at work?

- I wash my hands with soap more frequently than before the start of the pandemic.
- I wash my hands with soap less frequently than before the start of the pandemic.
- I wash my hands with soap with the same frequency as before the start of the pandemic

On average, how many times per day do you wash your hands with soap and water at work?

- More than 20 times per day
- More than 10 times per day
- More than 5 times per day
- 1-5 times per day
- I don't use soap at work

Has the COVID-19 pandemic changed how often you use alcoholic hand disinfectant at work?

- I use alcoholic hand disinfectant more frequently than before the start of the epidemic.
- I use alcoholic hand disinfectant less frequently than before the start of the epidemic.
- I use alcoholic hand disinfectant with the same frequency as before the start of the pandemic

¹ Literal translation by the authors. The correctness of the translation has not been validated.

On average, how many times per day you use alcoholic hand disinfectant at work?

- More than 100 times per day
- More than 50 times per day
- More than 20 times per day
- More than 10 times per day
- More than 5 times per day
- 1-5 times per day
- I don't use alcoholic hand disinfectant at work

What brand(s) of alcoholic hand disinfectants have you used

- Liv Des 75
- Dax Preop 80
- Alcoholic hand disinfectants produced by "Kemicentrum"
- Other brand from temporary producer of alcoholic hand disinfectants
- Other brand – please specify
- I don't know what brand(s) I have used

More than one alternative can be ticked

Has the COVID-19 pandemic changed how you use disposable non-sterile gloves at work?

- I use disposable gloves for a longer time per day than before the start of the pandemic.
- I use disposable gloves for a shorter time per day than before the start of the pandemic.
- I use disposable gloves for a shorter the same time per day as before the start of the pandemic

On average, how long time per day do you use non-sterile disposable gloves at work?

- More than 5 hours per day
- More than 3 hours per day
- More than 2 hours per day
- More than 1 hour per day
- More than 30 minute per day
- Less than 30 minutes per day
- I don't use non-sterile disposable gloves at work

On average, how many pairs per day of non-sterile disposable gloves do you use at work?

- More than 50 per day
- More than 20 per day
- More than 10 per day
- More than 5 per day
- 1-5 per day per day
- Less than 1 per day

Question not shown if the answer was "I don't use non-sterile disposable gloves" to previous question

Do you use a hand moisturising cream at work?

- No
- Yes – On average how many times per day?

Has the COVID-19 pandemic changed how you use face masks at work?

- I use face masks for a longer time per day than before the start of the pandemic.
- I use face masks for a shorter time per day than before the start of the pandemic.
- I use facemasks the same time per day as before the start of the pandemic

On average, how long time per day do you use face masks at work?

- More than 5 hours per day
- More than 3 hours per day
- More than 2 hours per day
- More than 1 hour per day
- More than 30 minute per day
- Less than 30 minute per day
- I don't use face masks at work

On average, how many face masks do you use per day at work?

- More than 50 per day
- More than 20 per day
- More than 10 per day
- More than 5 per day
- 1-5 per day

Question not shown if the answer was "I don't use face masks" to previous question

Do you have hand eczema today?

- No
- Yes

Have you had hand eczema on any occasion during the past 12 months?

- No
- Yes

Question shown only if the answer was "No" to previous question

During the past 12 months, have you been on sick leave because of your hand eczema?

- No
- Yes - how many weeks?

Question shown only if the answer was "Yes" to any of the two previous questions

Do you consider that your hand eczema has been caused by a soap at work?

- No
- Yes - If you know the name of the soap, please specify

Question shown only if the answer was "Yes" to any of the two hand eczema questions

Do you consider that your hand eczema has been caused by an alcoholic hand disinfectant at work?

- No
- Yes - If you know the name of the alcoholic hand disinfectant, please specify

Question shown only if the answer was "Yes" to any of the two hand eczema questions

Do you consider that your hand eczema has been caused by a non-sterile disposable glove at work?

- No
- Yes - If you know the name of the glove, please specify

Question shown only if the answer was "Yes" to any of the two hand eczema questions

You have already answered questions on hand eczema. Do you have any other skin disease on the hands, e.g. psoriasis, urticaria?

- No
- Yes - please specify

Do you have facial skin disease today?

No

Yes

Have you had facial skin disease on any occasion during the past 12 months?

- No
- Yes

Question shown only if the answer was "No" to previous question

What kind of facial skin disease?

- Eczema
- Seborrhoeic dermatitis
- Rosacea
- Acne
- Abrasion or ulcer
- Other - please specify

Question shown only if the answer was "Yes" to any of the two questions facial skin disease

Have your facial skin disease increased during the past 6 months?

- My facial skin disease have started during the past 6 months
- Yes, I have more facial skin disease now than before
- No, there is no change
- No, my facial skin disease have diminished during the past 6 months

Question shown only if the answer was "Yes" to any of the two questions facial skin disease

Have you had childhood eczema?

- No
- Yes
- I don't know

Has the COVID-19 pandemic changed how often you wash your hands with soap away from work?

- I wash my hands with soap more frequently than before the start of the pandemic.
- I wash my hands with soap less frequently than before the start of the pandemic.
- I wash my hands with soap with the same frequency as before the start of the pandemic

On average, how many times per day do you wash your hands with soap and water away from work?

- More than 20 times per day
- More than 10 times per day
- More than 5 times per day
- 1-5 times per day
- I don't use soap at work

Has the COVID-19 pandemic changed how often you use alcoholic hand disinfectant away from work?

- I use alcoholic hand disinfectant more frequently than before the start of the epidemic.
- I use alcoholic hand disinfectant less frequently than before the start of the epidemic.
- I use alcoholic hand disinfectant with the same frequency as before the start of the pandemic

On average, how many times per day you use alcoholic hand disinfectant away from work?

- More than 100 times per day
- More than 50 times per day
- More than 20 times per day
- More than 10 times per day
- More than 5 times per day
- 1-5 times per day
- I don't use alcoholic hand disinfectant away from work

On average, how long time per day do you use face masks away work?

- More than 5 hours per day
- More than 3 hours per day
- More than 2 hours per day
- More than 1 hour per day
- More than 30 minute per day
- Less than 30 minute per day
- I don't use face masks away from work

For how long have you been using face masks away from work

- More than 6 months
- More than 3 months
- More than 1 month
- Less than 1 month