

## **Supplementary information**

**Figure 1 Questionnaire**

**Tables 1-17 Statistical information**

**Figure 1 - TRANSFUSION MEDICINE E-LEARNING AND CONTINUOUS EDUCATION AWARENESS, ACCESSIBILITY AND UTILIZATION OF BLOOD PRESCRIBING CLINICIANS AND RELATED NURSING STAFF.**

Dear Respondent,

The attached questionnaire is basically meant to elicit information on e-learning and continuous education awareness, accessibility and utilization in blood transfusion. It is primarily for research purpose. All your responses will therefore, be treated with utmost confidentiality.

Your maximum cooperation is hereby solicited.

Thanks.

**Instruction:** Kindly indicate your response by putting a tick (√) appropriately:

**SECTION A: SOCIO-DEMOGRAPHIC BACKGROUND**

**Years of Clinical Experience:**

01-10   
  
11-20  
21-30   
31+

**Gender:**

Male

Female

**Type of the Hospital:**

Representative/General

Specialized

**Clinical specialty (clinicians) or Department (nurses):**

Pediatrics

Internal Medicine

Gyn/Obstetrics

Hemato-oncology

Surgery

**Other** \_\_\_\_\_

Traumatology

**Nationality:** \_\_\_\_\_

## SECTION B: E-LEARNING & CONTINUOUS EDUCATION AWARENESS

S/N	ITEMS/STATEMENTS	SA	A	D	SD
1	e-learning allows me to get information on blood transfusion from online resources (e.g. Wikipedia, Internet search engine).				
2	e-learning enables me to work at my own pace.				
3	e-learning provides me the flexibility to work anytime, from any place.				
4	e-learning enables me to lessons in the form that is adapted to my teaching style.				
5	Learning to use e-learning tools is easy for me.				
6	My interaction with e-learning and continuous education is clear and understandable.				
7	I possess the skills necessary to use e-learning tools in clinical blood use.				
8	My experience in e-learning and continuous education is enriching.				
9	I am aware of the relevance of e-learning and continuous education in transfusion medicine.				
10	e-learning and continuous education in transfusion medicine is of invaluable contributions.				

## SECTION C: ACCESSIBILITY TO E-LEARNING & CONTINUOUS EDUCATION

S/N	ITEMS/STATEMENTS	SA	A	D	SD
1	My hospital has provision for all the facilities I need for e-learning and continuous education.				
2	My hospital releases me to learn and use e-learning.				
3	I have adequate access to e-learning and continuous education in my work.				
4	My hospital provides incentives to blood prescribing clinicians who use e-learning.				
5	My hospital encourages me to use e-learning and continuous				

	education for development.				
6	I have adequate training through e-learning and continuous education.				
7	E-learning accessibility enhances my efficiency as a clinician.				
8	I have adequate access to e-learning and continuous education at home.				
9	I spend my leisure time on e-learning.				
10	E-learning accessibility enhances my effectiveness as a clinician.				

#### SECTION D: E-LEARNING & CONTINOUS EDUCATION UTILIZATION

S/N	ITEMS/STATEMENTS	MLM	LM	LLM	NLM
1	Using e-learning and continuous education helps me to prescribe appropriate blood.				
2	Using e-learning and continuous education increases my chance of positive evaluation of my clinical abilities.				
3	Using e-learning and continuous education in clinical enables me to accomplish tasks quickly.				
4	I find e-learning and continuous education useful in my clinical work.				
5	Using e-learning and continuous education in my clinical work increases my blood prescriptions per effectiveness.				
6	Using e-learning and continuous education enhances my efficiency as a blood prescribing clinician.				
7	Using e-learning and continuous education reduces my work duty considerably.				
8	I find it easy to get e-learning and continuous education to do what I want to do.				
9	It is easy for me to become a competent clinician using e-learning and continuous education.				
10	I find e-learning and continuous education useful in my work..				
11	My interaction with e-learning is clear and understandable.				

12	Using e-learning and continuous education requires a lot of mental effort.				
----	--	--	--	--	--

**We thank you for having taken the time to complete the questionnaire.**

Table 1 - Demographic description of the respondents.

Variables	Frequency	Percentage
<b>Gender</b>		
Male	102	38.6
Female	162	61.4
<b>Total</b>	<b>264</b>	<b>100</b>
<b>HDI</b>		
Low	77	29.2
Medium	91	34.5
High	48	18.2
Very High	48	18.2
<b>Total</b>	<b>264</b>	<b>100</b>
<b>Department</b>		
Pediatrics	26	9.8
Gyn/Obstetrics	26	9.8
Surgery	45	17.0
Traumatology	9	3.4
Internal Medicine	21	8.0
Hemato-oncology	67	25.4
Others	70	26.5
<b>Total</b>	<b>264</b>	<b>100</b>
<b>Hospital Types</b>		
Ref/General	164	62.1
Specialised	100	37.9
<b>Total</b>	<b>264</b>	<b>100</b>
<b>Years of Experience</b>		
1-10	100	37.9
11-20	81	30.7
21-30	50	18.9
31-40	33	12.5
<b>Total</b>	<b>264</b>	<b>100</b>

### Research Questions:

Table 2: Relationship between level of awareness of continuous e-learning and education, and quality of clinical blood use.

Variables	$\bar{x}$	SD	N	r	P*	Remark	Decision
<i>awareness of e-continuous learning</i>	31.38	5.360					
			264	.137	.03	Sign.	Reject H <sub>01</sub>
<i>quality of clinical blood use</i>	27.10	.4.944					

\* Correlation is significant at the  $\leq 0.05$  level.

Table 3: Relationship between level of accessibility to e-continuous learning and quality of clinical blood use.

Variables	$\bar{x}$	SD	N	r	P*	Remark	Decision
<i>accessibility to e-continuous learning</i>	26.34	3.863					
			264	.184	.01	Sign.	Reject H <sub>01</sub>
<i>quality of clinical blood use</i>	27.10	.4.944					

\* Correlation is significant at the  $\leq 0.05$  level.

Table 4: Relationship between level of utilization of e-continuous learning and quality of clinical blood use

Variables	$\bar{x}$	SD	N	r	P*	Remark
-----------	-----------	----	---	---	----	--------

---

<i>utilization of e- continuous learning</i>	33.27	6.250	264	.06	.357	
						Not Sig.
<i>quality of clinical blood use</i>	27.10	.4.944				

---

\* Correlation is significant at the  $\leq 0.05$  level.



**Testing of hypotheses:**

Table 5: Analysis of Variance of significant difference in level of awareness of continuous e-learning and education based on human development index

	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Between Groups	2898.874	3	966.291	53.942	.000*
Within Groups	4657.486	260	17.913		
<b>Total</b>	<b>7556.360</b>	<b>263</b>			

Table 6: Multiple Comparisons of level of awareness of continuous e-learning and education based on human development index.

<b>HDI</b>	<b>HDI</b>	<b>Mean Difference</b>	<b>Std. Error</b>	<b>Sig.</b>	<b>95% Confidence Interval</b>	
					<b>Lower Bound</b>	<b>Upper Bound</b>
LHDI	MHDI	-7.76024*	.65536	.000*	-9.6043	-5.9161
	HHDI	-6.97727*	.77836	.000*	-9.1675	-4.7871
	VHHDI	-6.41477*	.77836	.000*	-8.6050	-4.2246
MHDI	HHDI	.78297	.75501	.783	-1.3416	2.9075
	VHHDI	1.34547	.75501	.367	-.7791	3.4700
	LHDI	6.97727*	.77836	.000*	4.7871	9.1675
HHDI	MHDI	-.78297	.75501	.783	-2.9075	1.3416
	VHHDI	.56250	.86394	.935	-1.8685	2.9935
	LHDI	6.41477*	.77836	.000*	4.2246	8.6050
VHHDI	MHDI	-1.34547	.75501	.367	-3.4700	.7791
	HHDI	-.56250	.86394	.935	-2.9935	1.8685

\*. The mean difference is significant at  $\leq 0.05$  level.

Table 7: Analysis of Variance of significant difference in level of accessibility to e-continuous learning based on human development index.

	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Between Groups	1209.163	3	403.054	38.582	.000*
Within Groups	2716.155	260	10.447		
<b>Total</b>	<b>3925.318</b>	<b>263</b>			

Table 8: Multiple Comparisons of level of accessibility to e-continuous learning based on human development index.

<b>HDI</b>	<b>HDI</b>	<b>Mean Difference</b>	<b>Std. Error</b>	<b>Sig.</b>	<b>95% Confidence Interval</b>	
					<b>Lower Bound</b>	<b>Upper Bound</b>
	MHDI	.37463	.50047	.905	-1.0336	1.7829
LHDI	HHDI	-3.93994*	.59440	.000*	-5.6125	-2.2674
	VHHDI	-4.50244*	.59440	.000*	-6.1750	-2.8299
MHDI	LHDI	-.37463	.50047	.905	-1.7829	1.0336
	HHDI	-4.31456*	.57658	.000*	-5.9370	-2.6921
	VHHDI	-4.87706*	.57658	.000*	-6.4995	-3.2546
HHDI	LHDI	3.93994*	.59440	.000*	2.2674	5.6125
	MHDI	4.31456*	.57658	.000*	2.6921	5.9370
	VHHDI	-.56250	.65976	.867	-2.4190	1.2940
VHHDI	LHDI	4.50244*	.59440	.000*	2.8299	6.1750
	MHDI	4.87706*	.57658	.000*	3.2546	6.4995
	HHDI	.56250	.65976	.867	-1.2940	2.4190

\*. The mean difference is significant at  $\leq 0.05$  level.

Table 9: Analysis of Variance of significant difference in level of utilization of e-continuous learning based on human development index.

	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
--	-----------------------	-----------	--------------------	----------	-------------

Between Groups	2289.530	3	763.177	24.858	.000*
Within Groups	7982.375	260	30.701		
<b>Total</b>	<b>10271.905</b>	<b>263</b>			

Table 10: Multiple Comparisons of level of utilization of e-continuous learning based on human development index.

HDI	HDI	Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
	MHDI	-4.41658*	.85796	.000*	-6.8308	-2.0024
LHDI	HHDI	-6.54113*	1.01899	.000*	-9.4084	-3.6738
	VHHDI	1.29221	1.01899	.658	-1.5751	4.1595
MHDI	LHDI	4.41658*	.85796	.000*	2.0024	6.8308
	HHDI	-2.12454	.98843	.205	-4.9059	.6568
	VHHDI	5.70879*	.98843	.000*	2.9275	8.4901
HHDI	LHDI	6.54113*	1.01899	.000*	3.6738	9.4084
	MHDI	2.12454	.98843	.205	-.6568	4.9059
	VHHDI	7.83333*	1.13103	.000*	4.6507	11.0159
VHHDI	LHDI	-1.29221	1.01899	.658	-4.1595	1.5751
	MHDI	-5.70879*	.98843	.000*	-8.4901	-2.9275
	HHDI	-7.83333*	1.13103	.000*	-11.0159	-4.6507

\*. The mean difference is significant at  $\leq 0.05$  level.

Table 11: Analysis of Variance of significant difference in level of awareness of continuous e-learning and education based on clinical specialty/department.

	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Between Groups	574.641	6	95.774	3.525	.052*
Within Groups	6981.718	257	27.166		
<b>Total</b>	<b>7556.360</b>	<b>263</b>			

Table 12: Analysis of Variance of significant difference in level of accessibility to continuous e-learning and education based on clinical specialty/department.

	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Between Groups	513.281	6	85.547	6.444	.000*
Within Groups	3412.037	257	13.276		
<b>Total</b>	<b>3925.318</b>	<b>263</b>			

Table 13: Multiple Comparisons of level of accessibility to continuous e-learning and education based on clinical specialty/department.

<b>Clinical Department</b>	<b>Clinical Specialty</b>	<b>Mean Differ.</b>	<b>Std. Error</b>	<b>Sig.</b>	<b>95% Confidence Interval</b>	
					<b>Lower Bound</b>	<b>Upper Bound</b>
Pediatrics	Gyn/Obstetrics	2.23077	1.01058	.561	-1.3853	5.8468
	Surgery	.39231	.89759	1.000	-2.8195	3.6041
	Traumatology	3.97009	1.40918	.247	-1.0723	9.0125
	Internal Medicine	-1.18864	1.06904	.975	-5.0139	2.6366
	Hemato-oncology	-.06142	.84189	1.000	-3.0739	2.9511
	Others	-1.73626	.83684	.636	-4.7307	1.2581
Gyn/Obstetrics	Pediatrics	-2.23077	1.01058	.561	-5.8468	1.3853
	Surgery	-1.83846	.89759	.650	-5.0502	1.3733
	Traumatology	1.73932	1.40918	.957	-3.3031	6.7817
	Internal Medicine	-3.41941	1.06904	.120	-7.2447	.4058
	Hemato-oncology	-2.29219	.84189	.288	-5.3047	.7203
	Others	-3.96703*	.83684	.001*	-6.9614	-.9726
Surgery	Pediatrics	-.39231	.89759	1.000	-3.6041	2.8195
	Gyn/Obstetrics	1.83846	.89759	.650	-1.3733	5.0502
	Traumatology	3.57778	1.33048	.304	-1.1830	8.3386
	Internal Medicine	-1.58095	.96293	.845	-5.0265	1.8646

Traumatology	Hemato-oncology	-.45373	.70227	.999	-2.9666	2.0592
	Others	-2.12857	.69620	.160	-4.6197	.3626
	Pediatrics	-3.97009	1.40918	.247	-9.0125	1.0723
	Gyn/Obstetrics	-1.73932	1.40918	.957	-6.7817	3.3031
	Surgery	-3.57778	1.33048	.304	-8.3386	1.1830
	Internal Medicine	-5.15873	1.45168	.053	-10.3532	.0357
	Hemato-oncology	-4.03151	1.29357	.142	-8.6602	.5972
Internal Medicine	Others	-5.70635*	1.29028	.004*	-10.3233	-1.0894
	Pediatrics	1.18864	1.06904	.975	-2.6366	5.0139
	Gyn/Obstetrics	3.41941	1.06904	.120	-.4058	7.2447
	Surgery	1.58095	.96293	.845	-1.8646	5.0265
	Traumatology	5.15873	1.45168	.053	-.0357	10.3532
	Hemato-oncology	1.12722	.91124	.957	-2.1334	4.3879
	Others	-.54762	.90657	.999	-3.7915	2.6963
Hemato- oncology	Pediatrics	.06142	.84189	1.000	-2.9511	3.0739
	Gyn/Obstetrics	2.29219	.84189	.288	-.7203	5.3047
	Surgery	.45373	.70227	.999	-2.0592	2.9666
	Traumatology	4.03151	1.29357	.142	-.5972	8.6602
	Internal Medicine	-1.12722	.91124	.957	-4.3879	2.1334
	Others	-1.67484	.62275	.304	-3.9032	.5535
	Pediatrics	1.73626	.83684	.636	-1.2581	4.7307
Others	Gyn/Obstetrics	3.96703*	.83684	.001*	.9726	6.9614
	Surgery	2.12857	.69620	.160	-.3626	4.6197
	Traumatology	5.70635*	1.29028	.004*	1.0894	10.3233
	Internal Medicine	.54762	.90657	.999	-2.6963	3.7915
	Hemato-oncology	1.67484	.62275	.304	-.5535	3.9032

\*. The mean difference is significant at  $\leq 0.05$  level.

Table 14: Analysis of Variance of significant difference in level of utilisation of continuous e-learning and education based on clinical specialty/department.

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	2489.731	6	414.955	13.704	.000*
Within Groups	7782.174	257	30.281		
<b>Total</b>	<b>10271.905</b>	<b>263</b>			

Table 15: Multiple Comparisons of level of utilization of e-continuous learning based on clinical specialty/department

Clinical Department	Clinical Specialty	Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Pediatrics	Gyn/Obstetrics	9.07692*	1.52620	.000*	3.6158	14.5380
	Surgery	.93162	1.35556	.998	-3.9189	5.7821
	Traumatology	5.37607	2.12819	.385	-2.2391	12.9912
	Internal Medicine	-2.65568	1.61449	.844	-8.4327	3.1214
	Hemato-oncology	-.21929	1.27146	1.000	-4.7688	4.3303
	Others	3.45385	1.26382	.284	-1.0684	7.9761
Gyn/Obs.	Pediatrics	-9.07692*	1.52620	.000*	-14.5380	-3.6158
	Surgery	-8.14530*	1.35556	.000*	-12.9958	-3.2948
	Traumatology	-3.70085	2.12819	.805	-11.3160	3.9143
	Internal Medicine	-11.73260*	1.61449	.000*	-17.5096	-5.9556
	Hemato-oncology	-9.29621*	1.27146	.000*	-13.8458	-4.7467
	Others	-5.62308*	1.26382	.004*	-10.1453	-1.1009
Surgery	Pediatrics	-.93162	1.35556	.998	-5.7821	3.9189
	Gyn/Obstetrics	8.14530*	1.35556	.000*	3.2948	12.9958
	Traumatology	4.44444	2.00934	.559	-2.7454	11.6343
	Internal Medicine	-3.58730	1.45425	.416	-8.7910	1.6163
	Hemato-oncology	-1.15091	1.06059	.978	-4.9460	2.6441
	Others	2.52222	1.05142	.454	-1.2400	6.2845
Traumatol.	Pediatrics	-5.37607	2.12819	.385	-12.9912	2.2391
	Gyn/Obstetrics	3.70085	2.12819	.805	-3.9143	11.3160
	Surgery	-4.44444	2.00934	.559	-11.6343	2.7454
	Internal Medicine	-8.03175*	2.19237	.040*	-15.8765	-.1869
	Hemato-oncology	-5.59536	1.95358	.228	-12.5857	1.3950
	Others	-1.92222	1.94862	.986	-8.8948	5.0504
Internal Medicine	Pediatrics	2.65568	1.61449	.844	-3.1214	8.4327
	Gyn/Obstetrics	11.73260*	1.61449	.000*	5.9556	17.5096
	Surgery	3.58730	1.45425	.416	-1.6163	8.7910
	Traumatology	8.03175*	2.19237	.040*	.1869	15.8765
	Hemato-oncology	2.43639	1.37619	.791	-2.4879	7.3607
	Others	6.10952*	1.36913	.004*	1.2104	11.0086

Hemato- oncology	Pediatrics	.21929	1.27146	1.000	-4.3303	4.7688
	Gyn/Obstetrics	9.29621*	1.27146	.000*	4.7467	13.8458
	Surgery	1.15091	1.06059	.978	-2.6441	4.9460
	Traumatology	5.59536	1.95358	.228	-1.3950	12.5857
	Internal Medicine	-2.43639	1.37619	.791	-7.3607	2.4879
	Others	3.67313*	.94050	.021*	.3078	7.0385
	Others	Pediatrics	-3.45385	1.26382	.284	-7.9761
Gyn/Obstetrics		5.62308*	1.26382	.004*	1.1009	10.1453
Surgery		-2.52222	1.05142	.454	-6.2845	1.2400
Traumatology		1.92222	1.94862	.986	-5.0504	8.8948
Internal Medicine		-6.10952*	1.36913	.004*	-11.0086	-1.2104
Hemato- oncology		-3.67313*	.94050	.021*	-7.0385	-.3078

\*. The mean difference is significant at  $\leq 0.05$  level.

Table 16: Analysis of Variance of significant difference in quality of clinical blood use based on clinical specialty/ department

	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Between Groups	1184.505	6	197.418	9.677	.000*
Within Groups	5242.934	257	20.401		
<b>Total</b>	<b>6427.439</b>	<b>263</b>			

Table 17: Multiple Comparisons of quality of clinical blood use based on clinical specialty/ department

<b>Clinical Department</b>	<b>Clinical Specialty</b>	<b>Mean Difference</b>	<b>Std. Error</b>	<b>Sig.</b>	<b>95% Confidence Interval</b>	
					<b>Lower Bound</b>	<b>Upper Bound</b>
Pediatrics	Gyn/Obstetrics	-2.11538	1.25271	.826	-6.5979	2.3671
	Surgery	1.17607	1.11265	.980	-2.8052	5.1574
	Traumatology	.93162	1.74681	1.000	-5.3189	7.1821
	Internal Medicine	-2.94139	1.32518	.554	-7.6832	1.8004
	Hemato- oncology	1.01952	1.04361	.987	-2.7148	4.7538

	Others	-3.74615*	1.03734	.046*	-7.4580	-.0343
	Pediatrics	2.11538	1.25271	.826	-2.3671	6.5979
	Surgery	3.29145	1.11265	.193	-.6898	7.2728
	Traumatology	3.04701	1.74681	.803	-3.2035	9.2975
Gyn/Obstetrics	Internal Medicine	-.82601	1.32518	.999	-5.5678	3.9158
	Hemato- oncology	3.13490	1.04361	.177	-.5994	6.8692
	Others	-1.63077	1.03734	.871	-5.3426	2.0811
	Pediatrics	-1.17607	1.11265	.980	-5.1574	2.8052
	Gyn/Obstetrics	-3.29145	1.11265	.193	-7.2728	.6898
	Traumatology	-.24444	1.64926	1.000	-6.1459	5.6570
Surgery	Internal Medicine	-4.11746	1.19365	.068	-8.3886	.1537
	Hemato-on Cology	-.15655	.87053	1.000	-3.2715	2.9584
	Others	-4.92222*	.86301	.000	-8.0103	-1.8342
	Pediatrics	-.93162	1.74681	1.000	-7.1821	5.3189
	Gyn/Obstetrics	-3.04701	1.74681	.803	-9.2975	3.2035
	Surgery	.24444	1.64926	1.000	-5.6570	6.1459
Traumatology	Internal Medicine	-3.87302	1.79949	.593	-10.3120	2.5660
	Hemato- oncology	.08789	1.60350	1.000	-5.6498	5.8256
	Others	-4.67778	1.59943	.205	-10.4009	1.0453
	Pediatrics	2.94139	1.32518	.554	-1.8004	7.6832
	Gyn/Obstetrics	.82601	1.32518	.999	-3.9158	5.5678
	Surgery	4.11746	1.19365	.068	-.1537	8.3886
Internal Medicine	Traumatology	3.87302	1.79949	.593	-2.5660	10.3120
	Hemato- oncology	3.96091	1.12957	.060	-.0810	8.0028
	Others	-.80476	1.12378	.998	-4.8259	3.2164
	Pediatrics	-1.01952	1.04361	.987	-4.7538	2.7148
	Gyn/Obstetrics	-3.13490	1.04361	.177	-6.8692	.5994
	Surgery	.15655	.87053	1.000	-2.9584	3.2715
Hemato- oncology	Traumatology	-.08789	1.60350	1.000	-5.8256	5.6498
	Internal Medicine	-3.96091	1.12957	.060	-8.0028	.0810
	Others	-4.76567*	.77196	.000	-7.5279	-2.0034
	Pediatrics	3.74615*	1.03734	.046*	.0343	7.4580
	Gyn/Obstetrics	1.63077	1.03734	.871	-2.0811	5.3426
Others	Surgery	4.92222*	.86301	.000*	1.8342	8.0103
	Traumatology	4.67778	1.59943	.205	-1.0453	10.4009



Internal Medicine	.80476	1.12378	.998	-3.2164	4.8259
Hemato- oncology	4.76567*	.77196	.000*	2.0034	7.5279

---

---

\*. The mean difference is significant at  $\leq 0.05$  level.