

Appendix:

Table 1. Characteristics of the ICU participants (Count with %)

Characteristics	Doctors (n=15)	Nurses (n=65)	Overall (n=80)
Gender			
Female	(9) 60%	(17) 26.2%	(26) 40%
Male	(6) 40%	(48) 73.9%	(54) 83%
Age			
20-24	(6) 40%	(8) 12.3%	(14) 18%
25-29	(4) 26.7%	(17) 26.2%	(21) 26%
30-34	(3) 20%	(7) 10.8%	(10) 13%
35-39	(1) 6.7%	(4) 6.2%	(5) 6%
40-44	(1) 6.7%	(10) 15.4%	(11) 14%
45-49	0	(7) 10.8%	(7) 9%
50-54	0	(10) 15.4%	(10) 13%
55-59	0	(1) 1.5%	(1) 1%
60 or above	0	(1) 1.5%	(1) 1%
Education status			
Diploma	0	(9) 13.9%	(9) 11%
Bachelor's	(13) 86.7%	(33) 50.8%	(46) 58%
Master or above	(2) 13.3%	(22) 33.9%	(24) 30%
Others	0	(1) 1.5%	(1) 1%
Position at hospital			
Consultant	(1) 6.7%		(1) 1%
Associate consultant	(4) 26.7%		(4) 5%
Resident specialist	0		0
Resident	(10) 66.7%		(10) 13%
Nurse Consultant/ Ward Manager		(3) 4.6%	(3) 4%
Advanced Practice Nurse		(17) 26.2%	(17) 21%
Registered Nurse		(45) 69.2%	(45) 56%
Others	0	0	0
Working experiences in the ICU			
0-1yr	(8) 53.3%	(13) 20%	(21) 26%
2-5yrs	(4) 26.7%	(13) 20%	(17) 21%
6-10yrs	(2) 13.3%	(11) 16.9%	(13) 16%
>10 yrs	(1) 6.7%	(28) 43.1%	(29) 36%
Working experience in other ICU			
0-1yr	(12) 80%	(36) 55.4%	(48) 60%
2-5yrs	(1) 6.7%	(5) 7.7%	(6) 8%
6-10yrs	0	(2) 3.1%	(2) 3%
>10 yrs	0	(22) 33.9%	(22) 28%
Received communication training			
Yes*	(6) 40%	(10) 15.4%	(16) 20%
No	(9) 60%	(55) 84.6%	(64) 80%
*Example			
certificate in counselling; communication workshop; Crew resource management; Hospital Authority management program (e.g. 101); Training; CRM training			

Table 2. ICU admission and outcome data for the surveyed ICU wards

	Mean/%
ICU Admission (per month)	78.3
ICU Bed no.	21
Occupancy	92%
Operative admission	
Non-op	32.7
Post-op	28.3
Male	35.7
Female	25.3
Age (years)	59.4 (24-89.3)
ICU LOS	3.5 (0.5-23.9)
ICU Mortality (per 100 pt treated)	12%
Hospital Mortality	19%

Table 3. Comparing doctors' and nurses' responses to questions relating to communication openness. (Scale, descriptions, positive response % means and standard deviations (SD) for different survey scales used)

No.	Scale	*Description	**Positive response %			Means (SDs) of all the responses			P value
			Doctors	Nurses	Both	Doctors	Nurses	Both	
A1-11	Communication openness within group (e.g. doctor-to-doctor/ nurse-to-nurse)	Items measure the extent to which ICU team members within a group (e.g. between doctors) can speak openly with one another without fear of negative repercussions or misunderstanding.	61%	53%	57%	3.41 (.19)	3.39 (.33)	3.39 (.31)	n.s.
B12-21	Communication openness between nurses and doctors	Items measure the extent to which ICU nurses and doctors can speak openly with one another without fear of negative repercussions or misunderstanding	55%	47%	51%	3.46 (.31)	3.36 (.39)	3.38 (.38)	n.s.
C22-26	Unit communication timeliness	Items measure the degree to which information about patient care is promptly relayed to relevant caregivers	65%	54%	60%	3.89 (.49)	3.65 (.47)	3.70 (.48)	n.s.
D27a-p	Satisfaction with communication within and between groups	Overall satisfaction with the quality of between group (e.g. between nurses/doctors; between senior doctor and junior nurses) communication	70%	51%	60%	3.70 (.49)	3.48 (.51)	3.52 (.51)	n.s.
E28-36	Nursing leadership	Items measure the degree to which staff rate the effectiveness (e.g. for emphasizing standards and making clear what is expected of ICU staff) of senior nurse leadership	24%	31%	27%	2.96 (.23)	2.96 (.34)	2.96 (.32)	n.s.
F37-45	Doctor leadership	Items measure the degree to which staff rate the effectiveness (e.g. for emphasizing standards and making clear what is expected of ICU staff) of senior doctor leadership	29%	30%	29%	2.94 (.19)	3.04 (.36)	3.02 (.33)	n.s.
G46-50	Understanding patient care goals	Items measure the extent to which ICU doctors and nurses understand the care duties (e.g. understanding short and long-term patient care plans, awareness of safety risks, and an understanding of what needs to be done for the patient to be discharged from the ICU) for patients under their care.	55%	58%	57%	3.99 (.55)	3.97 (.52)	3.97 (.52)	n.s.
H51-56	Perceived unit effectiveness	Items measure perceptions of overall unit effectiveness for meeting patient care treatment goals, responding to emergency situations, and functioning well as a team	70%	70%	70%	3.61 (.55)	3.66 (.49)	3.65 (.50)	n.s.

* All scales are measured on a Likert scale of 1 - strongly disagree; 2 - disagree; 3 - neither agree nor disagree; 4 - agree; 5 - strongly agree; except the understanding patient care goals which is measured on a scale of 1 - never; 2 - seldom; 3 - sometimes; 4 - often; 5 - always ** A positive response is where respondents have given a mean answer of greater than 3 on the questionnaire scales; n.s.= non-significant difference

Table 4. Comparing doctors' and nurses' responses to questions relating to Satisfaction with communication in the ICU at different ranks and disciplines (means and standard deviations (SD) for different survey items used)

No.	Items	Means (SDs) of all the responses			p-value
		Doctor	Nurse	Both	
D27a	From <i>junior</i> nurses to <i>junior</i> nurses	3.47(.64)	3.77 (.81)	3.62 (.73)	n.s.
D27b	From <i>senior</i> nurses to <i>senior</i> nurses	3.47(.64)	3.69 (.77)	3.58 (.71)	n.s.
D27c	From <i>junior</i> nurses to <i>senior</i> nurses	3.4(.63)	3.03 (.83)	3.22 (.73)	n.s.
D27d	From <i>senior</i> nurses to <i>junior</i> nurses	3.4(.63)	3.35(.78)	3.38 (.71)	n.s.
D27e	From <i>junior</i> doctors to <i>junior</i> doctors	3.8(.68)	3.52 (.56)	3.66 (.62)	n.s.
D27f	From <i>senior</i> doctors to <i>senior</i> doctors	4(.53)	3.52(.59)	3.76 (.56)	.006**
D27g	From <i>junior</i> doctors to <i>senior</i> doctors	3.87(.64)	3.45 (.64)	3.66 (.64)	.032*
D27h	From <i>senior</i> doctors to <i>junior</i> doctors	4.07(.46)	3.51 (.53)	3.79 (.50)	$p<.0001$ ***
D27i	From <i>junior</i> nurses to <i>junior</i> doctors	3.53(.64)	3.38 (.8)	3.46 (.72)	n.s.
D27j	From <i>senior</i> nurses to <i>senior</i> doctors	3.87(.64)	3.68 (.66)	3.78 (.65)	n.s.
D27k	From <i>junior</i> nurses to <i>senior</i> doctors	3.53(.74)	3.12 (.82)	3.33 (.72)	n.s.
D27l	From <i>senior</i> nurses to <i>junior</i> doctors	3.6(.63)	3.65 (.69)	3.63 (.66)	n.s.
D27m	From <i>junior</i> doctors to <i>junior</i> nurses	3.73(.59)	3.45(.77)	3.59 (.68)	n.s.
D27n	From <i>senior</i> doctors to <i>senior</i> nurses	4(.53)	3.65 (.69)	3.83 (.61)	.039*
D27o	From <i>junior</i> doctors to <i>senior</i> nurses	3.6(.74)	3.52(.62)	3.56 (.68)	n.s.
D27p	From <i>senior</i> doctors to <i>junior</i> nurses	3.93(.59)	3.38(.8)	3.66 (.70)	.006**

* The scale is measured on a Likert scale of 1 - strongly disagree; 2 - disagree; 3 - neither agree nor disagree; 4 - agree; 5 - strongly agree

Table 5. 13 questions to measure staff's individual communication openness

A. Questions for Nurses	
A1	It is easy for me to talk openly with the nurses of this ICU.
A4	Communication between nurses in this unit is very open.
A6	It is usual practice to check the accuracy of information I have received from other nurses in this unit.
A7	I find it enjoyable to talk with other nurses of this unit
A10	It is easy to seek advice from nurses in this unit.
A11	There is effective communication between nurses across shifts.
B12	It is easy for me to talk openly with the doctors of this ICU.
B13	I can clarify when I received incorrect information from doctors in this unit.
B14	Communication between nurses and doctors in this unit is very open.
B16	It is usual practice to check the accuracy of information I have received from doctors in this unit.
B17	I find it enjoyable to talk with doctors of this unit.
B20	It is easy to seek advice from doctors in this unit.
B21	There is effective communication between nurses and doctors across shifts.
B. Questions for Doctors	
A1	It is easy for me to talk openly with the doctors of this ICU.
A4	Communication between doctors in this unit is very open.
A6	It is usual practice to check the accuracy of information I have received from other doctors in this unit.
A7	I find it enjoyable to talk with other doctors of this unit
A10	It is easy to seek for advice from other doctors in this unit.
A11	There is effective communication between doctors across shifts.
B12	It is easy for me to talk openly with the nurses of this ICU.
B13	I can clarify when I received incorrect information from nurses in this unit.
B14	Communication between nurses and doctors in this unit is very open.
B16	It is usual practice to check the accuracy of information I have received from nurses in this unit.
B17	I find it enjoyable to talk with nurses of this unit.
B20	It is easy to seek advice from nurses in this unit.
B21	There is effective communication between nurses and doctors across shifts.

Table 6. The interview guide

Questions	
1	What do you think are the possible factors that may <u>encourage</u> a speaking-up culture in the ICU?
2	What do you think are the possible factors that may <u>prohibit</u> a speaking-up culture in the ICU?
3	From your personal experience, how often do you speak up? When? How? Why?
4	What specific language expression do you use to speak-up?
5	Have you ever encountered any difficulty when speaking up? And what were the difficulties?

Table 7. Pearson Correlation for the ICU doctors' and nurses' responses to questions relating to communication openness

	<i>Self-reported ability of communication openness</i>	<i>Perceptions on speak-up (Scale A-D)</i>	<i>Understanding patient care goals (Scale G)</i>	<i>Perceived unit effectiveness (Scale H)</i>
Age			r=.38 p=.001**	
Self-reported communication training	r= .311 p=.005**	r= .24 p=.032*	r= .353 p=.001**	
Perceptions on speak-up (Scale A-D)			r=.366 p=.001**	r=.582 p<.0001***
Understanding patient care goals (Scale G)	r= .637 p<.0001***			r=.404 p<.0001***
Perceived unit effectiveness (Scale H)	r=.743 p<.0001***			

Note: *p<.05; **p<.01; ***p<.001.