Development of an Integrated Information System for the Management of Behçet's Disease

Youn Kyoung Cho, Young Moon Chae[1], Dong Sik Bang[2], Suck Il Kim[3]

Department of Ambulatory Care Nursing, University of Yonsei Medical Center, Seoul, Korea
Graduate School of Public Health, Yonsei University, Seoul, Korea[1]
Department of Dermatology, Yonsei University, Seoul, Korea[2]
Department of Preventive Medicine, Yonsei University, Seoul, Korea[3]

Abstract

As internet technology rapidly improves, clinical services are increasingly computerized in most hosptials. In order to effectively support patient care and clinical researches, information technologies are widely utilized to integrate clinical databases and disseminate information. However, most hospital information systems in Korea are still independently implemented and not fully integrated due to lack of standardization and security measure. In order to meet increasing demand for better patient care and upgrading clinical research, there is a need for a development and sharing of integrated clinical information system with a common database including clinical data collected from various hospitals. The purpose of this study was to develop a web-based clinical information system for management of Behçet's disease by constructing an integrated database with treatment data, test results, and patient demographic data in collaboration with several hospitals. Specifically, current treatment procedure for Behçet's disease was analyzed first and enhanced treatment procedure as well as a web-based clinical information system for management of Behçet's disease was proposed using a structured systems analysis and literature review on the shared clinical information systems. Expected benefits of the system include an improvement of consistency in patient management and reduction of duplicate prescriptions and test orders. In addition, this system can help improve communication among clinics and tertiary hospitals by sharing common clinical database. In a long run, the share system can also help reducing hospital expenditures by reducing duplicate investment on high cost equipments by sharing them among hospitals. *(Journal of Korean Society of Medical Informatics 9-2,153~162, 2003)*

: 134
: 02-361-6034 E-mail: ykcho@yumc.yonsei.ac.kr

I.

21

(IT)

1)

' information sharing
and reuse'

(behavior)   3)

OCS
(Order Communication System) PACS(Picture
Archiving Communication System) CIS(Clinical
Information System) EMR(Electronic Medical Record)

4)

(97),
(98)   1961
1980
, 3

5)

6)

DB

D'Alessandro

(54%)   (50%)
(49%)   (46%),
(36%)

e-mail

7)

8)

9)

10)

1980   **Y**
7000

11)

Internet

. 2

. 3

(Fig 1).

II.

Crade 73 , NT
ASP(Active Server Page) HTML

1.

Y

2002 4
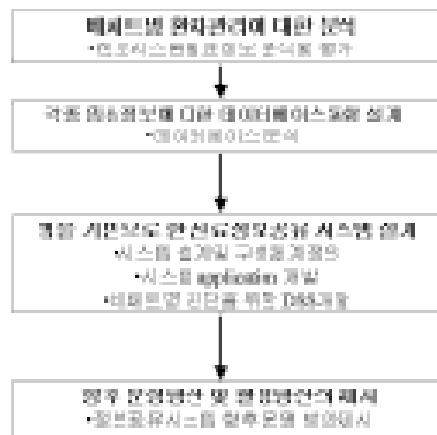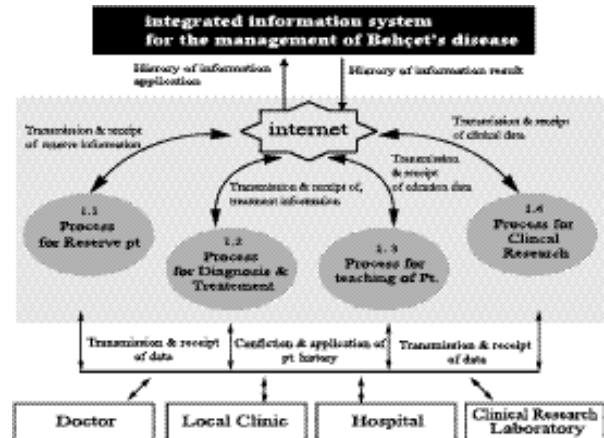

Fig 1. study Procedure

2

III.

1.

1 Y

(Fig 2).

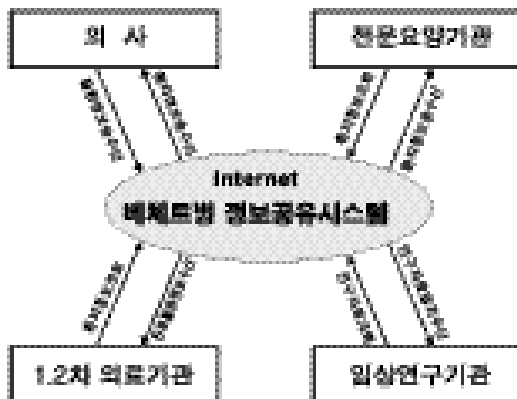Fig 3. Data Flow Diagram of Information Sharing for
Behçet' s Disease

2

Fig 2. Context Diagram of Information Sharing System

index

1, 2

(Fig 3)

95%

'

(ERD)

(Fig 4).

(Table 1, 2).

3

- (Entity-

Relationship Model) .
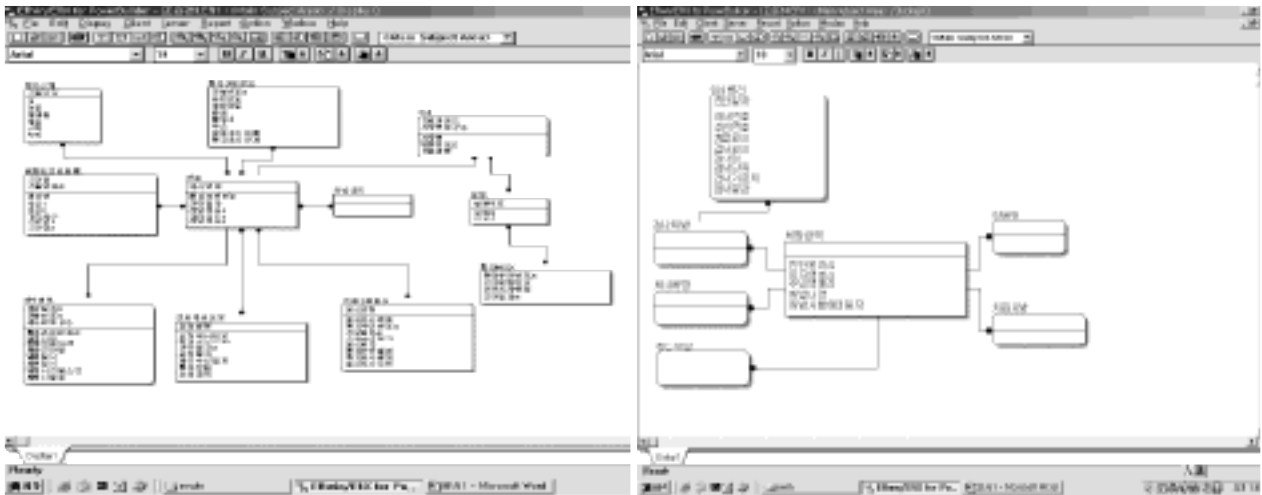

Fig 4. ERD of Information Sharing System for Behçet's disease

Table 1. Entity and attribute of Information Sharing System for Behçet's disease

(attribute)
, , , , , , ,
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, , ,
, , ,
, , ,
index , , , 1, 2
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, (CO, , , , Life Style ,
, , , ,
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, , ,
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, , ,

Table 2. Relationship between Process and Entity

		C	C	R	R	R	R
			R	R	R	R	C
		R		R	R	R	
		R		R	R	R	
		R		R	R	R	
		R		R	R	R	
index			R	R	R	R	C
			U				R
		C	R	R	R	R	
		R	R	R	R	U	
		R		R	C	R	
		R		R	C	R	
		R		C	R	R	
		R		C	R	R	
		R		R		C	
		R		R		C	
		R		U	R	R	
		R		R	R	R	

(C : Create , R : Retrieval , U : Update)

(rule based system)

International
Study Group for Behçet's Disease

Fig 5. Example for Rule base

IF THEN 4
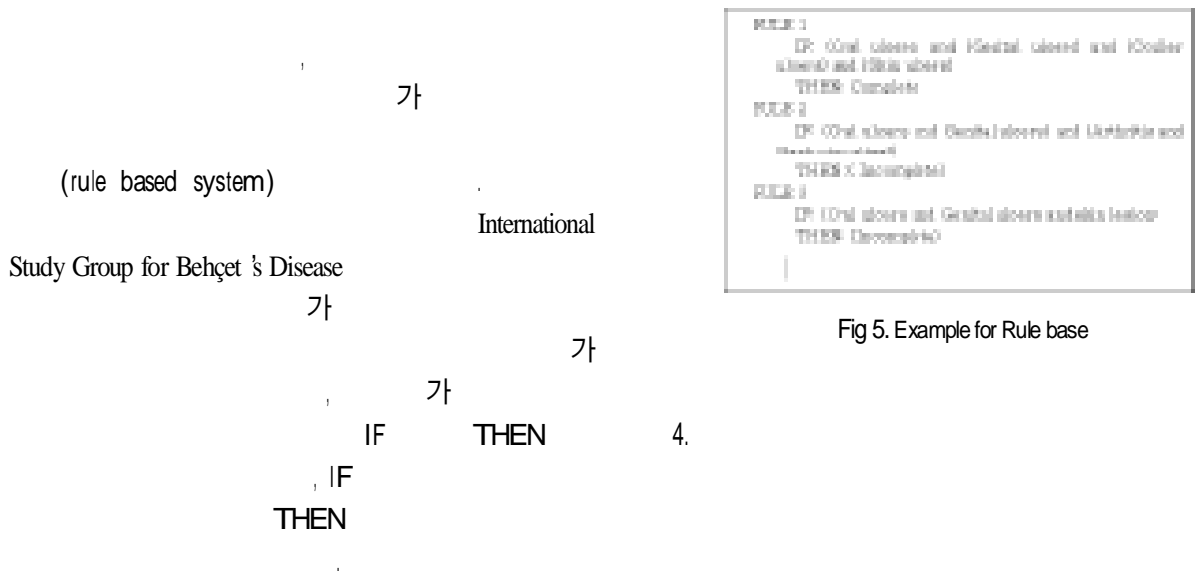, IF
THEN

DB,

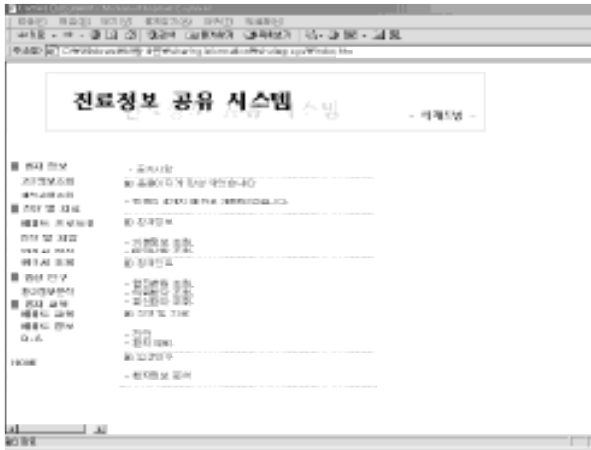(Fig 5).   DB,   DB

(Fig 6).

e-mail
(Fig 8).

Fig 6. Main of Information Sharing System for Behçet's disease

Fig 8. Screen for Diagnosis and Treatment

(Fig 7).

Fig 7. Screen for Information Sharing System for Behçet's disease Protocol

(Fig 9).

Fig 9. Screen for Consultation Referred

5

1)   (Electronic Medical Records)
                                                  (Electronic Patients Record System)

know-how

                                                    2)

                                                20

                                        (transfer)
                                                                            17

    1・2   (1)

                                        EMR(   )

                                                                    (CD-ROM)

(2)

20 4

Calgary   Alberta

Mental Health Clinical Integrated Database
, Calgary

(Information Integrity),
(Information Availability),
(Information Confidentiality)

12)

1, 2

(3)   2

1987
HL7
2002

HL7 Korea

IV.

13)

1.   2001;
11(2): 142-157

2.   2000, 3(1): 48-59

3.   1997, 4(3): 32-48

4.   , 2001

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10.   1.   1998

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