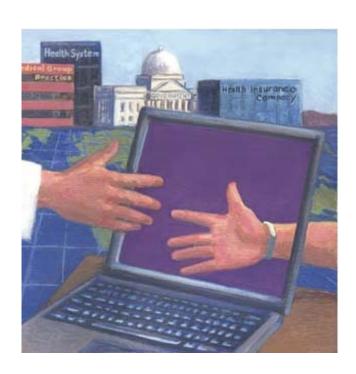


# Virtual Intensive Care Unit Survey



### **Letter to Name Staff**

Dear Name ICU Staff,

A group of University of Wisconsin researchers are working in collaboration with the National Science Foundation to examine the work of virtual ICU nurses and the challenges they face working with multiple ICUs. This survey is part of an effort to evaluate your perceptions of interactions with ICUs as well as overall outcomes. We ask you to complete this survey to help us identify solutions for improving performance and quality of working life of workers involved in multiple virtual teams.

Completion of the survey is voluntary. We are collecting information on basic demographic and background, ICUs you interact with, and nursing outcomes. The questionnaire will take about 15 minutes to complete. You can leave blank any questions you do not want to answer. No one at your work place will ever see your answers. Your responses are strictly confidential and will be closely guarded. Research staff will be the only people to see your answers. Your name and other identifying information will not be associated with your survey answers. All results of this study will be reported in the aggregate so that no one person can be identified. No answers of individuals will ever be released.

It is our hope that through the information we obtain from this study, we can better understand the strategies and methods that virtual ICU nurses use in developing and managing dynamic interactions with multiple ICUs. Thank you for your consideration.

Sincerely,

Pascale Grayon

Pascale Carayon, Ph.D.
Professor, Industrial and Systems Engineering
University of Wisconsin-Madison
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#### **Instructions**

When completing the questionnaire, you can leave blank any questions that you do not want to answer. Remember that your responses are strictly confidential and will be closely guarded. This questionnaire has been designed to gather information about the work you do, the technology you use, and your quality of working life. Please try to answer all of the questions.

To answer the questions, check the appropriate box on the scale. For example:								
	Neither Strongly Disagree Disagree Disagree Agree				Strongly Agree			
1. Communication with people on this ICU is very open.		$\square_2$	×,	$\square_4$	$\square_5$			

Some questions will require answers similar to the scale above, while other questions will require different responses. Please try to be as accurate as possible.

year	rs mo	nths
year	rs mo	nths
k? hou	rs a week	
] <sub>1</sub> Weekdays ] <sub>1</sub> Day shift	□ <sub>2</sub> Weekends □ <sub>2</sub> Night shift	□ <sub>3</sub> Both □ <sub>3</sub> Other:
]	yean yean yean yean yean yean yean yean	years mo  ? hours a week  1 Weekdays $\square_2$ Weekends

6. The tables below list the ICUs monitored by your virtual ICU. Please indicate your levels of *satisfaction and trust* for each ICU by circling a number below.

					Leve	el of satis	faction				
				(Circle re	esponse l	pelow, N	A = Not	Applicat	ole)		
		fied with to not want to		•			<b></b>	Sa		th this ICU ger to work with it	N/A
ICU 1	1	2	3	4	5	6	7	8	9	10	
ICU 2	1	2	3	4	5	6	7	8	9	10	
ICU 3	1	2	3	4	5	6	7	8	9	10	
ICU 4	1	2	3	4	5	6	7	8	9	10	
ICU 5	1	2	3	4	5	6	7	8	9	10	
ICU 6	1	2	3	4	5	6	7	8	9	10	
ICU 7	1	2	3	4	5	6	7	8	9	10	
ICU 8	1	2	3	4	5	6	7	8	9	10	
ICU 9	1	2	3	4	5	6	7	8	9	10	
ICU 10	1	2	3	4	5	6	7	8	9	10	
ICU 11	1	2	3	4	5	6	7	8	9	10	
ICU 12	1	2	3	4	5	6	7	8	9	10	
ICU	1	2	3	4	5	6	7	8	9	10	

	Level of trust (Circle response below, N/A = Not applicable)										
	Do not to staff in t		•					>	-	etely trust n this ICU	N/A
ICU 1	1	2	3	4	5	6	7	8	9	10	
ICU 2	1	2	3	4	5	6	7	8	9	10	
ICU 3	1	2	3	4	5	6	7	8	9	10	
ICU 4	1	2	3	4	5	6	7	8	9	10	
ICU 5	1	2	3	4	5	6	7	8	9	10	
ICU 6	1	2	3	4	5	6	7	8	9	10	
ICU 7	1	2	3	4	5	6	7	8	9	10	
ICU 8	1	2	3	4	5	6	7	8	9	10	
ICU 9	1	2	3	4	5	6	7	8	9	10	
ICU 10	1	2	3	4	5	6	7	8	9	10	
ICU 11	1	2	3	4	5	6	7	8	9	10	
ICU 12	1	2	3	4	5	6	7	8	9	10	
ICU	1	2	3	4	5	6	7	8	9	10	

## Section B1. About communication and collaboration with nurses in Name ICU 1

In this section you will be asked questions about communication and collaboration with three different ICUs that you monitor

Communication with nurses in this ICU.	Strongly Disagree	Disagree	Neither Disagree Nor Agree	Agree	Strongly Agree
1. I look forward to working with the nurses of this ICU.		$\square_2$	$\square_3$	$\square_4$	
2. It is easy for me to talk openly with the nurses of this ICU.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	
3. I can think of a number of times when I received incorrect information from nurses in this ICU	$\square_1$	$\square_2$	$\square_3$	$\square_4$	
4. Communication with nurses in this ICU is very open.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
5. It is often necessary for me to go back and check the accuracy of information I have received from nurses in this ICU.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	
6. I find it enjoyable to talk with nurses in this ICU.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
7. The accuracy of information that I get from nurses in this ICU leaves much to be desired.	S □1	$\square_2$	$\square_3$	$\square_4$	
8. It is easy to give advice to the nurses in this ICU.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
9. I feel that certain nurses in this ICU don't completely understand the information they receive.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	
10. I get information on the status of patients when I need it from nurses in this ICU.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
11. When a patient's status changes, I get relevant information quickly from nurses in this ICU.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	
12. In matters pertaining to patient care, nurses in this ICU call us in a timely manner.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
Collaboration with nurses in this ICU.	Strongly Disagree	Disagree	Neither Disagree Nor Agree	Agree	Strongly Agree
13. I sometimes distrust opinions of the nurses I work with in this ICU.		$\square_2$	$\square_3$	$\square_4$	$\square_5$
14. I trust patient care judgments of nurses I work with in this ICU.		$\square_2$	$\square_3$	$\square_4$	$\square_5$
15. I feel the nurses I work with in this ICU do not do everything they should about patient care.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	
16. The nurses I work with in this ICU are well qualified to manage medical problems of ICU patients.			<b></b>	$\square_4$	<b>D</b> <sub>5</sub>
17. I trust the nurses I work with in this ICU to tell me if a mistake was made about a patient's treatment and care.		$\square_2$	$\square_3$	□4	<b>D</b> <sub>5</sub>
18. I sometimes worry that the nurses I work with in this ICU do not always provide me with all the information I need.		$\square_2$	$\square_3$	$\square_4$	$\square_5$
19. Overall, I trust the nurses in this ICU.		$\square_2$	$\square_3$	$\square_4$	
20. Do you currently work as a bedside nurse in this ICU? 21. Have you ever worked as a bedside nurse in this ICU?		Yes □ <sub>1</sub> □ <sub>1</sub>		$ \begin{array}{c} \text{No} \\ \square_2 \\ \square_2 \end{array} $	
		<del></del> 1		<u>—</u> 4	

## Section B2. About communication and collaboration with nurses in Name ICU 2

Communication with nurses in this ICU.	Strongly Disagree	Disagree	Neither Disagree Nor Agree	Agree	Strongly Agree
1. I look forward to working with the nurses of this ICU.		$\square_2$	$\square_3$	$\square_4$	
2. It is easy for me to talk openly with the nurses of this ICU.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	
3. I can think of a number of times when I received incorrect information from nurses in this ICU	$\square_1$	$\square_2$	□3	□₄	
4. Communication with nurses in this ICU is very open.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
5. It is often necessary for me to go back and check the accuracy of information I have received from nurses in this ICU.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	
6. I find it enjoyable to talk with nurses in this ICU.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
7. The accuracy of information that I get from nurses in this ICU leaves much to be desired.	$\square_1$	$\square_2$	□3	□4	
8. It is easy to give advice to the nurses in this ICU.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
9. I feel that certain nurses in this ICU don't completely understand the information they receive.	$\square_1$	$\square_2$	$\square_3$	□4	
10. I get information on the status of patients when I need it from nurses in this ICU.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
11. When a patient's status changes, I get relevant information quickly from nurses in this ICU.	$\square_1$	$\square_2$	$\square_3$	□4	
12. In matters pertaining to patient care, nurses in this ICU call us in a timely manner.		$\square_2$	$\square_3$	$\square_4$	$\square_5$
Collaboration with nurses in this ICU.	Strongly	Division	Neither Disagree	<b>A</b>	Strongly
13. I sometimes distrust opinions of the nurses I work with in this	Disagree	Disagree	Nor Agree	Agree	Agree
ICU.		$\square_2$	□ <sub>3</sub>	$\square_4$	<b>□</b> <sub>5</sub>
14. I trust patient care judgments of nurses I work with in this ICU.		$\square_2$	$\square_3$	$\square_4$	<b>D</b> <sub>5</sub>
15. I feel the nurses I work with in this ICU do not do everything they should about patient care.		$\square_2$	<b></b>	$\square_4$	<b>D</b> <sub>5</sub>
16. The nurses I work with in this ICU are well qualified to manage medical problems of ICU patients.		$\square_2$	$\square_3$	$\square_4$	<b>D</b> <sub>5</sub>
17. I trust the nurses I work with in this ICU to tell me if a mistake was made about a patient's treatment and care.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	
18. I sometimes worry that the nurses I work with in this ICU do not always provide me with all the information I need.		$\square_2$	<b></b>	$\square_4$	
19. Overall, I trust the nurses in this ICU.		$\square_2$	$\square_3$	$\square_4$	
		Yes		No	
20. Do you currently work as a bedside nurse in this ICU?				$\square_2$	
21. Have you ever worked as a bedside nurse in this ICU?		$\square_1$		$\square_2$	

# Section B3. About communication and collaboration with nurses in Name ICU 3

Communication with nurses in this ICU.	Strongly Disagree	Disagree	Neither Disagree Nor Agree	Agree	Strongly Agree
1. I look forward to working with the nurses of this ICU.	<b></b>	$\square_2$	$\square_3$	$\square_4$	□₅
2. It is easy for me to talk openly with the nurses of this ICU.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	
3. I can think of a number of times when I received incorrect information from nurses in this ICU	$\square_1$	$\square_2$	□3	□4	
4. Communication with nurses in this ICU is very open.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
5. It is often necessary for me to go back and check the accuracy of information I have received from nurses in this ICU.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	
6. I find it enjoyable to talk with nurses in this ICU.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
7. The accuracy of information that I get from nurses in this ICU leaves much to be desired.	S 🗖 1	$\square_2$	$\square_3$	□4	
8. It is easy to give advice to the nurses in this ICU.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
9. I feel that certain nurses in this ICU don't completely understand the information they receive.	$\square_1$	$\square_2$	$\square_3$	□₄	
10. I get information on the status of patients when I need it from nurses in this ICU.		$\square_2$	$\square_3$	$\square_4$	$\square_5$
11. When a patient's status changes, I get relevant information quickly from nurses in this ICU.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	
12. In matters pertaining to patient care, nurses in this ICU call us in a timely manner.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
Collaboration with nurses in this ICU.	Strongly Disagree	Disagree	Neither Disagree Nor Agree	Agree	Strongly Agree
13. I sometimes distrust opinions of the nurses I work with in this ICU.	<b>D</b> 1	$\square_2$	<b></b>	$\square_4$	<b>D</b> <sub>5</sub>
14. I trust patient care judgments of nurses I work with in this ICU.		$\square_2$	$\square_3$	$\square_4$	
15. I feel the nurses I work with in this ICU do not do everything they should about patient care.		$\square_2$	$\square_3$	$\square_4$	<b>D</b> <sub>5</sub>
16. The nurses I work with in this ICU are well qualified to manage medical problems of ICU patients.		$\square_2$	$\square_3$	$\square_4$	□5
17. I trust the nurses I work with in this ICU to tell me if a mistake was made about a patient's treatment and care.		$\square_2$	□ <sub>3</sub>	$\square_4$	$\square_5$
18. I sometimes worry that the nurses I work with in this ICU do not always provide me with all the information I need.		$\square_2$	$\square_3$	$\square_4$	<b>□</b> <sub>5</sub>
19. Overall, I trust the nurses in this ICU.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	
20. Do you currently work as a bedside nurse in this ICU? 21. Have you ever worked as a bedside nurse in this ICU?		Yes □ <sub>1</sub> □ <sub>1</sub>		$ \begin{array}{c c} No \\ \hline                                   $	
21. 11 Jou over worked up a coupled harbo in this 100.		<u>-</u> 1		<u> </u>	

## Section C. About your quality of working life...

Please indicate to what extent you agree or disagree with the follo	wing stater	nents.			
	Strongly Disagree	Disagree	Neither Disagree Nor Agree	Agree	Strongly Agree
1. In general, I am satisfied with the quality of care that I provide.		$\square_2$	$\square_3$	$\square_4$	$\square_5$
2. I have enough time to complete patient care tasks safely.	$\square_1$	$\square_2$		$\square_4$	<b>D</b> <sub>5</sub>
3. I usually have plenty to do; but I can always follow rules and procedures related to patient safety and standards of care.	$\Box_1$	$\square_2$	□3	□4	
Perceived Effectiveness	Strongly Disagree	Disagree	Neither Disagree Nor Agree	Agree	Strongly Agree
4. Our virtual ICU almost always meets its patient care treatment goals.	$\square_1$	$\square_2$	$\square_3$	□4	$\square_5$
5. Given the severity of the patients we monitor, our virtual ICU patients experience very good outcomes.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	
6. Our virtual ICU does a good job of applying the most recently available technology and knowledge to patient care needs.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$
7. We are able to recruit the best ICU nurses to work in our virtual ICU.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	
8. We do a good job of retaining virtual ICU nurses in the unit.	$\square_1$		$\square_3$	$\square_4$	
9. Overall, our virtual ICU functions very well together as a team.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	
10. Our virtual ICU is very good at responding to emergency situations.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	
The following questions deal with the workload that you experien following six scales at the point that matches your overall experien			e put an 'X'		of the
11. <b>Mental demand.</b> How much mental activity is required to perform yo (thinking, deciding, calculating, remembering, looking, searching, etc)	5	لىليا		ШШ	Ш
12. <b>Physical demand.</b> How much physical activity is required to perform (e.g., pushing, pulling, turning, controlling, activating, etc.)?	your job		ШШШ	ШШ	Ш
13. <b>Temporal demand.</b> How much time pressure do you feel due to the rat which the tasks or task elements occurred?	rate or pace	لىليا		ШШ	Ш
14. <b>Effort.</b> How hard do you have to work (mentally and physically) to acyour level of performance?	ccomplish		ШШШ	ШШ	Ш
15. <b>Performance.</b> How satisfied are you with your performance at your je	ob?			<u> </u>	
16. <b>Frustration level.</b> How insecure, discouraged, irritated, stressed and versus secure, gratified, content, relaxed and complacent do you feel about	•			ШШ	Ш
17. In general, how much influence do you have over work and work-rela	ated factors?				
Very littleA littleModerate amount $\square_1$ $\square_2$ $\square_3$		Much		Very mu	ıch
18. All in all, how satisfied would you say you are with your job?	omewhat sati	□ <sub>4</sub>	Ve	ry satisfied $\square_4$	d
10 Ham libely is it that you will said that the					
19. How likely is it that you will actively look for a new job in the next you not at all likely  Somewhat likely	ear? Quite lik	ely		Extrer	nely likely

 $\Box_4$ 

 $\square_5$ 

 $\Box_6$ 

		Never	A few times a year or less, almost never	Once a month or less, rarely	A few times a month, sometimes	Once a week, rather often	A few times a week, nearly all the time	Every day	
20. I feel emotionally drain	ed from my work.	□₁	$\square_2$	$\square_3$	$\square_4$		$\square_6$	$\square_7$	
21. I feel used up at the end	of the workday.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$	$\square_6$	$\square_7$	
22. I feel fatigued when I g have to face another day or		$\square_1$	$\square_2$		$\square_4$	$\square_5$	$\square_6$		
23. Working all day is reall	y a strain for me.	$\square_1$	$\square_2$	$\square_3$	$\square_4$	$\square_5$	$\square_6$	$\square_7$	
24. I feel burned out from r	ny work.		$\square_2$	$\square_3$	$\square_4$		$\square_6$	$\square_7$	
Section D. About yo									
1. What is your gender? □₁ Male □₂ Female  2. What is your education level? (Check only one) □₁ ADN (Associate Degree in Nursing) □₂ BS/BSN □₃ MS/MSN □₄ DnP/PhD  3. How old are you? □₁ 34 or less □₂ 35-44 □₃ 45-54 □₄ 55+  4. Are you of Hispanic or Latino origin? □₁ Yes □₂ No  5. What is your racial background? (Check all that apply) □₁ American Indian / Alaska Native □₂ Asian □₃ Native Hawaiian or Other Pacific Islander □₄ Black / African American □₅ White □₆ Other (please specify): □□□									
6. How many years of Less than 1 year	f computer experience do yo 2-3 year 4-5 yea		6-10 ye	ars	11-20 y	vears	More than	20 years	
$\square_1$	$\square_2$ $\square_3$		$\Box_4$						
7. What description d	oes best describe the level of	f your com	puter skills:	?					
Novice user (You just started using computers)	Average user (You use software programs such as word processors, e-mail, surf the Web, etc.)			Advances user (You can install software, setup configurations, etc.)			Expert user (You can setup operating systems; know some computer programming languages, etc.)		
	-						7		
8. The VISICU software is	•	AT 1.1					<b>a</b>		
Strongly Disagree	Disagree	Neither Di nor Ag			Agree		Strongly Agree	•	
$\Box_1$	$\square_2$	$\square_3$			$\square_4$		$\square_5$		

Thank you very much for your participation in this study! If you have any questions or comments about this survey, please send us an e-mail: <a href="mailto:carayon@engr.wisc.edu">carayon@engr.wisc.edu</a>