



Supplementary A – Sample size scenarios

Sample size scenarios were calculated in EpiInfo v7 using the Fleiss’ formula with continuity correction. Cells BELOW the bold line fit within our sample size.

Number of opportunities for 5:1 unexposed to exposed ratio.

5:1 % of outcome in Unexposed	Effect size							
	1.1	1.3	1.5	1.8	2	2.5	3	5
3%	191567	23213	9036	3920	2672	1365	864	309
5%	112504	13617	5294	2291	1559	794	501	176
10%	59820	6420	2487	1071	725	365	227	75
15%	33450	4020	1552	663	447	222	136	41
40%	8745	1022	381	153	98			

* Power at 80% and confidence intervals at 95%.

Number of opportunities for 2:1 unexposed to exposed ratio.

2:1 % of outcome in Unexposed	Effect size							
	1.1	1.3	1.5	1.8	2	2.5	3	5
3%	120483	14771	5810	2555	1755	912	587	216
5%	70758	8660	3402	1493	1023	530	339	123
10%	33450	4079	1595	695	474	243	153	53
15%	21018	2552	993	429	291	147	92	29
40%	5478	642	240	96	62			

*Power at 80% and confidence intervals at 95%.

Number of opportunities for 1:1 unexposed to exposed ratio.

1:1 % of outcome in Unexposed	Effect size							
	1.1	1.3	1.5	1.8	2	2.5	3	5
3%	107756	13350	5298	2356	1628	856	556	210
5%	63364	7824	3100	1374	938	496	320	118
10%	29900	4190	1452	144	438	226	155	50
15%	18780	3002	902	110	268	136	84	26
40%	4878	574	214	86	56			

*Power at 80% and confidence intervals at 95%.

Supplementary B – Questionnaire

Birth Attendant Questionnaire

Introduction

I am _____ from _____

Purpose of the study

- To assess how well hand washing is done in maternity units and at home.
- To understand when and why health care staff wash their hands when helping during child birth.
- To design a programme to improve hand washing by health care staff.

This project is in partnership with the Ministry of Health and your co-operation is very important to ensure its success and ultimately improve infection prevention practices in Zanzibar. All birth attendants across 10 high volume hospitals in Unguja and Pemba will be asked to participate.

Respondent Information									
R1	Respondent code (ID) <input type="text"/> <input type="text"/>								
R2A	Interviewer code (ID) <input type="text"/> <input type="text"/>								
R2B	Facility code (ID) <input type="text"/> <input type="text"/>								
R3	Date Write the date in NUMBERS for day month year (DDMMYYYY) <input type="text"/>								
R4	Time Write the start time using the 24 hour clock format e.g., 0815 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>								
R5A	What is your title? (1) Senior Nurse (2) Nurse Midwife (3) Public Health Nurse B (PHNB) (4) Maternal and Child Health Aid (MCHA) (5) Orderly (6) Clinical officer (7) Gynaecologist (8) Assistant Medical Officer (88) Other (Please specify)								
R5B	Are you the maternity in charge? (1) Yes (2) No								
R6	How long is your service at this maternity ward (yrs/months)?: <table border="1"> <thead> <tr> <th colspan="2">Years</th> <th colspan="2">Months</th> </tr> </thead> <tbody> <tr> <td><input type="text"/></td> <td><input type="text"/></td> <td><input type="text"/></td> <td><input type="text"/></td> </tr> </tbody> </table>	Years		Months		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Years		Months							
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>						
R7	How many years of service since completing your latest formal training for this position? If no training, put 99 <input type="text"/> <input type="text"/>								
R8	How old are you? <input type="text"/> <input type="text"/>								
R9	To become a birth attendant, how many years in total did you spend in formal training? If no training, put 99 <input type="text"/> <input type="text"/>								
Household characteristic									
R10A	How many household members are 18-years old or younger? <input type="text"/> <input type="text"/>								
R10B	Are all household members aged 6 to 18 currently students? (1) Yes (2) No (3) No members ages 6 to 18								
R10C	What is the main building material used for the walls of the main building of your house? (1) Baked bricks (2) Poles and mud, grass, sun-dried bricks, or other (3) Stones, cement bricks, or timber								
R10D	What is the main fuel used for cooking? (1) Firewood, solar, gas (biogas), or wood residuals,								

		(2) Charcoal, paraffin, gas (industrial), electricity, generator/private source, or other
R10E	Does your household have any televisions?	(1) Yes (2) No
R10F	Does your household have any radios, cassette/tape recorders, or hi-fi systems?	(1) Yes (2) No
R10G	Does your household have any lanterns?	(1) Yes (2) No
R10H	Does your household have any tables?	(1) Yes (2) No
R10I	In the last 12 months, has your nuclear family cultivated any crops? Does your nuclear family own cattle?	(1) No crops, and no cattle (2) No crops, and yes cattle (3) Yes crops, but no cattle (4) Yes crops, and yes cattle
R10J	What is the main building material used for the roof of the main building?	(1) Leaves (makuti), or other (2) Iron sheets (tin)/asbestos, concrete, tiles
Training and supervision		
F1	Think about the last two weeks - how much time during a day does the maternity in charge spend in the delivery room?	(1) Less than half an hour (2) Between 30 minutes and 2 hours (3) More
F2	If there is an emergency during labour/delivery, who do you usually contact?	(1) The maternity in-charge (2) Another colleague or birth attendant (3) Doctor on call (4) Other (please specify)
3	Did you receive any refresher training including hand hygiene in the past 12 months?	(1) Yes (2) No
F4	Did you attend any supportive supervision session in the past three months?	(1) Yes (2) No
I1B	A mother brings her 1 week old baby to the pediatric ward with a high fever. You examine the baby and discover the umbilical cord is infected – it is red and discharging pus. List all the possible causes that might have caused the infection <i>Instructions: Encourage the respondent to identify as many sources as possible and to be as specific as possible</i>	(1) Mentions hand hygiene of birth attendant 2) Does not mention hand hygiene of birth attendant

Please remember that there are no good or bad answers, just the answers that best describe how you think and feel about these issues. The topic will be hand hygiene during delivery. When I ask you about hand hygiene I mean hand washing with water and soap or handrubbing with the appropriate duration and technique, drying.

Experiential attitudes			
	No	Yes – A little	Yes – A lot
	(1)	(2)	(3)
I am going to ask you some questions. Let’s start with one easy to practice:			
A1	Do you feel hungry before lunch?		

	Do your hands feel dry when you wash your hands repeatedly?
A2	Note for interviewers: repeatedly means you have washed your hands 40 times across 10 women in labour
A3	Do you feel like a good nurse when you wash your hands before a delivery?
A4	Do you feel anxious (wasi wasi) when you do not wash your hands before a delivery?
A5	Do you feel uncomfortable when you put on gloves with wet hands?
	In a situation when you are working alone and there are multiple women to assist.
A6	Do you feel like you are wasting time/have insufficient time (kupoteza muda wako) when you wash yours hands before a delivery?

Instrumental attitudes

I1A	Among newborns born in healthcare facilities, some newborns develop an infection within 1 week from birth. Where do you think infections com from?	Home (1)	Facility (2)	Similar for both (3)	
	I am going to read you some statements, and I will ask you if you agree with them or not	Agree a lot (1)	Agree a little (2)	Disagree a little (3)	Disagree a lot (4)
I2	Before a delivery, if a nurse forgets to wash her hands, she will get an infection . Do you agree or disagree? A little or a lot?				
I3	Before a delivery, washing your hands will prevent the newborn from developing a serious infection. Do you agree or disagree? A little or a lot?				
I4	A newborn does not develop and infection if the birth attendant wears gloves but forgets to hand wash. Do you agree or disagree? A little or a lot?				
I5	You are wearing two layers of gloves at the same time. After having assisted a delivery, you have taken the top layer off and you immediately perform another delivery. In this situation, your hands will cause the newborn an infection. Do you agree or disagree? A little or a lot?				

Perceived control/Self-efficacy

	In some situations, nurses find it difficult to wash their hands with soap before a delivery. I am going to ask you questions about your ability to perform hand washing in difficult situations				
			Yes (1)	A little (2)	No (3)
C1	How sure are you that you will (can) wash hands before every delivery when water is not flowing from the sink?				
C2	How sure are you that you will (can) wash hands before every delivery when there is no disposable drying material ?				
C3	How sure are you that you will (can) wash hands before every delivery when there is no birth attendant available to assist you during delivery?				
C4	How sure are you that you will (can) wash hands before every delivery when a mother is rushed into the ward just before delivery, and you can see the newborn's head on the perineum ?				

Social Influence and social norms

		No (1)	Yes usually (2)	Yes always (3)
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N1A	Do you think you should (napasso) wash your hands before a delivery?		
	<i>[We recently asked 10 birth attendants in Zanzibar that previous question]</i>		
N2A	Out of these 10, how many birth attendants thought they should always wash hands before a delivery?		
N3A	Think about birth attendants in Zanzibar. Out of 10, how many do you think do always wash hands before a delivery?		
N3B	Think about in-charge(s) in Zanzibar. Out of 10, how many do you think do always wash hands before a delivery?		
N1B	In a situation when you are working alone with multiple women to assist. Do you think it is OK to not wash your hands before a delivery in this circumstance?	Ne (1)	Not (2)
	<i>[We recently asked 10 birth attendants in Zanzibar that previous question]</i>		
N2B	Out of these 10, how many birth attendants thought it is never OK to wash hands when they are working alone and assisting multiple women?		
N4A	In the past month, have you reminded anyone to wash hands?	(1) Yes	(2) No
N4B	In the past month, has anyone reminded you to wash hands?	(1) Yes	(2) No
N4C	In the past month In the past month have you seen or heard that the ward manager reminded anyone to wash hands?	(1) Yes	(2) No
N4D	In the past month has any of your colleagues reminded anyone to wash hands?	(1) Yes	(2) No
		(3) Don't remember	(3) Don't remember
Habit			
	Sometimes at work things come automatically and sometimes you have to remind yourself	No (1)	Yes, usually (2)
H1	Do you wash your hands before a delivery without thinking?		Yes, always (3)
H2	Do you start hand washing before a delivery without even realising you are doing it?		
H3A	Do you ever have to remind yourself to hand wash before a delivery?		
	"Sometimes if people do things again and again, it becomes automatic and we don't need to think about it anymore. For example, when I first start fasting, I needed to consciously remember to not eat, but after a few days, I did it automatically without even thinking. Do you understand?"		
H3B	In a situation when you are working alone with multiple women to assist. Do you automatically wash hands before a delivery?		

Intention			
“Remember, there are no “good” or “bad” answers - we would like you to answer honestly. Your personal answers will not be shared with anyone”			
	No	Yes, usually	Yes, always
	(1)	(2)	(3)
S1	Do you intend to wash your hands before every delivery?		
S2	Do you expect to wash your hands before every delivery when you are working alone?		
S3	Do you plan to wash your hands before a delivery when the birth is very fast (woman rushed into the labour room and the head is on perineum)?		

Knowledge					
I am going to read you some statements, and I will ask you if you agree with them or not		Agree a lot	Agree a little	Disagree a little	Disagree a lot
		(1)	(2)	(3)	(4)
K1	Before a delivery, rubbing hands with hand gel is not as effective as water and soap at disinfecting. Do you agree or disagree? A little or a lot?				
K2	When your hands touch very briefly the trolley , they cannot pick up germs. Do you agree or disagree? A little or a lot?				
K3	When your hands touch very briefly the Macintosh or kanga , they can pick up germs. Do you agree or disagree? A little or a lot?				
K4	Hand gel dries off in	(1) Less than 10 seconds	(2) between 10 and 20 seconds	(3) between 20 and 60 seconds	
K5	Please demonstrate the appropriate hand washing technique and duration	Record if she shows: <input type="checkbox"/> Behind fingers <input type="checkbox"/> Thumbs <input type="checkbox"/> Interlocking fingers (nail-fingers in Swahili) <input type="checkbox"/> Palm			
K6		Duration in seconds: 1) Less than 10 2) 10+			
K7	Which one takes longer: hand washing or hand rubbing?	(1) Hand washing	(2) Hand rubbing	(3) Don't know	

Take a couple minutes break

Sometimes birth attendants touch unsterile objects like the register or the phone before a delivery. I want to ask you some questions about this.

Experiential attitudes				
		No	Yes - A little	Yes - A lot
		(1)	(2)	(3)
A7	When you briefly touch the register, pen, or phone after putting on gloves, do you feel your hands are too dirty to conduct a delivery?			
A8	In a situation when you are working alone with multiple women to assist. Do you feel anxious when you briefly touch a register, pen, or phone after putting on gloves to conduct a delivery?			
A9	Do you feel proud of completing things (kufanikisha) when you avoid touching unsterile objects before conducting a delivery?			

Instrumental attitudes					
I am going to read you some statements, and I will ask you if you agree with them or not		Agree a lot	Agree a little	Disagree a little	Disagree a lot

	(1)	(2)	(3)	(4)
I6	Touching a register, pen, or phone just before cord-cutting will cause an infection to the newborn. Do you agree or disagree? A little or a lot?			
I7	Avoiding touching a kanga or Macintosh before touching a woman's vagina will prevent her a serious infection. Do you agree or disagree? A little or a lot?			
I8	My hands are gloved and I am ready to perform a delivery. If I wash my hands again every time I touch a Macintosh or kanga I do not get any work done.			
I9	If I touch a pen or phone or register before touching a woman's vagina, I will get reprimanded.			

Perceived control/Self-efficacy				
	(1)	(2)	(3)	(4)
BEFORE A DELIVERY				
C5	How sure are you that you will (can) avoid touching unsterile objects when the delivery equipment is in various places?			
C6	How sure are you that you will (can) avoid touching unsterile objects when you are working alone?			
C7	How sure are you that you will (can) avoid touching unsterile objects when you are responsible for assisting multiple women at second stage labour?			

Social Influence and social norms		No	Neutral	OK
		(1)	(2)	(3)
N5A	Do you think you can touch unsterile objects just after putting on gloves for a delivery?			
<i>We recently asked 10 birth attendants in Zanzibar the previous question.</i>				
N6A	Out of these 10, how many birth attendants thought they should never touch unsterile objects after putting on gloves for a delivery?			
N7A	Think about birth attendants in Zanzibar. Out of 10, how many never touch unsterile objects after putting on gloves for a delivery?			
N7B	Think about in-charge(s) in Zanzibar. Out of 10, how many never touch unsterile objects after putting on gloves for a delivery?			
In a situation when you are working alone with multiple women to assist.		No	Neutral	OK
N5B	Do you think it is OK to touch unsterile objects just after putting on gloves for a delivery in this circumstance?	(1)	(2)	(3)
<i>We recently asked 10 birth attendants in Zanzibar the previous question.</i>				
N6B	Out of these 10, how many birth attendants thought they should never touch unsterile objects after putting on gloves for a delivery, when they are working alone and they are assisting multiple women ?			
N8A	In the past month have you reminded anyone to not touch unsterile objects after putting gloves on for a delivery?	(1) Yes	(2) No	(3) Don't remember
N8B	In the past month has anyone reminded you to not touch unsterile objects after you put your gloves on before a delivery?	(1) Yes	(2) No	(3) Don't remember
N9A	In the past month have you seen or heard that the maternity in-charge reminded anyone not to touch unsterile objects?	(1) Yes	(2) No	(3) Don't remember
N9B	In the past month has any of your colleagues reminded anyone to not touching unsterile objects?	(1) Yes	(2) No	(3) Don't remember

Habit			
	No	Yes, usually (most of the times)	Yes, always (all the times)
	(1)	(2)	(3)
Sometimes at work things come automatically and sometimes you have to remind yourself			
H4	Do you avoid touching unsterile objects before a delivery without thinking ?		
H5	Do you avoid touching unsterile objects before a delivery without realising it?		

H6	Do you need to remind yourself to avoid touching unsterile objects before a delivery?			
	“Sometimes if people do things again and again, it becomes automatic and we don’t need to think about it anymore. For example, when I first started fasting, I needed to consciously remember to not eat, but after a few days, I did it automatically without even thinking. Do you understand?”			
H7	In a situation when you are working alone with multiple women to assist. Do you automatically avoid touching unsterile objects before a delivery?			

Intention				
“Remember, there are no “good” or “bad” answers - we would like you to answer honestly. Your personal answers will not be shared with anyone”		No	Yes, usually	Yes, always
		(1)	(2)	(3)
S4	Do you intend to avoid touching unsterile objects before a delivery?			
S5	Do you expect to avoid touching unsterile objects before a delivery when you are working alone?			
S6	Do you plan to avoid touching unsterile objects before a delivery when the birth is very fast (woman rushed into the labour ward and head is on perineum)?			

THE END

Do you have any comments or questions after completing this questionnaire?

Thank you for your participation in this study and for completing this questionnaire!

QUESTIONS FOR INTERVIEWER		
Q1	Is there any reason for you to believe that the respondent did not understand the answer categories? [If yes, explain what caused you to think this]	(1) Yes Why? (2) No

Supplementary C – selection of modifiable determinants

Table 1 – List of modifiable exposures

Variable	Questionnaire reference/Observation tool	How it was measured
Both outcomes		
1. Attended supportive supervision in the last 3 months	Questionnaire – F4	Categorical response options
2. Hand hygiene refresher training in the past 12 months	Questionnaire – F3	Categorical response options

3.	Instrumental beliefs (scenario)	Questionnaire – I1B	Binary response option
4.	Delivery equipment type used	Observation – collected at the time of delivery	Categorical response options
5.	Workload (number of procedures per minute)	Observation – procedures collected throughout observation as they happen	Composite variable described in manuscript methods section
6.	Presence of the in charge	Observation – collected at the beginning of every observation session; updates after it changes	Categorical response options
Outcome 1			
1.	Availability of single-use drying material	Observation – collected at the beginning of every observation session; updates after it changes	Categorical response options
2.	Availability of gloves	Observation – collected at the beginning of every observation session; updates after it changes	Categorical response options
3.	Necessary hand hygiene equipment	Observation – collected at the beginning of every observation session; updates after it changes	Composite variable made of three individual items with categorical response options: availability of water & soap, or gel. Described in manuscript methods section
4.	Knowledge – technique demonstration	Questionnaire – K5	Number of all technique items when demonstrating handwashing
5.	Knowledge – duration demonstration	Questionnaire – K6	Binary response option
6.	Habit	Questionnaire – H1, H2, H3A, H3B	Likert scale response
7.	Self-efficacy	Questionnaire – C1, C2, C3, C4	Likert scale response
8.	Experiential attitudes	Questionnaire – A2, A3, A4, A5, A6	Likert scale response
9.	Instrumental attitudes	Questionnaire – I2, I3, I4, I5	Likert scale response
10.	Injunctive norms	Questionnaire – N1A, N2A, N1B, N2B	N1A – Likert scale N2A – Response out of 10
11.	Descriptive norms	Questionnaire – N3A, N3B	Response out of 10
12.	Reminders	Questionnaire – N4A, N3B, N4C, N4D	Composite variable made of N4A, N3B, N4C, N4D Individual items have categorical response options. Described in manuscript methods section
Outcome 2			
1.	Time since donning gloves	Observation – automatically logged time once actions are recorded	Continuous variable described in manuscript methods section
2.	Knowledge	Questionnaire – K2, K3	Likert scale response
3.	Habit	Questionnaire – H4, H5, H6, H7	Likert scale response
4.	Self-efficacy	Questionnaire – C5, C6, C7	Likert scale response
5.	Experiential attitudes	Questionnaire – A7, A8, A9	Likert scale response
6.	Instrumental attitudes	Questionnaire – I6, I7, I8 and I9	Likert scale response
7.	Injunctive norms	Questionnaire – N5A, N6A, N5B, N6B	N5A– Likert scale N6A– Response out of 10
8.	Descriptive norms	Questionnaire – N7A, N7B	Out of 10 response
9.	Reminders	Questionnaire – N8A, N8B, N9A, N9B	Composite variable made of N8A, N8B, N9A, N9B

Individual items have categorical response options.

Table 2 - Excluded variables and reason for exclusion

Variable	Reason for exclusion
Both outcomes	
Attended supportive supervision in the last 3 months	Limited distribution in sample 93.2% (n=726) did not attend supervision
Delivery equipment type used	Only related to delivery variable. Insufficient deliveries (N=170) in the dataset
Presence of in-charge	Limited distribution in sample; in 90.8% (n=708) in-charge was not present.
Outcome 1	
Availability of gloves	Limited distribution in sample; 96.5% (752) had gloves
Necessary hand hygiene equipment	Limited distribution in sample; 90.4% (704) had the necessary equipment
Knowledge – technique demonstration	Knowledge – duration was chosen instead.
Injunctive norms	N1A - Limited distribution in sample; 85% responded <i>always</i> . N2A - Limited distribution in sample; 85% responded <i>10/10 colleagues</i>
Outcome 2	
Knowledge	K2 – Concerns about the interpretation of this question. K3 seemed a better choice. K3 – Limited distribution in sample; 95.7% agreed with statement
Injunctive norms	N5A - Limited distribution in sample; 93% responded <i>never</i> N6A - Limited distribution in sample - 58% responded <i>10/10 colleagues</i>

Table 3 – Psychological constructs construction; excluded variables based on internal reliability or direction of association

Construct	Reason for exclusion of particular item	Scale Cronbach's alpha	If scale could not be constructed, what was the reason?
Outcome 1			
Self-efficacy	No items excluded	0.68	Not applicable
Experiential attitudes	A3 had poor spread	0.31	Low internal reliability, possibly due to formulation of items. Dropping individual items would have lowered Alpha even further. Although items A2, A5, A6 intended as reverse-scored, lack of inverse correlation indicated that A5 had not been understood as reverse-scored.
Instrumental attitudes		0.27	Low internal reliability. I4 only was intended to be scored in the opposite direction from the other three items, but in fact I3 scores also had inverse correlations with I2 and I5. Dropping I3 would not increase overall Alpha sufficiently (only achieving 0.31).
Habit	Excluded H3A, as its intended reverse scoring did not work.	0.71	Not applicable
Outcome 2			

Experiential attitudes	A9 was excluded as it had poor spread. Its removal increased the alpha from an initial 0.58.	0.77 for scale with A7 and A8 alone.	Not applicable
Instrumental attitudes	Not applicable	0.13	Low internal reliability. Removing any of the items would not have improved the result substantially.
Self-efficacy	Not applicable	0.76	Not applicable
Habit	Removed item H6, as the intended reverse scoring did not work.	0.71	Not applicable

Supplementary D – Sensitivity analyses

Table 1 – Sensitivity 1 – Remove pilot facility from Model 1

Variable name	Adjusted odds ratio* (95% CI) N=727**
Workload***	
Highest	1
High	1.42 (0.58-3.48)
Medium	4.20 (1.85-9.52)
Low	1.94 (0.80-4.67)
Lowest	31.10(13.44-71.99)
Availability of single use drying material	
No	1
Yes	3.19 (1.76-5.78)
Knowledge (duration)	
Less than 10 seconds	1
10 seconds or more	1.71(0.90-3.25)
Habit°	1.09 (0.96-1.24)
Instrumental beliefs	
Does not mention HH	1
Mentions HH	1.26 (0.64-2.48)
Perceived control°	0.94 (0.83-1.07)
Descriptive norms (colleagues)°	1.11(0.89-1.39)
Descriptive norms (managers)°	0.94 (0.80-1.10)
Reminders°	1.18 (0.97-1.45)
Hand hygiene refresher training in the past 12 months	
No	1
Yes	1.72 (0.93-3.18)

*Each odds ratio is adjusted for all other variables in the table

**Compared to Model 1 in the manuscript, 24 observations were not included from model because they belong to the pilot facility which has 12 events.

***Workload was constructed as the number of procedures per minute: 0.3590-1.7647 (highest); 0.2010-0.3589 (high); 0.1129-0.2009 (medium); 0.0502-0.1128 (low); 0-0.0501 (lowest)

°Variables included in the model as linear terms. Reported OR for these variables refers to one unit increase.

Table 2 – Sensitivity Model 1 and 2 with a different measure of workload (i.e., the number of procedures in the fifteen minutes preceding the index procedure)

Hand rubbing/washing (Model 1)	
Variable name	Adjusted odds ratio* (95% CI) N=629**
Workload (procedures number in 15 minutes preceding the index procedure)	
2 or more	1
1	9.00 (3.18-25.47)
0	21.7 (8.31-56.44)
Availability of single use drying material	
No	1
Yes	1.77 (0.93-0.23)
Knowledge (duration)	
Less than 10 seconds	1
10 seconds or more	2.17 (1.15-4.12)
Habit^o	1.08 (0.94-1.23)
Instrumental beliefs	
Does not mention HH	1
Mentions HH	1.23 (0.62-2.59)
Perceived control^o	0.95 (0.83-1.09)
Descriptive norms (colleagues)^o	1.17(0.93-1.45)
Descriptive norms (managers)^o	0.91 (0.76-1.06)
Reminders^o	1.17 (0.96-1.42)
Hand hygiene refresher training in the past 12 months	
No	1
Yes	1.79 (0.96-3.37)

*Each odds ratio is adjusted for all other variables in the table

**Compared to Model 1 in the manuscript, 122 observations were not included in the model because they did not have a period of 15 minutes preceding them.

^oVariables included in the model as linear terms. Reported OR for these variables refers to one unit increase.

Avoiding glove recontamination (Model 2)	
Variable name	Adjusted odds* ratio (95% CI) N=386**
Time since donning gloves	
3 or more minutes	1
2-3 minutes	0.76 (0.30-1.90)
1-2 minutes	1.30 (0.60-2.80)
Less than a minute	4.84 (2.52-9.29)
Workload (procedures number in 15 minutes preceding the index procedure)	
2 or more	1
1	1.70 (0.72-4.04)
0	0.95 (0.45-2.02)
Habit^o	1.02 (0.91-1.15)
Experiential attitudes	
Mixed responses	1
Always responded yes a lot	0.99 (0.46-2.16)
Instrumental beliefs	
Does not mention HH	1
Mentions HH	1.18 (0.61-2.28)
Perceived control^o	0.97 (0.86-1.10)

Descriptive norms (colleagues)[°]	1.01 (0.82-1.23)
Descriptive norms (managers)[°]	0.88 (0.74-1.05)
Reminders[°]	0.99 (0.82-1.19)
Hand hygiene refresher training in the past 12 months	
No	1
Yes	1.08 (0.57-2.02)

*Each odds ratio is adjusted for all other variables in the table

**Compared to Model 2 in the manuscript, 99 observations were not included here because they did not have a period 15 minutes preceding them.

[°]Variables included in the model as linear terms. Reported OR for these variables refers to one unit increase.