









	.....	iv
<b>I.</b>	.....	1
1.	.....	1
2.	.....	4
<b>II.</b>	.....	5
1.	.....	5
2.	.....	7
3.	.....	10
4.	.....	12
<b>III.</b>	.....	17
1.	.....	17
2.	.....	19
3.	.....	19
가.	.....	19
.	.....	20
.	.....	20
.	.....	20
.	.....	21
.	.....	25

IV.	.....	27
1.	.....	27
2.	.....	28
3.	.....	30
4.	.....	32
가.	.....	32
.	.....	33
.	.....	34
.	.....	35
5.	.....	37
가.	.....	37
.	.....	39
V.	.....	41
VI.	.....	48
	.....	51
	.....	55
	.....	59

1.	.....	21
2.	.....	27
3.	.....	27
4.	.....	31
5.	.....	32
6.	.....	33
7.	.....	34
8.	.....	36
9.	.....	37
10.	.....	40

1.	.....	18
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90

1998

20

가

가

1

2

가

가

가

20

가

1

2

가

가

가

▪

1.

90

,

.

1994 S

(Order Communicating System)

, 1995

I

.

, 1998

J

. J

,

,

,

,

,

(Hospital Information System)

(Chart Editor)

.

,

(Automatic Indexing Scanning)

.

,

가

.

40

45%가

(Dowling, 1980).

가 ( , 1990)

(DeLone, 1992).

6 가

가

가

( , 1999).

. Burkle(1995)

(hard ware)가

(software)

(peopleware)

( , 1996).

가

가

가

2.

1998

J

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가 EMR 가  
,  
,  
(CPRI, 1996).  
CPR  
가 MRI(Medical Record  
Institute) 5 .

(1) Automated Medical Records

,  
,  
가  
.

(2) Computerized Medical Record

가 .  
Document Image  
System .

(3) Electronic Medical Record

.  
,

(4) Electronic Patient Record(Computer-based Patient Record)

가 가

가

(5) Electronic Health Record

, ,

Smart card

2.

가

가

가

가 가

(IOM)

(Andrew, 1995).

1. (provides problem lists)
2. (measures health status)
3. (document clinical reasoning)
4. (provides linkage)
5. 가 (protects from unauthorized access)
6. (supports continuous access)
7. ( supports simultaneous multi-user view)
8. (supports other clinical resource)
9. (facilitates clinical problem solving)
10. (supports direct data entry by physician)
11. (supports management of patient care)
12. (provides flexibility and expansibility)

가

.(Kahn, 1995)

, (Data Capture function)

가 가

. (Pictureal data),

(Progress note) (Free text),

(Structured text) 가

(Digital Image Processing, DIP)

(Picture Archiving and Communication System, PACS)

DIP 가 .  
가  
(Sign)  
(Authentication) (CPRI, 1996).  
, (Storage function) .  
가  
(backup)  
2,3 가 .  
, (Information processing) .  
가  
가 (Expert system)  
(Drug-drug interaction)  
가  
, (Information communication) .  
가 가  
가 ,  
, (Security function) .  
가 가  
, (Information presentation) .

3.

1960

가

1991

GAO(General Accounting Office)

, IOM(Institute of Medicine)

CPR

(General Accounting Office, 1991). 1970

가

Beth Israel Hospital,

Brigham and Women's hospital, Massachusetts General Hospital

Yale, Emory, Johns Hopkins, LDS hospital

가 가

CPR Computer Stored Ambulatory Record(COSTAR), The Medical

Record(TMR), Regenstrief Medical System(RMS)

COSTAR

가 . COSTAR

1968

(Grossman, 1973).

6

(Barnett, 1984). TMR(The Medical Record)

TMR

가

가

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가

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(Hammond, 2000).

1980

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가

가

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가

. 1991

IOM

EMR

EMR

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EMR

. 1996

90%

EMR

50%

25%

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EMR

, 1997

25%

EMR

( , 2001).

#### 4.

1990

가

1994 S

1995

I

EMR(Electronic Medical Record)

1998).

2001)

( , 2001) EMR

1) S

S

가

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OCS

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PACS

□

가

□

2) I

I 1996

EMR 가 EMR 1999 EMR

. New EMR , ,

, .

( , 1999).

□

(chief complaint), (physical  
 examin ation), (review of system), (present  
 illness), (past history)

ICD-9-CM, SNOMED, COSTAR, DSM IV,  
 COSTART, WHO-ART

가

□

2 ( , , ) 가

( , )

□

가

□

가

□

, EMR

( , , , , )  
EMR

(1)

(2)

가

, ,

(3)

internet

e-mail

(5)

가 .

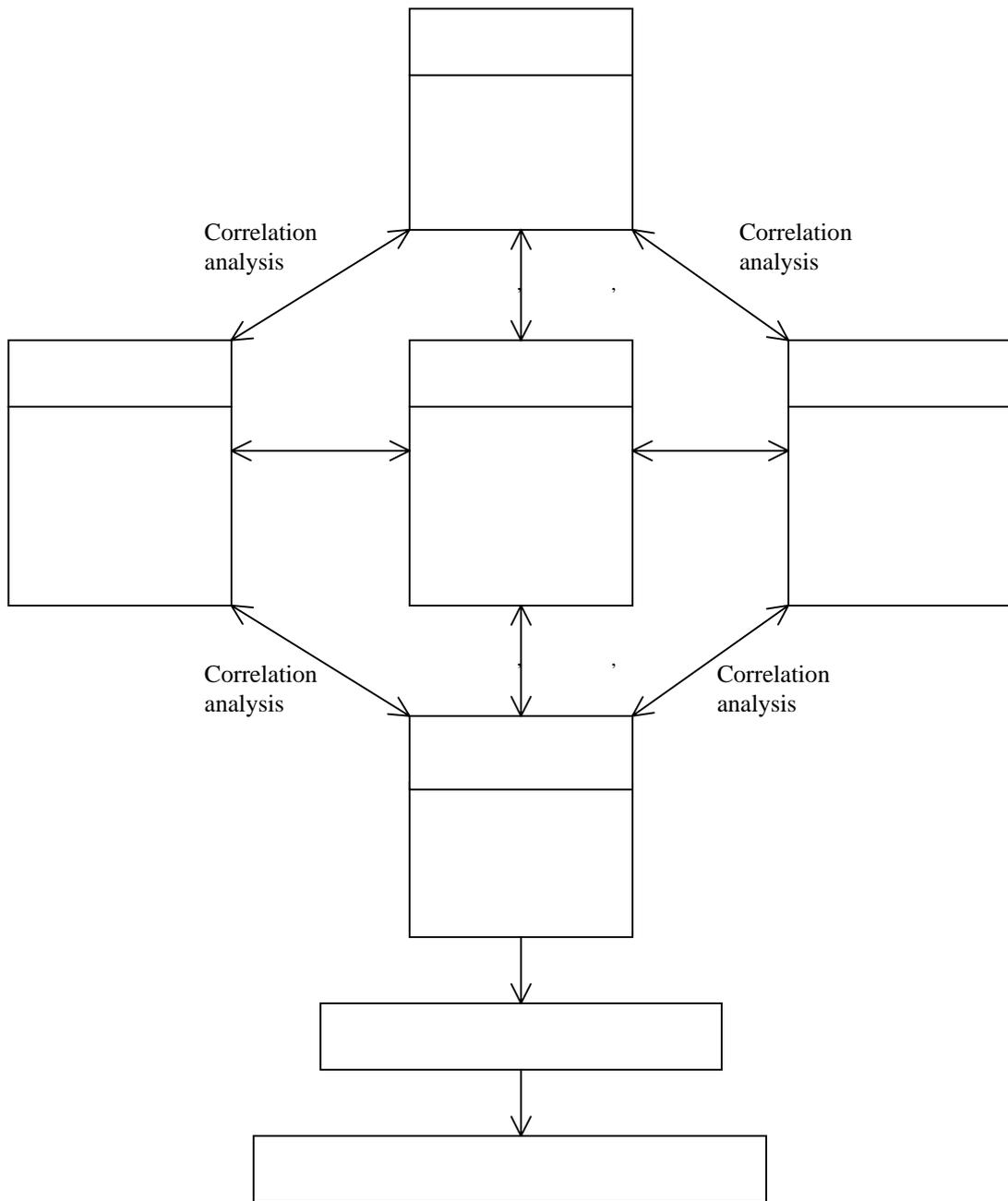
### III.

#### 1.

< 1> . Dean(1999)

QUIS(The Questionnaire for User Interaction Satisfaction)

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< 1 >

2.

J  
77  
5 45  
SPSS

3.

가.

2002 4 15 4 30  
70.4%  
5 Likert (1 : . 5 : )  
3

J		6		5	
43	58.8%	50	86.0%	68	75.8%

5 가 (5 ), (6 ), (2 ), (6 )

(Cronbach's alpha) 0.75

SPSS 8.0

가 Cronbach

Alpha Cronbach Alpha

,

. 가 가 가 < 1> . Cronbach

Alpha 0.6 ,

0.8 ( , 1993).

Cronbach Alpha 0.7245 0.8591 가

1.

	(Cronbach Alpha)
	0.7245
	0.8000
	0.8591
	0.8219

1)

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( , , ) :  
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가  
1 , 2 , 3 , 3 .

2)

. Dean (1998)

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, , .  
:  
(Chart Editor)  
(Slip Manager)가

가

3)

Dean

가

가

가

4)

가

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가

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5)

. Dean (1998)

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가

.

,

가

1)

가

(ANOVA)

2)

가 , , ,  
가 ,  
가

(Correlation analysis)

3)

, , ,  
, , ,  
(Multiple Regression Analysis)

## VI.

### 1.

< 2> .

20                      30                      34.4%, 30

40                      53.3%                      87.7%가 40 .

49.2%,                      50.8%                      .

32.8%,                      30.3%,                      36.9%                      .

47.5%가 3

### 2. ( : ,%)

	20-29		42	34.4
	30-39		65	53.3
	40-49		13	10.7
	50		2	1.6
			60	49.2
			62	50.8
			40	32.8
			37	30.3
			45	36.9
	1		31	25.4
	1	2	23	18.9
	2	3	10	8.2
	3		58	47.5

2.

< 3>

20      30

76.2%, 30      40      44.6%      20

40      83.6%가

0.000

42.5%,

47.5%,      10.0%,      35.1%,      48.6%,      16.2%

82.2%,      17.8%

가 가 ,      가

가

1

51.6%,      38.7%,      9.7% ,      1      2

60.8%,      39.1%,      2      3      60.0%,

30.0%,      10.0% ,      3      53.4%,

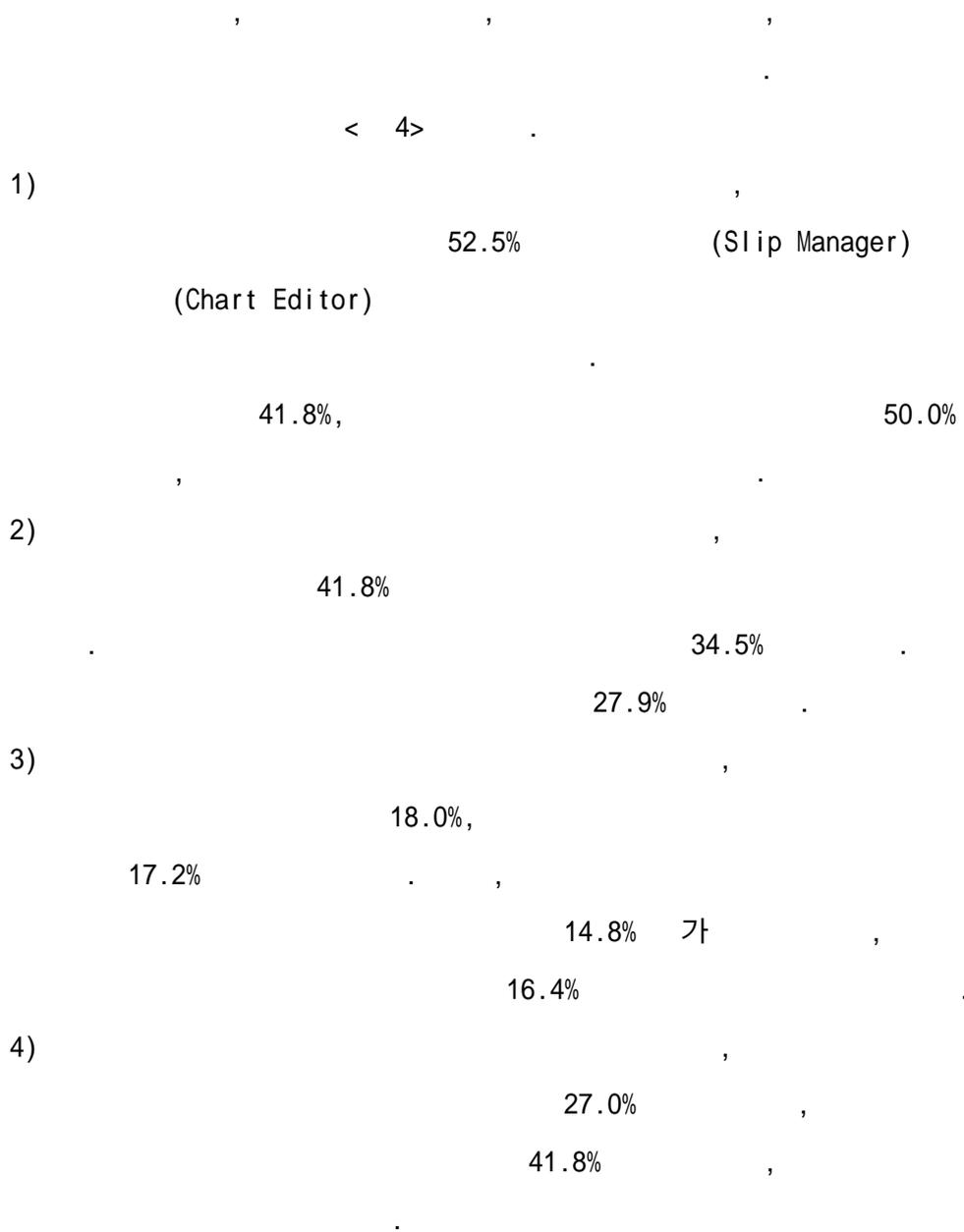
36.2%,      10.3% .

3. ( : ,%)

					$\chi^2$
20 – 29	32(76.2)	9(21.4)	1(2.4)	42(100.0)	45.88*
30 – 39	29(44.6)	32(49.2)	4(6.2)	65(100.0)	
40 – 49	5(38.5)	4(30.8)	4(30.8)	13(100.0)	
50	1(50.0)		1(50.0)	2(100.0)	
	17(42.5)	19(47.5)	4(10.0)	40(100.0)	26.11*
	13(35.1)	18(48.6)	6(16.2)	37(100.0)	
	37(82.2)	8(17.8)		45(100.0)	
1	16(51.6)	12(38.7)	3(9.7)	31(100.0)	4.35
2	14(60.8)	9(39.2)		23(100.0)	
3	6(60.0)	3(30.0)	1(10.0)	10(100.0)	
3	31(53.4)	21(36.2)	6(10.3)	58(100.0)	

: \* p < 0.01

3.



4.

( : ,%)

	64(52.5)	37(30.3)	21(17.2)	122(100.0)
	51(41.8)	34(27.9)	37(30.3)	122(100.0)
	61(50.0)	36(29.5)	25(20.5)	122(100.0)
	51(41.8)	36(29.5)	45(36.9)	122(100.0)
	42(34.5)	57(46.7)	23(18.9)	122(100.0)
	34(27.9)	54(44.3)	34(27.9)	122(100.0)
	22(18.0)	45(36.9)	55(45.1)	122(100.0)
	21(17.2)	57(46.7)	44(36.0)	122(100.0)
( )	18(14.8)	36(29.5)	68(55.7)	122(100.0)
( )	20(16.4)	37(30.3)	65(53.3)	122(100.0)
	33(27.0)	40(32.8)	49(40.2)	122(100.0)
	51(41.8)	44(36.1)	27(22.1)	122(100.0)

4.

가.

, < 5> . ,  
, 가 .  
, , , 가 가  
가 가 , 가 가  
가 가 ,  
가 가 .

5.

	F
3.12	
3.32	11.04**
2.72	
2.78	
3.01	7.79*
2.41	
3.32	
3.63	4.79
3.19	
3.00	
3.22	6.71*
2.66	
3.36	12.69**
3.41	
2.55	

: \*p < 0.05, \*\*p < 0.01

. < 6> . 가 , 40 가 , 40 가 가 가 가 .

6.

			F
20 - 29	2.75		19.83*
30 - 39	3.14		
40 - 49	3.38		
50	3.09		
20 - 29	2.50		13.29
30 - 39	2.80		
40 - 49	3.00		
50	2.60		
20 - 29	3.25		5.15
30 - 39	3.43		
40 - 49	3.43		
50	3.33		
20 - 29	2.64		11.57*
30 - 39	3.05		
40 - 49	3.35		
50	3.00		
20 - 29	2.58		25.51**
30 - 39	3.26		
40 - 49	3.73		
50	3.25		

: \*p < 0.05, \*\*p < 0.01

. , < 7> . 가 가  
 1 2 가 가  
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 . 가 가 , 3  
 가 가 가 가 .

7.

		F
1	3.01	1.54
2	2.79	
3	3.10	
3	3.13	
1	2.76	0.87
2	2.52	
3	2.92	
3	2.73	
1	3.38	0.37
2	3.24	
3	3.35	
3	3.41	
1	2.90	0.86
2	2.75	
3	3.00	
3	3.03	
1	2.98	3.21*
2	2.60	
3	3.15	
3	3.31	

: \*p < 0.05

·  
, , , ,  
가  
, < 8> ,  
, ,  
가  
가 가 ,  
가 가 .

8.

	F
2.50	14.17
2.91	
2.57	
3.00	2.41
3.13	
2.64	
2.95	13.61**
3.02	
2.04	
3.30	7.13*
3.18	
2.42	
2.80	1.89
3.08	
2.73	
3.10	1.55
3.21	
2.86	
3.27	1.52
3.59	
3.26	
3.25	3.63
3.48	
3.02	
3.47	4.12
( )	4.05
	3.51
3.52	1.32
( )	3.75
	3.40
3.67	12.49**
3.64	
2.71	
3.05	8.70**
3.18	
2.40	

: \*p < 0.05, \*\*p < 0.01

5.

가.

가 , , ,  
가 , ,  
12 가  
가 (Correlation  
analysis) , < 9> .  
50%  
가 ,  
0.4  
Pearson  
0.820  
가 가 0.000 .  
0.801 , .

9.

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1.00						
0.57**	1.00					
0.63**	0.37**	1.00				
0.61**	0.36**	0.49**	1.00			
0.68**	0.25**	0.34**	0.37**	1.00		
0.72**	0.54**	0.38**	0.41**	0.56**	1.00**	
0.71**	0.44**	0.33**	0.34**	0.48**	0.56**	
0.55**	0.23**	0.39**	0.27**	0.22*	0.39**	
0.56**	0.34**	0.31**	0.30**	0.25**	0.44**	
0.53**	0.36**	0.36**	0.23*	0.18*	0.37**	
0.58**	0.37**	0.32**	0.33**	0.30**	0.44**	
0.80**	0.22*	0.44**	0.44**	0.62**	0.47**	
0.82**	0.39**	0.43**	0.43**	0.60**	0.53**	

: \*p < 0.05, \*\*p < 0.01

---



---

1.00						
0.39**	1.00					
0.42**	0.68**	1.00				
0.38**	0.38**	0.33**	1.00			
0.32**	0.28**	0.36**	0.64**	1.00		
0.62**	0.30**	0.27**	0.31**	0.33**	1.00**	
0.59**	0.41**	0.37**	0.29**	0.40**	0.70**	1.00

: \*p < 0.05, \*\*p < 0.01

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 < 10> .  
 20 , , 1  
 가 ,  
 0.215 . 40 , ,  
 3 가  
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10.

		B	B	B	B	B
	30	0.110	0.060	0.026	0.188	0.096
(20 =0)	40	0.188	0.150	0.047	0.282*	0.158
	50	0.015	-0.029	-0.001	0.054	-0.013
		0.220	0.184	0.081	0.080	0.340
( =0)		0.430**	0.362*	0.327	0.318	0.422**
	1	0.072	0.029	0.045	0.088	0.060
(1 =0)	2	0.042	0.058	-0.025	0.019	0.075
	3	0.166	0.043	0.103	0.093	0.264*
		0.215	0.140	0.089	0.170	0.270

: \*p < 0.05, \*\*p < 0.01

V.

가 , , , , ,

가

20 가

가 가

가 가

가 가

가

가

가

가

(Burkle, 1995)

1

2

가

3

가 가

가



가  
가 .

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. MRI (Medical Record Institute) 1999  
EMR 가

가

가 .

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가

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(Dean, 1999)

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가 가 ,

가 가 .

가 가 .

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가

, 20

가 가

40

가 가 .

20

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가

가 . Lorenzi (1990)

5

가

가

1

2

가 가 , 3

가 가

. Gamm(1998)

EMR

12

가 가

가 가

50%

가

가 가

가 .

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, , .

20 , ,

1 2 가

, .

, 가

, BICS(Brigham & Women's  
Integrated Computing System) QUIS(Questionnaire for  
User Interaction Satisfaction) ,

가 .

, 가

가 (Content Validity)

. EMR 가

가

, 75.8% .

, 58.8% ,

, 가 .

(Niederman, 1991)

가

(Massaro, 1993).

가

( , 2000).

가 .

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가

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J

, , , ,

2002. 4. 15      2002. 4. 30

70.4 %

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가

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가

20

가 가

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가

가

가 가

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가

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(structured data)

가

,

.

,

(risk)

6

가

가

가

가

(alert)

(decision supporting system)

. Mobile computing, EMR 3 ,  
 2001 ; 3(3) : 97 109  
 , 8 . . 1999  
 . , 1990  
 . . 2001  
 . ,  
 2000 ; 6(2) : 27 44  
 .  
 , 1999 ; 5(1) : 51 66  
 . SAS . 1993  
 . (Electronic Medical Record),  
 1999 : 78 79  
 . , 1998  
 . 가 , ,  
 1992 ; 2(1)  
 . EMR ,  
 1996 : 495 497  
 . , EMR 3 ,  
 2001 ; 3(3) : 85 94  
 . , 1996 : 205 207  
 .  
 , 2000

1996 ; 2(1) : 1 5

1996

1999 ; 5(1) : 37 49

1994

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Hammond WE. How the past teaches the future, JAMIA 2001 ; 8 : 222 234

\*

1) 20                      2)30                      3) 40                      4) 50

1)    2)

1)    ( Staff / Resident / Intern), 2)    (       /       /       )

1)1    2)1    2    3)2    3    4)3

●                      1                      5
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1)                      ?

1)                      2)                      3)                      4)                      5)

2)                      ?

1)                      2)                      3)                      4)                      5)

3)                      (TPR)                      ?

1)                      2)                      3)                      4)                      5)

4) ?  
1) 2) 3) 4) 5)

5) ?  
1) 2) 3) 4) 5)

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1) ?

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1) 2) 3) 4) 5)

1-2. :  
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1) 2) 3) 4) 5)



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2) 가 ?

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## ABSTRACT

### **Factors affecting the users' satisfaction on the electronic medical record system**

Ji Young Kim

Graduate School of

Health Science and Management

Yonsei University

(Directed by Professor Young Moon Chae, Ph.D.)

For last five years, several newly opened hospitals have introduced the order communicating system (OCS) along with an electronic medical record (EMR) system for inpatient and outpatient. Since EMR often changed the operating procedures and therefore caused user resistance to change, there is a need for strategy for increase a user acceptance toward the system.

The purpose of this study was to identify the factors influencing

user satisfaction to EMR for the hospital which has been operating EMR for four years since its opening in 1998.

The results were as follows:

First, satisfaction level was high for 20 years among age groups, nurses among occupation classes, and the period between 1 and 2 years among the usage period. Second, satisfaction level was high for the screen layout, but low for the scan-chart retrieval. Third, overall satisfaction score was highly correlated with twelve variables. Fourth, the factors significantly affecting the overall satisfaction level were 20 years age group, certified doctors, and the usage period between 1 and 2 years.

Based on the about results, the followings were recommended to the hospitals which plan to introduce EMR in the future:

First, data entry should be simplified and user friendly. Second, users should be well trained on security of the system in order to protect the confidentiality and integrity of the system prior to the introduction of EMR. Third, size of the files should be minimized using diagnostic codes and reducing size of image files in order to increase the response time. Finally, EMR should be well designed in such a way to improve a quality of contents of the chart.