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Medical Center

The Development of Automatic Triage Score Messaging System at Emergency Department: Using Modified Canadian Triage and Acuity Scale

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I. Introduction (1)

- **Triage ; Emergency patient**
  1. Critical reference ; priorities
  2. Assessment tool ; outcomes

- **Emergency Department (ED) of AMC***
  1. Overcrowded ; > 200 patients / day
  2. High portion of Critical ill patients
     ICUs ; 12 ICUs, 170 beds

*; Asan Medical Center

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I. Introduction (2)

- EMR implemented Triage Scales
  AVPU scale*, Glasgow Coma Scale (GCS),
  Revised Triage Scale (RTS)
  -> Easy but inaccurate

- Automatic messaging system
  Effective & rapid paging system
  -> More objective triage scale
  -> Consensus between emergency staffs

*; Alert, Verbal response, Pain response, Unresponsiveness

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II. Methods (1)

Canadian Triage & Acuity Scale (CTAS)

1. 5-level triage system
   a reliable & objective tool
2. Modified CTAS (mCTAS)
   December, 2004 -> March 10, 2006
   retriage interval, higher level for trauma
   5 CENs*, 1 emergency professor
3. mCTAS ; EMR_ER
   trends, basic information

* ; certified emergency nurse

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II. Methods (2)

Automatic Messaging system ; mCTAS

- Since March 17, 2006

1. **Messaging rules**
   Level I, II ; instantly SMS activation
   Level III~V ; "reservation call"
2. **Contents of messages**
   Patient ID & name, chief complaints, triage level, treatment area
3. **Message recipients**
   On-call emergency staff, senior residents

III. Results (1) ; mCTAS EMR_ER

Doctor's initial note before mCTAS

응급실 초진기록지

주 증 상 | 주증상삭제

Vaginal bleeding | 1시간전

현병력/투약력/기타 | 입퇴원 요약지 | 투약력 | 현병력

현병력 | 투약력 | 기타

11/23 마지막 외래 방문. 당시 흑색이나 밤색 냉이 있었으나 초음파 등 검사상 이상소견 없었음.
내원 1시간전에 팬티를 흠뻑 적실정도의 Vaginal bleeding 이 발생하여 2005년 11월 29일 13시 31분에 본원 응급센터로 내원.

LMP : 8/15
para 0-0-0-0
abd. pain(-)
active bleeding(-)

활력징후/의식상태

혈 압 101 / 59 mmHg | 맥 박 89 회/분

호흡수 20 회/분 | 체 온 T. 고막 36.0 ℃

SpO2 % | 체 중 60 Kg

의식상태 A | RTS | GCS | E | V | M

Allergy

약물 | 질환 | 음식 | 기타

과 거 력

심질환 | 기타

초기화 | 조 회 | 임시저장 | 서 명 | 그림틀

ROS: Fever, Syncope, Weakness, general, Weight loss, Headache, Dizziness, Eye(s), pain, Visual disturbance, Diplopia, Sore throat, Rhinorrhea, Sputum, Cough, Hemoptysis, Dyspnea, Dyspnea on exertion, DOE, Chest pain, Abdominal pain, Anorexia, Nausea, Vomiting, Constipation, Diarrhea, Hematemesis, Melena, Dysuria, Urinary frequency, Hematuria, Cervical discharge, Bleeding vaginal

AVPU, RTS, GCS

초진기록지를 조회 하였습니다.

Doctor's initial note after mCTAS

응급실 초진기록지

주 증 상 | 주증상삭제

Abdominal pain | 3시간전

현병력/투약력/기타 | 입퇴원 요약지 | 투약력 | 현병력

현병력 | 투약력 | 기타

#1 h/o jejunal bezoar
#2 cholangitis d/t CBD stone
#3 DM
#4 HTN
#5 r/o ampulla of Vater ca.
#6 fever + chill +jaundice

'06.06.12 - CT, Abdomen & Pelvis
&'06.06.13 MRCP

호흡수 28 회/분 | 체 온 T.고막 36.7 ℃ | 체 중 40 Kg

SpO2 % | RTS 9 | GCS 15 | E 4 | V 5 | M 6

의식상태 A | 중증도 2 (1, 2, 3, 4, 5, S) | VIP

Allergy

약물 | 질환 | 음식 | 기타

과 거 력

간질환 | 고혈압 | 당뇨 | 심질환

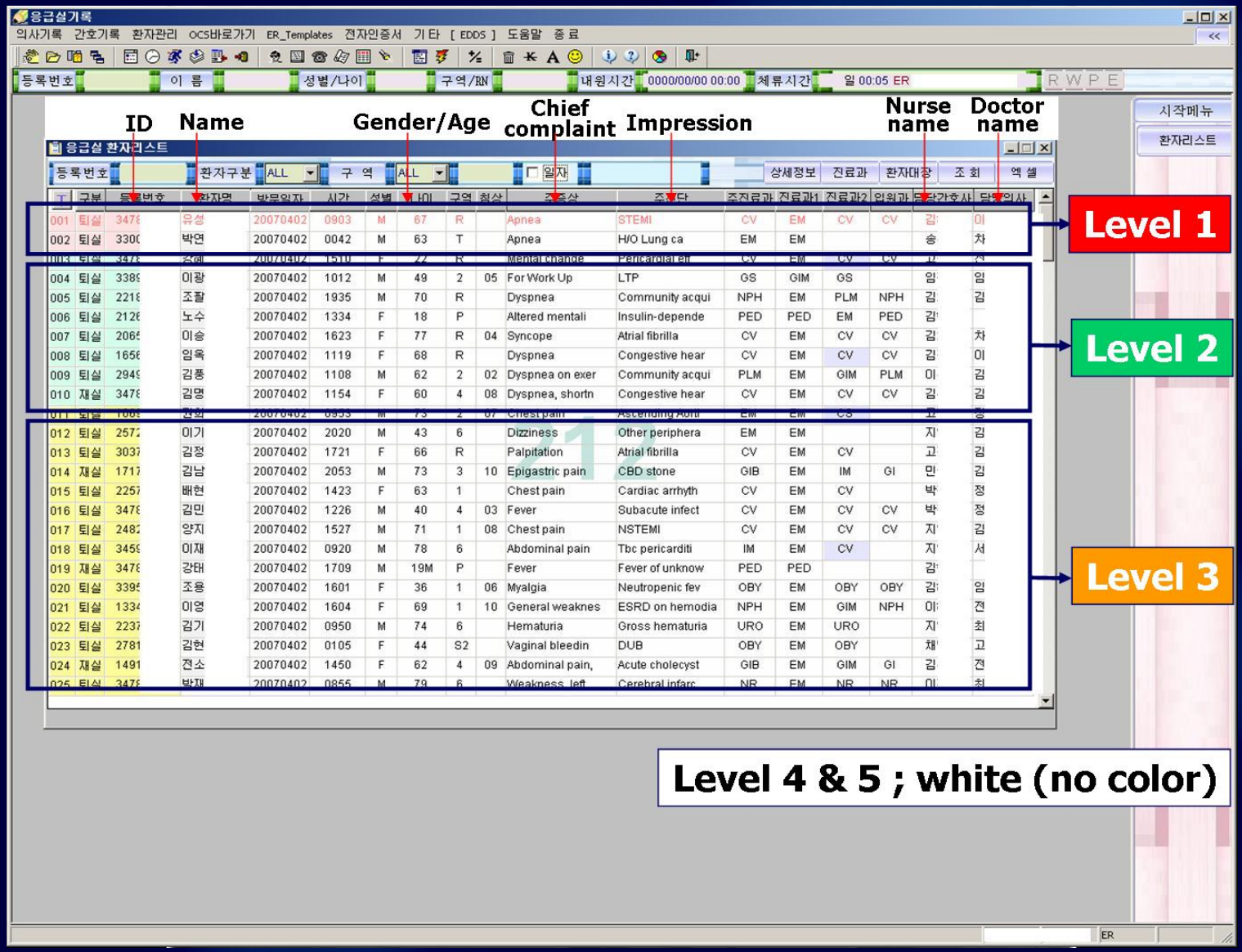
신질환 | 호흡기질환 | 수술력 | 기타

초기화 | 조 회 | 임시저장 | 서 명 | 그림틀

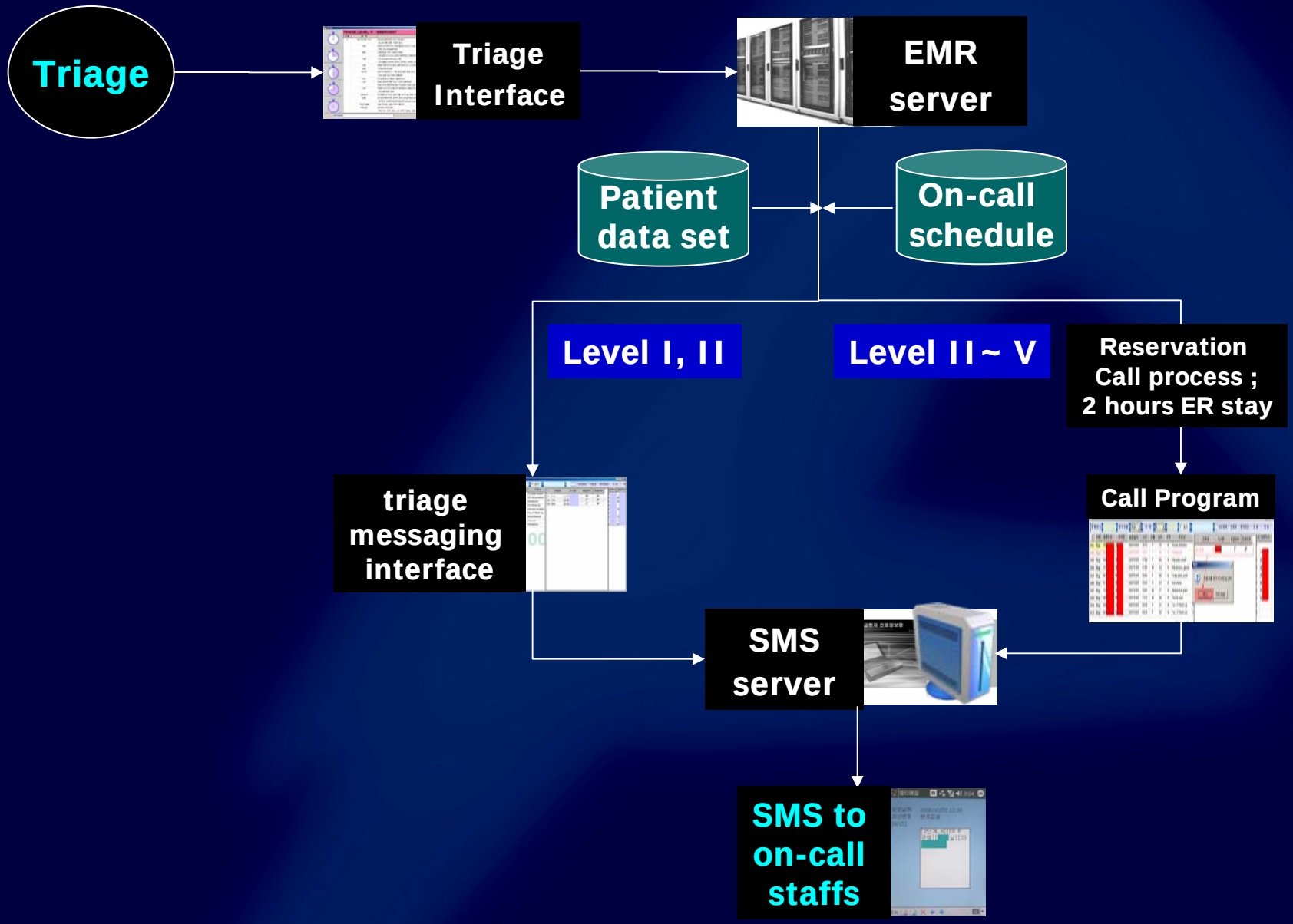
ROS: Anorexia, Nausea, Vomiting, Constipation, Diarrhea, Fever, Chills, Weight loss, Bowel habit change, Hematemesis, Melena, Hematochezia, Flank pain, Hematuria, Urinary frequency, Dysuria, Back pain, Cervical discharge, Dysmenorrhea, Irregular menstruation

AVPU | RTS | GCS | mCTAS

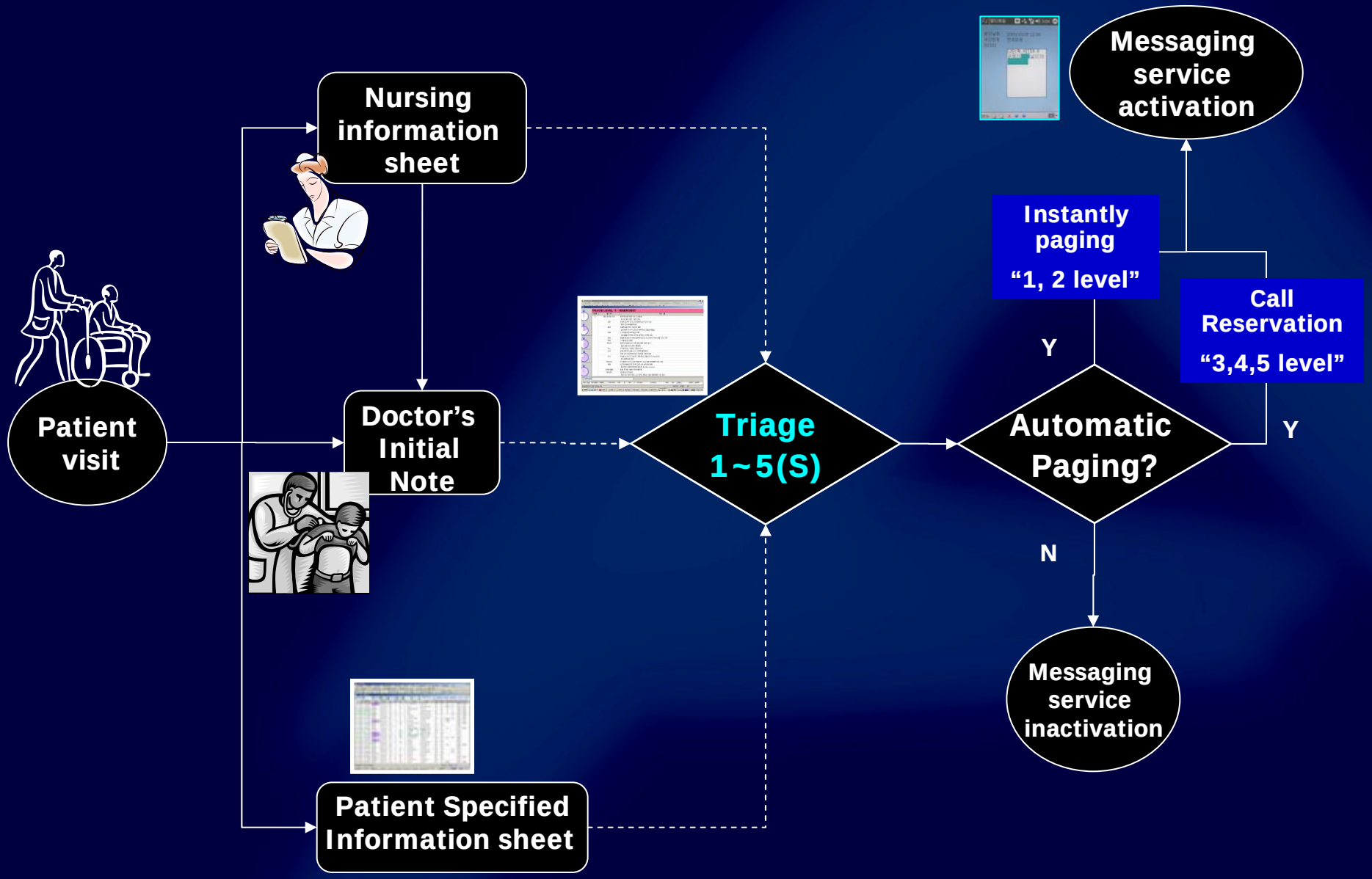
III. Results (1) ; mCTAS EMR_ER



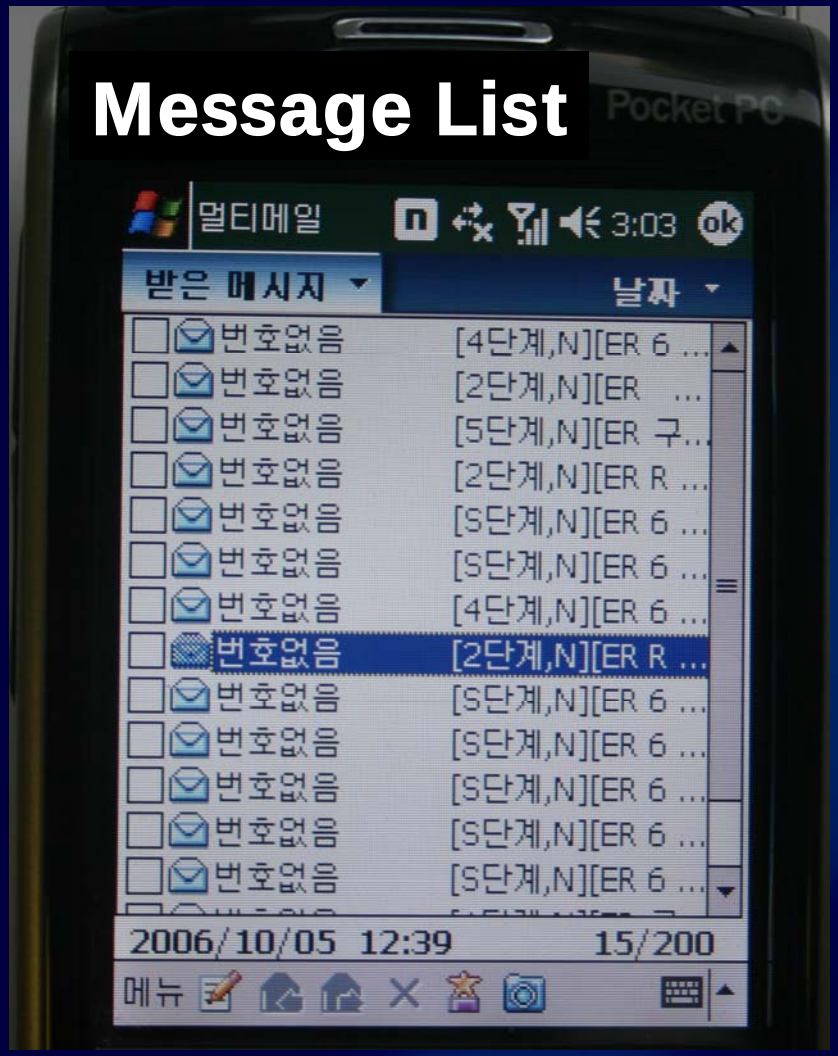
III. Results (2) ; Messaging Architecture

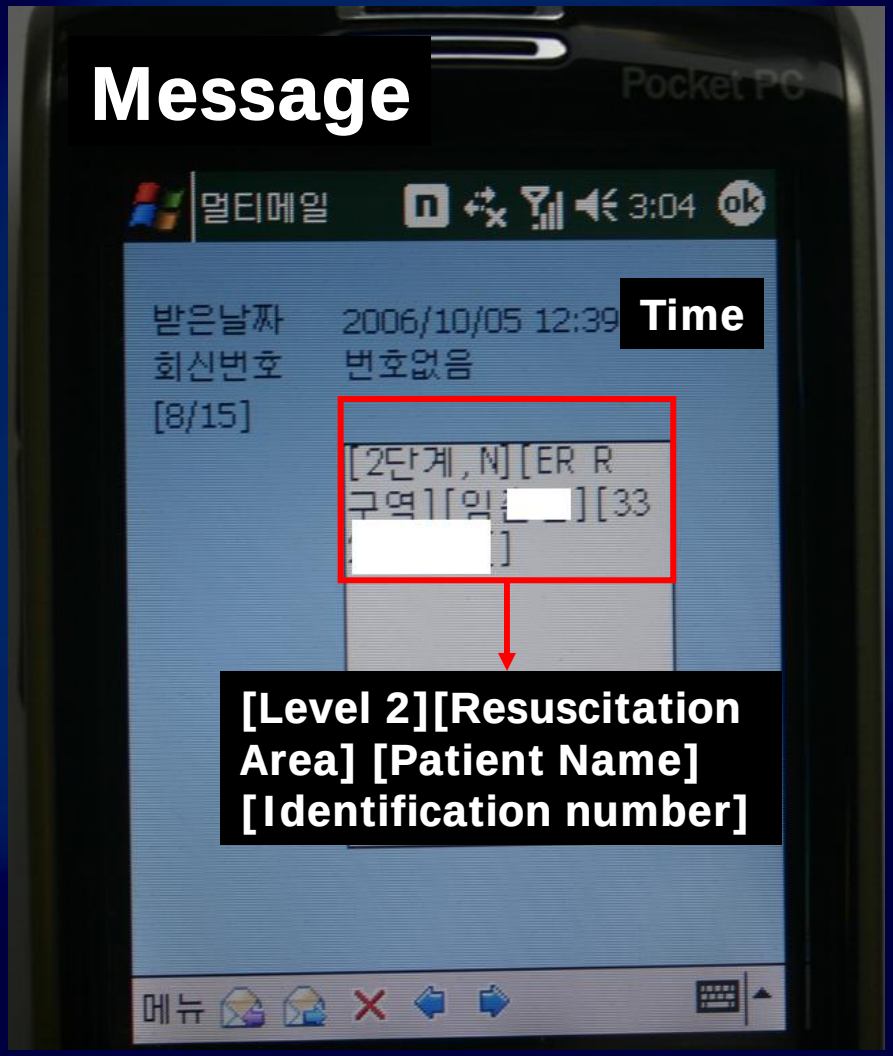


III. Results (2) ; Messaging Flow



III. Results (3) ; Triage SMS





IV. Conclusion

Automatic Triage messaging system

1. Effective & rapid paging system
Level Ⅰ, Ⅱ

2. The large number of messages
; Level Ⅲ~Ⅴ
-> Limitation of messages

3. User's satisfaction, patient outcome

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