

Patient safety & COVID-19 in South Korea

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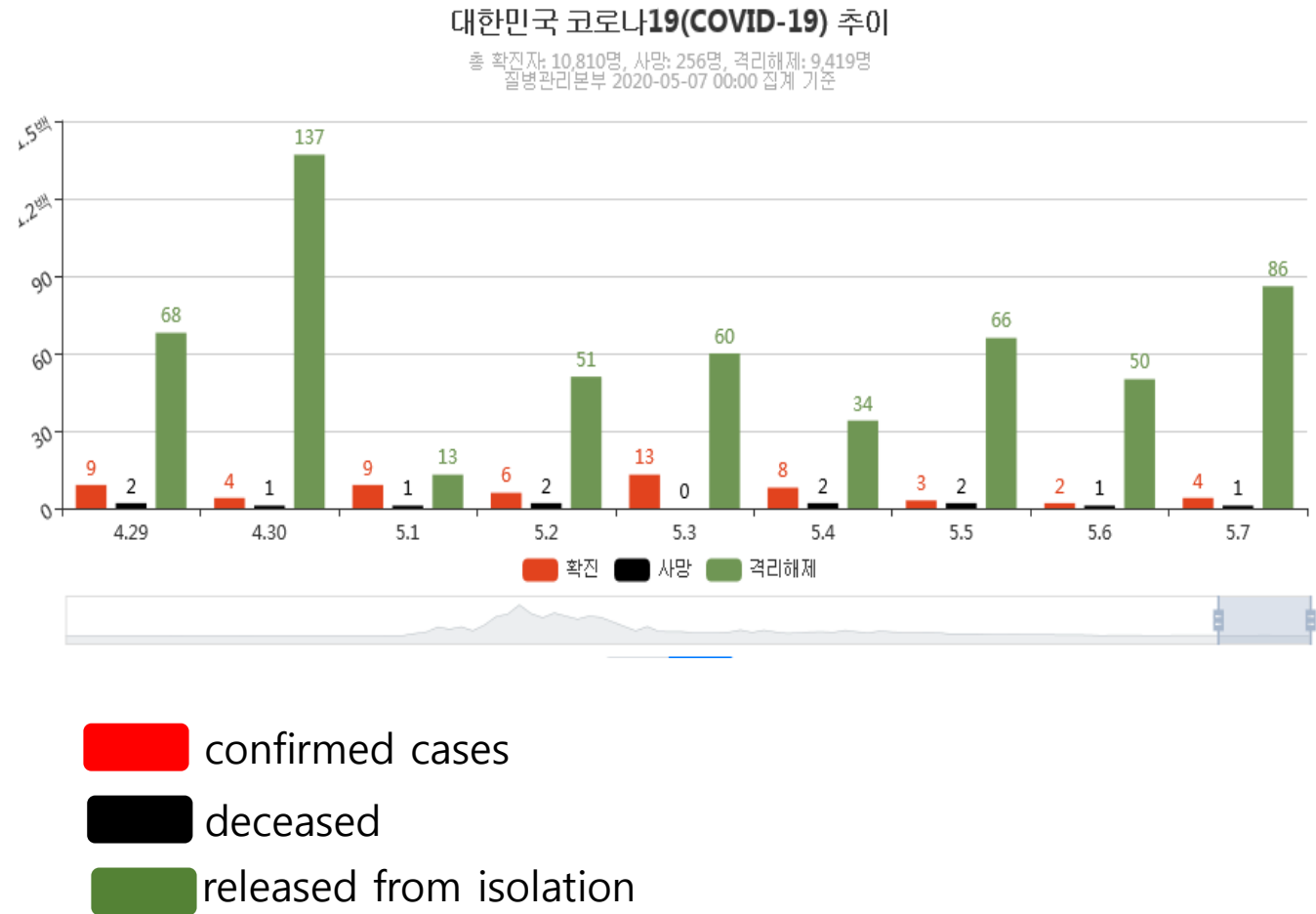
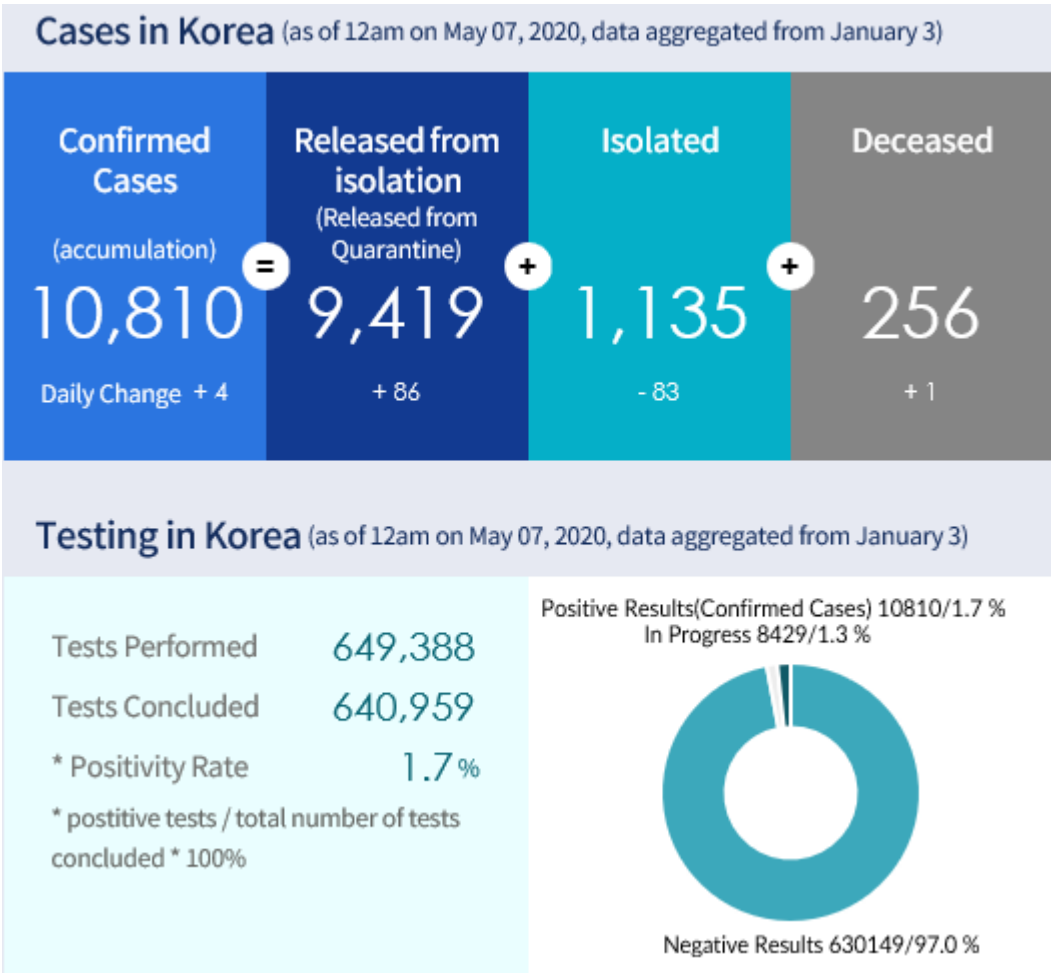


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Current Covid-19 in Korea



Eunpyeong St. Mary's Hospital



Eunpyeong St. Mary's Hospital
- only university hospital in this area
- opened at Apr 1, 2019



Seoul

Capital city of Korea

24 boroughs

Population : 9,736,962

Eunpyeong-Gu

Northwest part of Seoul

Population : 478,019

Eunpyeong St. Mary's Hospital

Organ Transplantation within 100 days after opening



Eunpyeong St. Mary's Hospital

		Types	No. Beds	Remarks
C	Permitted Beds	4 beds in a room	672 beds/168 rooms	
		VIP room	33 beds	
		Isolation room	35 beds	5 negative pressure rooms
		Room for HSCT	2 beds	
		ICU	64 beds	MICU 12, SICU 10 CCU 10, NCU 14 PICU 3, NICU 15 (3 negative pressure rooms)
		Total	778 beds	
		Operation rooms	19 rooms	1 or 2 negative pressure rooms
		Emergency medical center	36 bed	2 negative pressure rooms

Eunpyeong St. Mary's Hospital

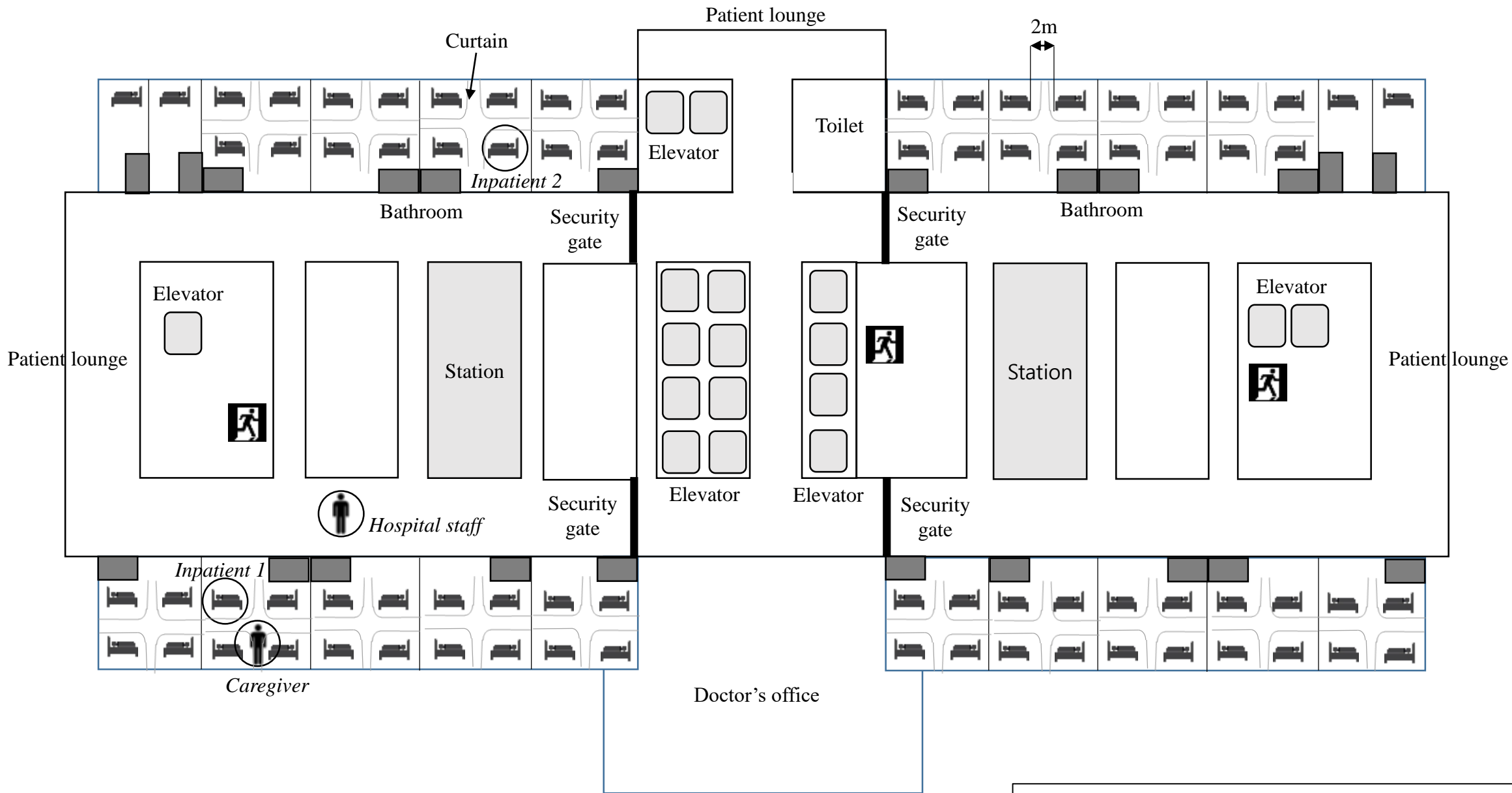


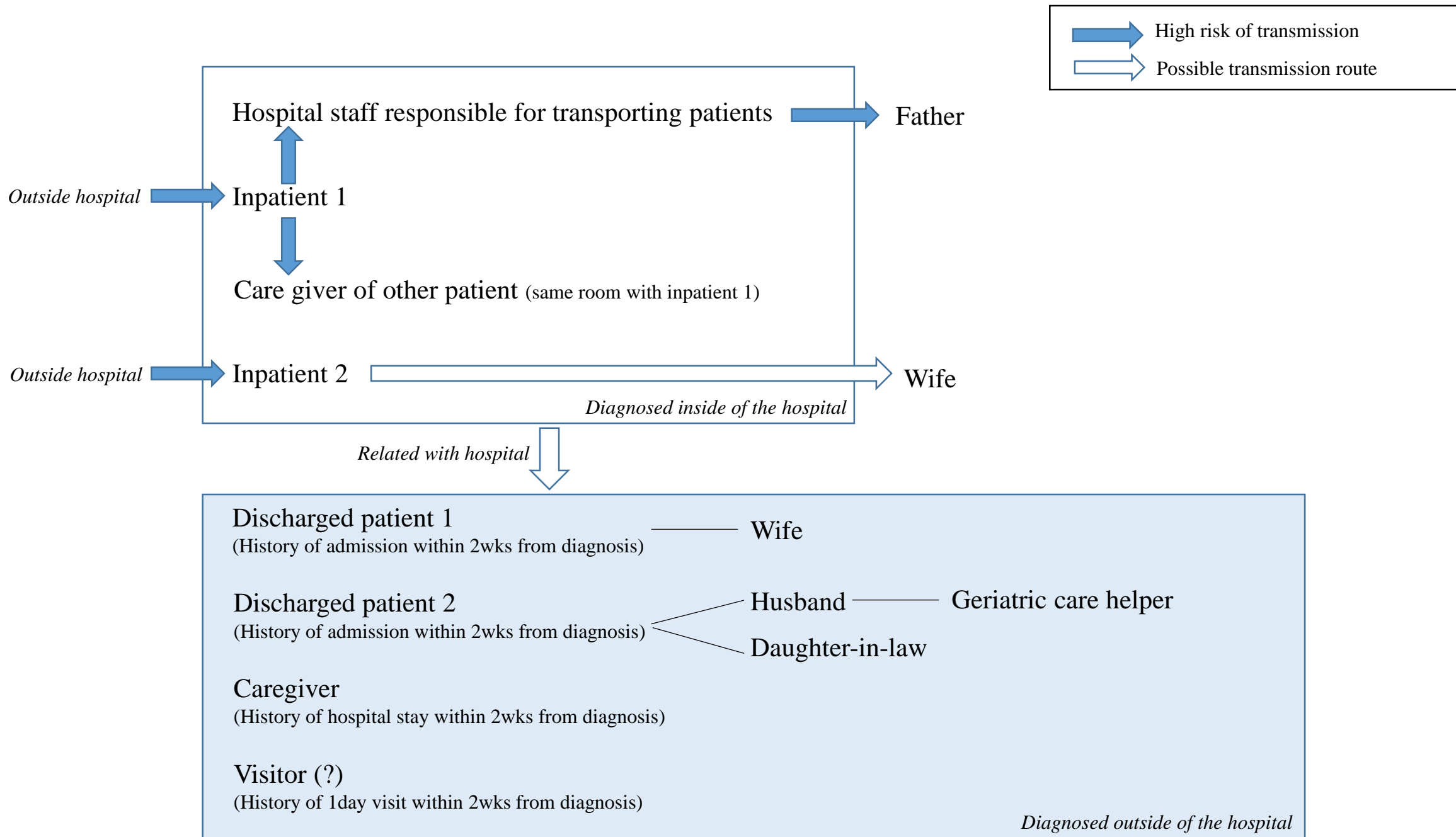
1.5 m between beds

- Most common type of hospital room (4 beds in a room)
- Most patients cared by caregiver by hired by themselves

Total closure of hospital

- Period : Feb 21, 2020 ~ March 8, 2020 (17 days)
- Cause : 4 cases of Covid-19 diagnosed in the respiratory diseases ward
 - 2 community acquired Covid-19 patients (#1, #2) in the respiratory disease ward who admitted in early & mid Feb.
 - 1 hospital staff (transporter of patients)
 - 1 caregiver of other patient in the same room of patient#1

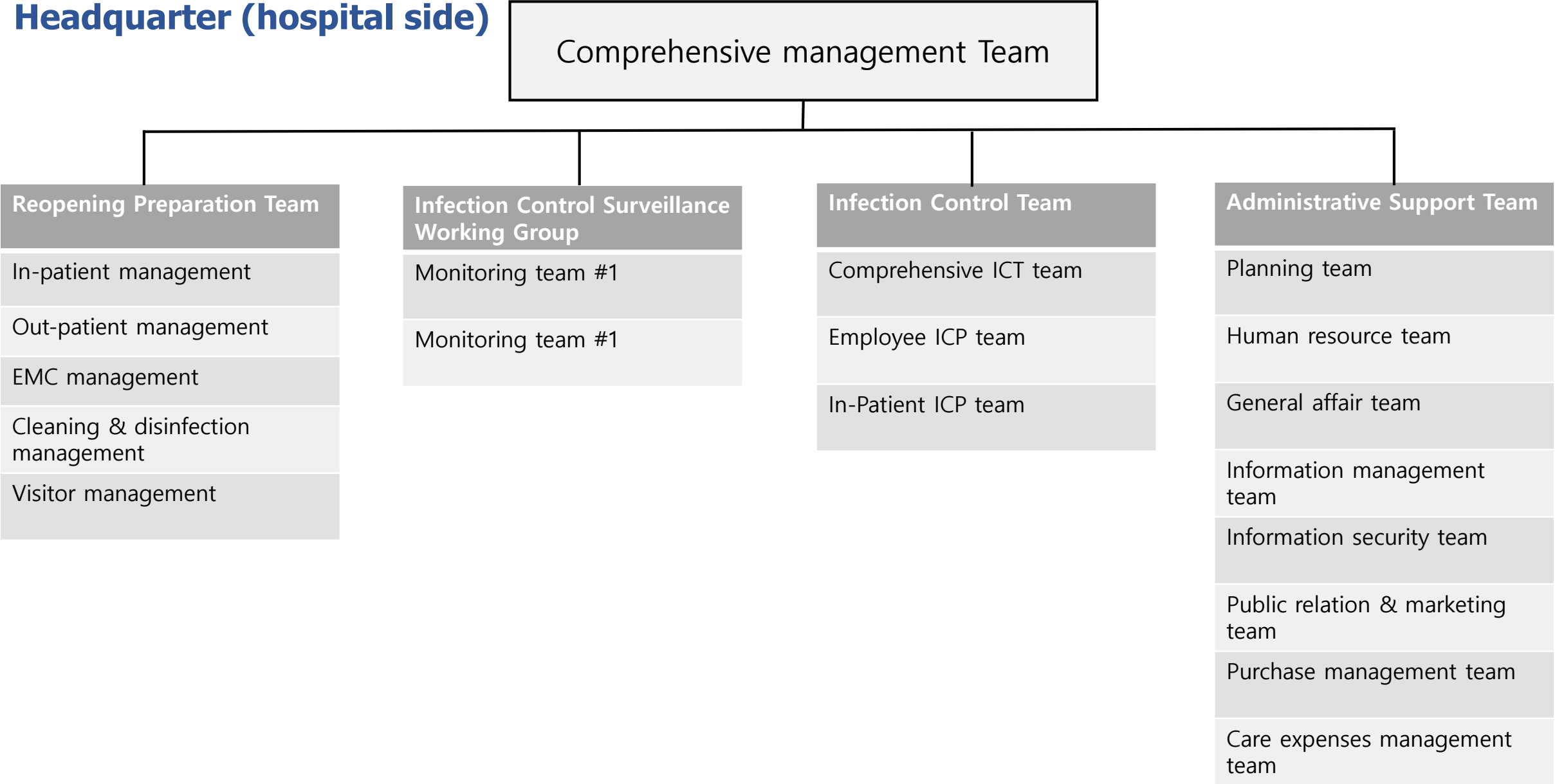




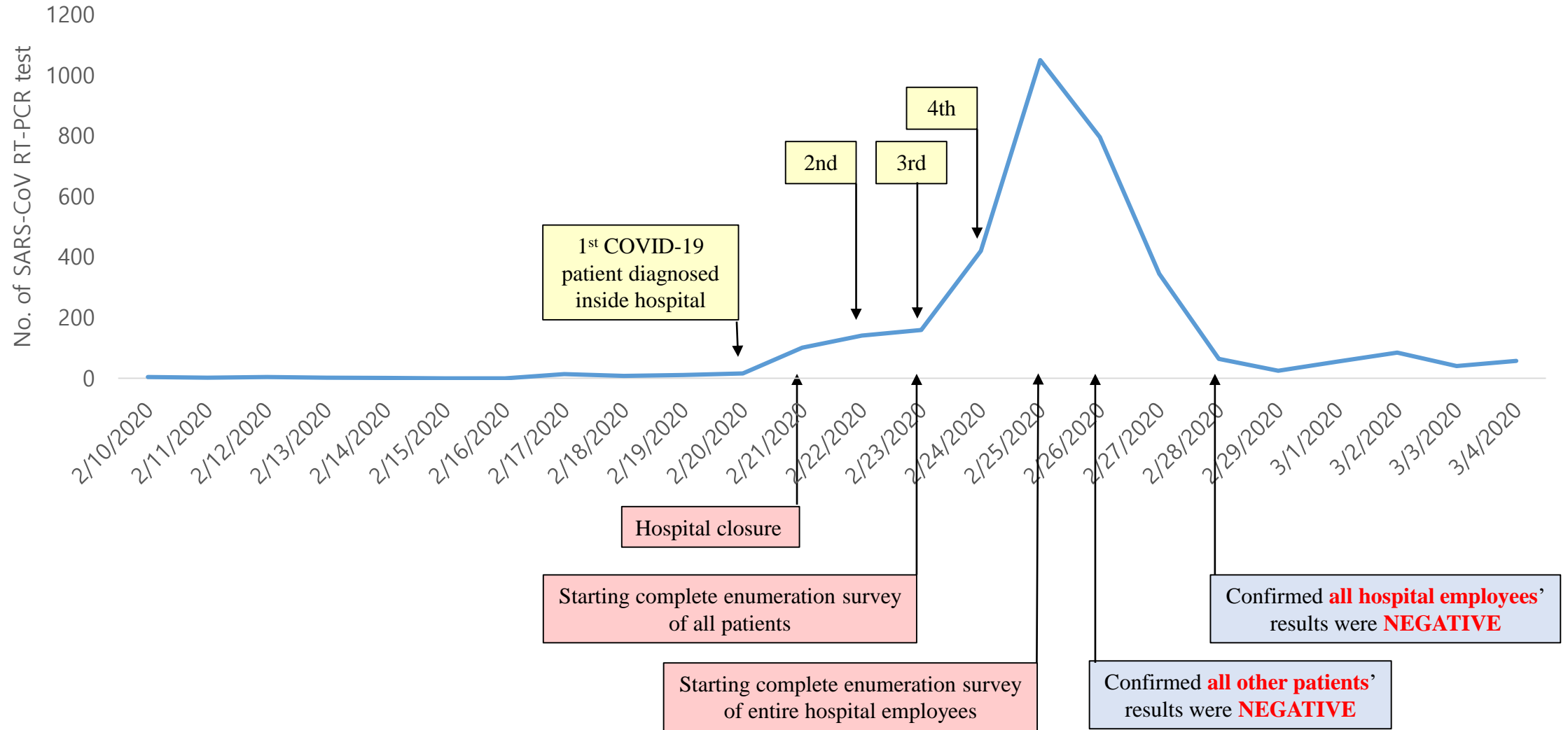
During closure

- Every event was controlled by Covid-19 response headquarter (composed of government and hospital members)
- RT-PCR was done for all in-patients, health-care personnel, other employees, and caregivers of each patient
- Application of enhanced infection control practice by KCDD guidelines
- In-patient management (including caregivers)
- Management of all employees
- Development of treatment protocols for suspected or confirmed cases in various departments
- Prepare the ward for Covid-19 confirmed patients
- Education of hand hygiene, PPE and new guidelines
- Mock training for various situation

**Covid-19 Response
Headquarter (hospital side)**

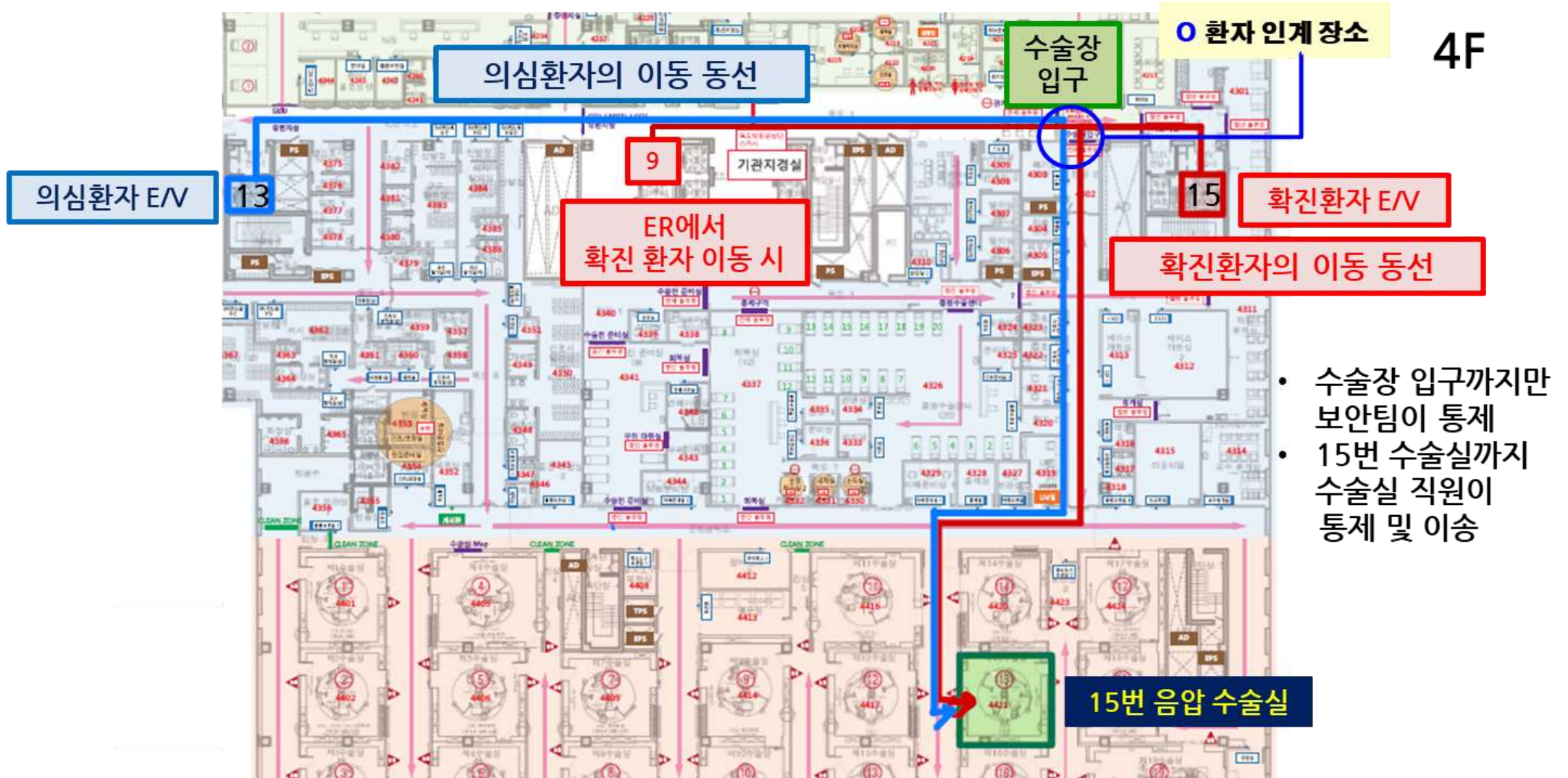


RT-PCR for all in-patients & employees after detection of Covid-19 patients in hospital



New protocols

Ex) Route of suspected (blue) & confirmed (red) cases to operation room



New protocols

Hemodialysis room

코로나바이러스 감염증-19 지침 Ver. 1.

인공신장실 코로나-19 확진환자 프로세스

항목	내용
검사 장소	CRRT: 해당병동(응급의료센터, 83병동) 음압격리실에서 시행 HD: 추후 논의예정 * 확진자 발생 시 83병동에는 투석을 위한 배관시설이 없어 이동용 투석기를 이용한 투석전환은 어려움
개인보호구 착용	의료진: Level D 착/탈의 장소: 음압격리실 전실
기구 및 물품관리	일회용 물품사용으로 사용 후 폐기 투석기: 전실에서 일회용기 표면 차아염소산나트륨(1000ppm)을 적신 타슈로 표면소독
환경관리 의료폐기물 세탁물 관리	응급의료센터, 83병동 자침에 따름

Operation room

코로나바이러스 감염증-19 지침 Ver. 1.

수술실 코로나-19 확진환자 프로세스



* 수술실 입실 후 음압 베드 걸부분을 표면소독하고 복도 대기(수술실 감염 표지판 표적)

항목	내용
개인보호구 착용	수술, 마취 참여인력: Level D + PAPR(2시간 이상 수술) 물품 Support 인력: Surgical mask, 모자
기구 및 물품관리	수술에 필요하지 않은 물품은 이동, 이동 불가시 베널로 덮음 가능한 1회용 기구를 사용하고 재사용 기구는 소독 후 멸균 ① 바이오스팟(1000ppm)을 적신 타슈로 1차 오염 제거 ② 오염기구 전용용기에 담아 중앙공급실로 운반
환경관리	① 차아염소산나트륨(1000ppm)으로 수술실 바닥과 환경 청소 ② 이동 불가한 수술실 물품, 장비는 모두 베널로 포장 ③ 환자 퇴실하고 소독베기 전후 차아염소산나트륨(1000ppm)으로 수술실 바닥과 환경 청소 ④ 필요 시 훈증 소독 의뢰
의료폐기물	격리의료폐기물로 처리 폐기를 투입 전과 후, 전용용기 겹면 총 3번 소독처리 후 '코로나' 표기하여 폐기를 보관실로 이동
세탁물 관리	일회용 시트 사용 등 세척물 발생을 최소화 불가피하게 발생할 경우 격리의료폐기물로 폐기
감제 관리	3중 모강 및 겹면 소독 후 '코로나-19' 표기

Angiography room

코로나바이러스 감염증-19 지침 Ver. 1.

혈관조영실 코로나-19 확진환자 프로세스



- 전실: 보호구 착용의 미사용 시술실 이용
- E/V: 9호기 또는 15호기
- 시술실 안에서 이동 연계 음압베드 걸 표면소독 후 대기실에 비치
- 시술실 DCU off해서 음압, 복도 및 조정실 양압 유지
- 시술 후에는 전제 DCU off
- 시술 시작 ~ 소독 완료 시까지 출입통제 부착

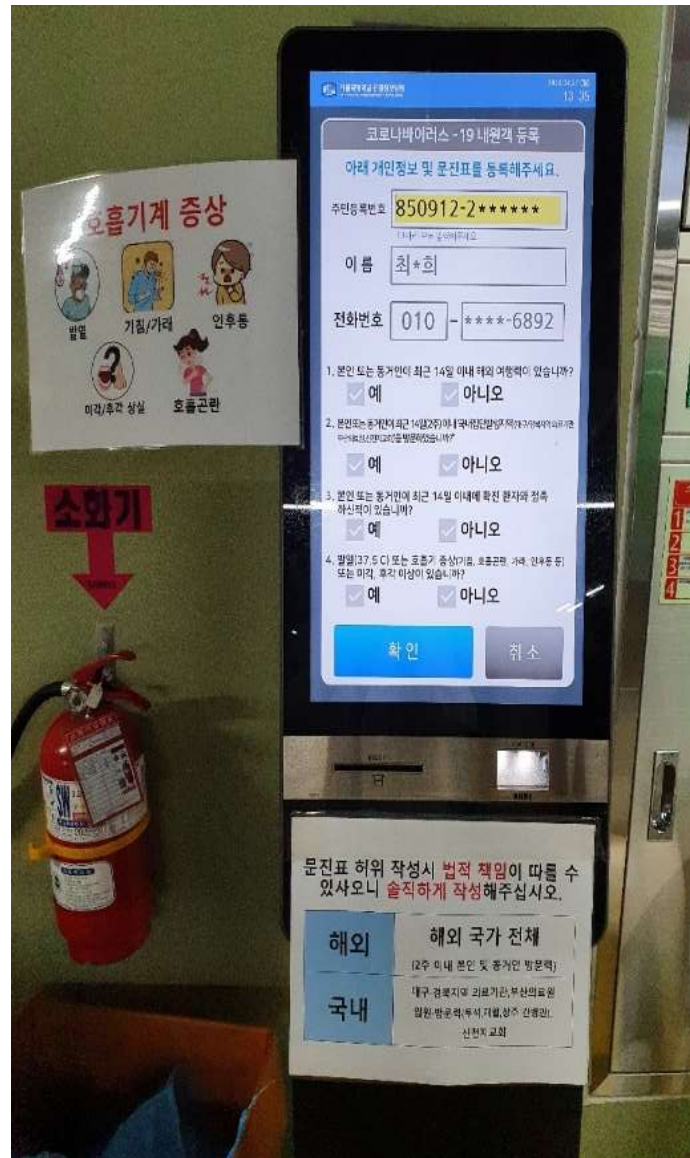
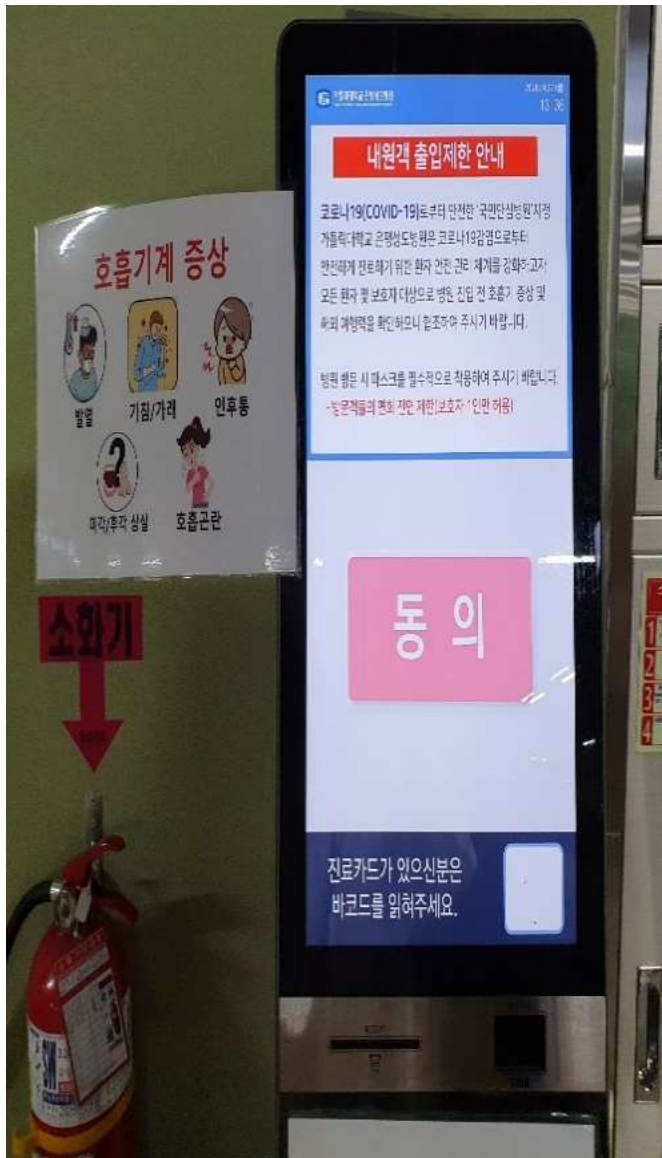
* 환자 시술 후 이동전 연계 전 음압베드 걸부분을 표면소독하고 연계(이동 시 주변오염방지)

항목	내용
개인보호구 착용	시술참여 의료진: Level D, 납고글 또는 face shield, (소요시간 2시간 이상일 경우 PAPR) 조정실: Dental mask, 모자 환자: 이동 시 음압베드 아송작원: Level D 보안직원: N95마스크, AP가운, 장갑
기구 및 물품관리	1) 가능한 한 일회용 기구를 사용하고 폐기 2) 시술실 내에는 필요한 의료기구 및 물품만 최소화해 비치 3) 멸균의뢰 의료기구 ① 바이오스팟(1000ppm)을 적신 타슈로 1차 오염 제거 ② 오염기구 전용용기에 담아 중앙공급실로 운반
환경관리	차아염소산나트륨(1000ppm)으로 표면소독 필요 시 훈증 소독 의뢰
의료폐기물	격리의료폐기물로 처리 폐기를 투입 전과 후, 전용용기 겹면 총 3번 소독처리 후 '코로나' 표기하여 폐기를 보관실로 이동
세탁물 관리	일회용 시트 사용 등 세척물 발생을 최소화 불가피하게 발생할 경우 격리의료폐기물로 폐기

After reopening – at OPD

- Questionnaire before enter the hospital by KIOSK or written form
- Check body temp. before enter
- Screening clinic (triage) for Covid-19 (neg. pressure facility)
- Respiratory disease clinic for patient who has not infected or not suspicious of Covid-19 (neg. pressure facility)
- Usual care who has no epidemiological relevance and no Covid-19 associated symptoms
- Code APPLE for alert and prompt response at OPD who has fever or respiratory symptoms found at out-patient zone or laboratory area

KIOSK



Questionnaire for foreigners

For COVID-19 Visitor Questionnaire Updated as of April 23, 2020

The safety of our patients, our employees and visitors remain Eunpyeong St. Mary's Hospital's overriding priority. As the coronavirus disease 2019 (COVID-19) outbreak continues to evolve and spreads globally, Our hospital is monitoring the situation closely and will periodically update hospital guidance based on current recommendations from the Korean Centers for Disease Control and Prevention.

Pursuant to Article 11 and Article 76-2 of the Act on the Prevention and Management of Infectious Diseases (information request, etc.), personal information of patients and their guardians is as follows for prevention of new coronavirus infection, prevention of infection transmission, epidemiological investigation, etc. We want to collect, use and provide it to third parties.

Name:	<input type="checkbox"/> Foreigner registration number or <input type="checkbox"/> Passport number
Address in Korea	Personal phone number
Self-Declaration by Visitor	
1. Have you experienced and cold or flu-like symptoms?	
A. Fever (37.5°C higher) <input type="checkbox"/> Yes (body temperature: °C), <input type="checkbox"/> No Did you take any fever reducer? <input type="checkbox"/> Yes <input type="checkbox"/> No	
B. Do you have respiratory symptoms? <input type="checkbox"/> Yes [<input type="checkbox"/> cough, <input type="checkbox"/> difficulty breathing, <input type="checkbox"/> phlegm, <input type="checkbox"/> sore throat] <input type="checkbox"/> No	
C. Do you have symptoms of taste or smell disorders? <input type="checkbox"/> Yes <input type="checkbox"/> No	
2. Have you and your cohabitants returned from any of the countries, or were hospitalized at a hospital of domestic collective outbreak areas(Daegu, Gyeongbuk) or Busan Medical Center within the last 14 days? <input type="checkbox"/> Owner <input type="checkbox"/> Cohabitant <input type="checkbox"/> Yes <input type="checkbox"/> No	
3. Are you or your cohabitant a Shincheonji churchman? <input type="checkbox"/> Owner <input type="checkbox"/> Cohabitant <input type="checkbox"/> Yes <input type="checkbox"/> No	
4. Have you and your cohabitants had close contact with or cared for someone diagnosed with COVID-19 within the last 14 days? <input type="checkbox"/> Owner <input type="checkbox"/> Cohabitant <input type="checkbox"/> Yes <input type="checkbox"/> No	

Personal information shall be collected and used without the consent of the information subject pursuant to Article 15 (1) 2 of the Personal Information Protection Act.

The above information was written by you as true, and you can take legal responsibility for the false facts, and we will discard it after achieving the purpose of use.

Date:

Signature:

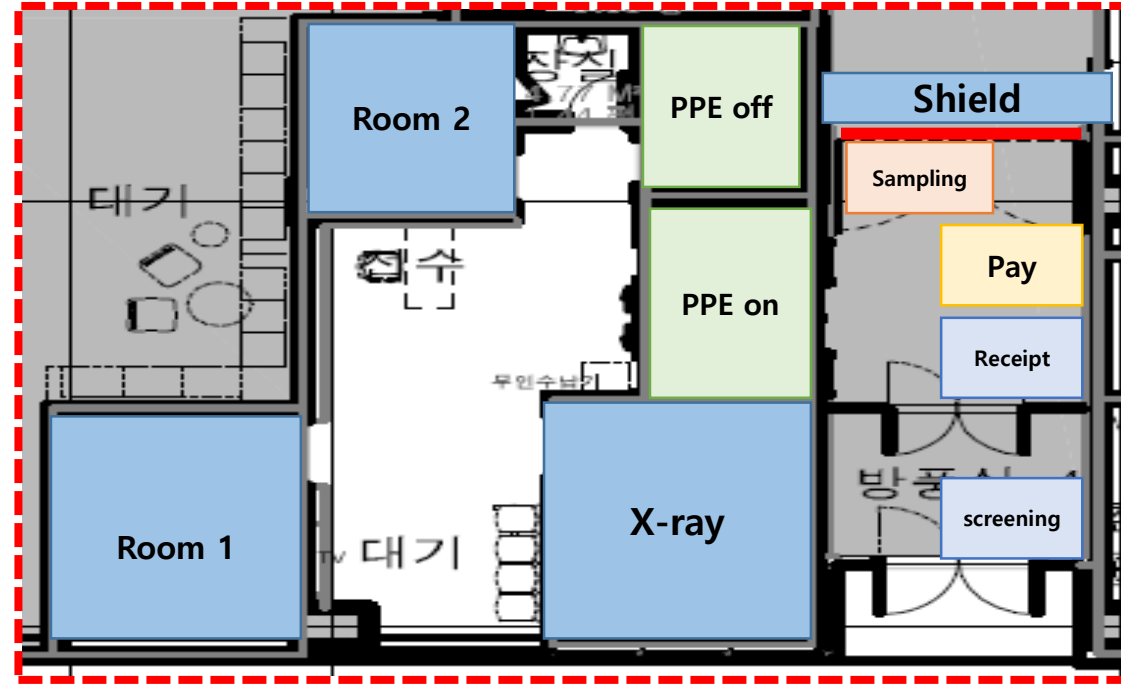
Checking body temp.



Triage for COVID-19



Respiratory disease clinic (temporary)



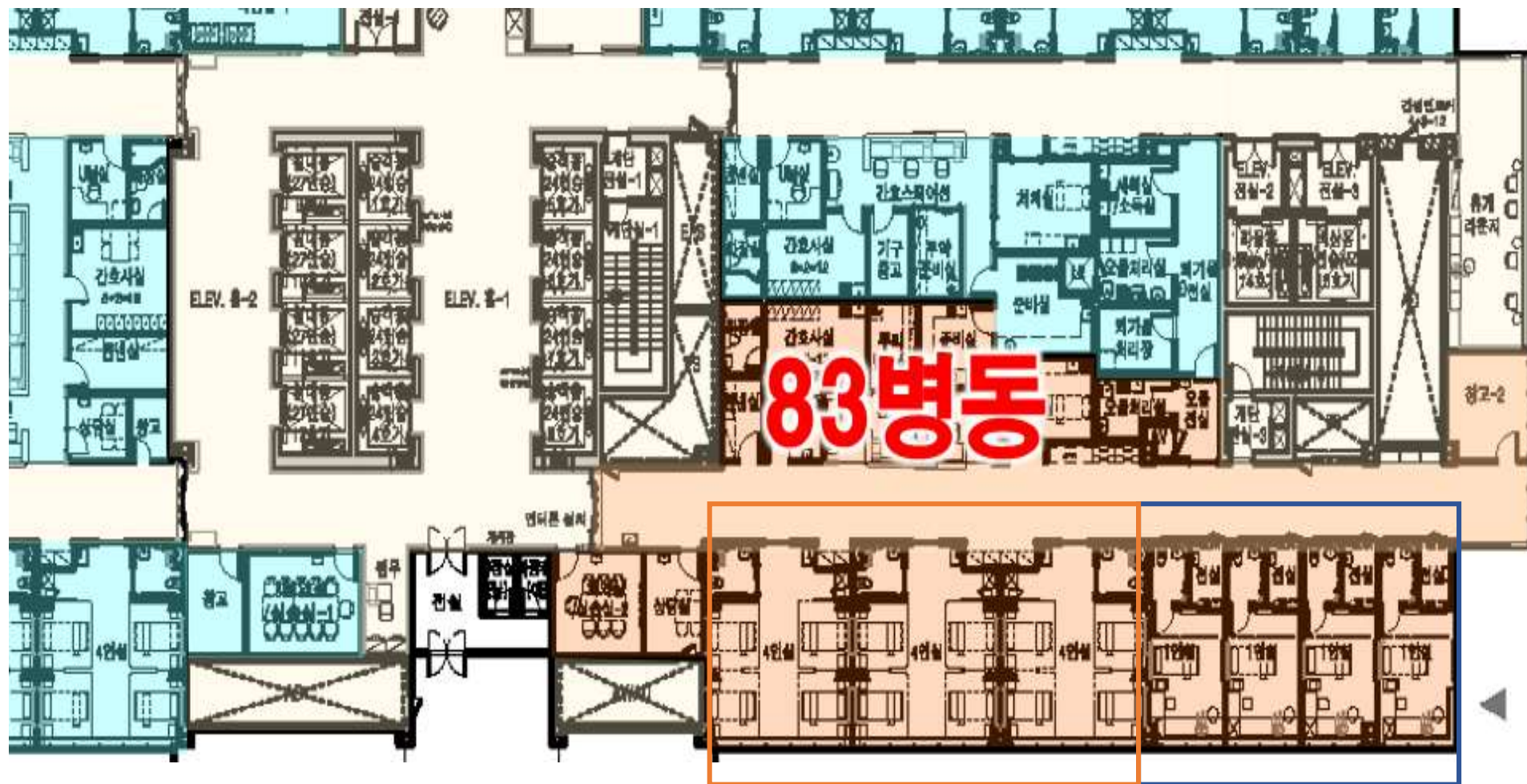
- Inside the hospital building
- Negative pressured facility of whole area
- Prepared for infectious diseases patients from the design stage

After reopening – at wards

- Pre-admission RT-PCR & chest PA within 72 hr before admission
- Ward for patients who has respiratory diseases with negative Covid-19 RT-PCR
- Permitted only 1 caregiver who tested RT-PCR
- No in-patient visits
- In-patient management (including caregivers) who has new fever or respiratory symptoms or pneumonia
 - immediately isolate and RT-PCR and chest X-ray again

Ward for Covid-19 confirmed patients

- 4 negative-pressure single rooms (with anteroom) in restricted ward
- Educated and dedicated medical staff
- 5 patients (4 discharged, 1 in hospital) treated
- Educate and monitoring donning & doffing of PPE
- Enforced management of environment
- Periodic RT-PCR and antibody test for health-care personnel



After reopening – employees

- Wear mask properly! Always!
- Wash hands as frequently as you can!
- Immediate report if fever or respiratory symptom
 - exclude from work and test (RT-PCR & chest PA) at triage clinic promptly
- Repeat educate and training
- Postpone or stop all conferences in the hospital
- Keep social distancing out side the hospital

PPE education & mock training



03.04 83병동



02.25 미화협력업체



보안요원

E/V 15 호기 통제



미화

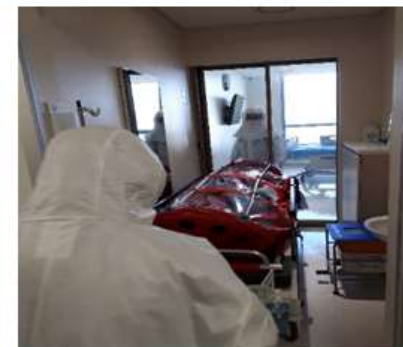
환자 동선 및 E/V 소독, 환기



03.09 교원 및 교직원



03.05 수술 & 마취간호

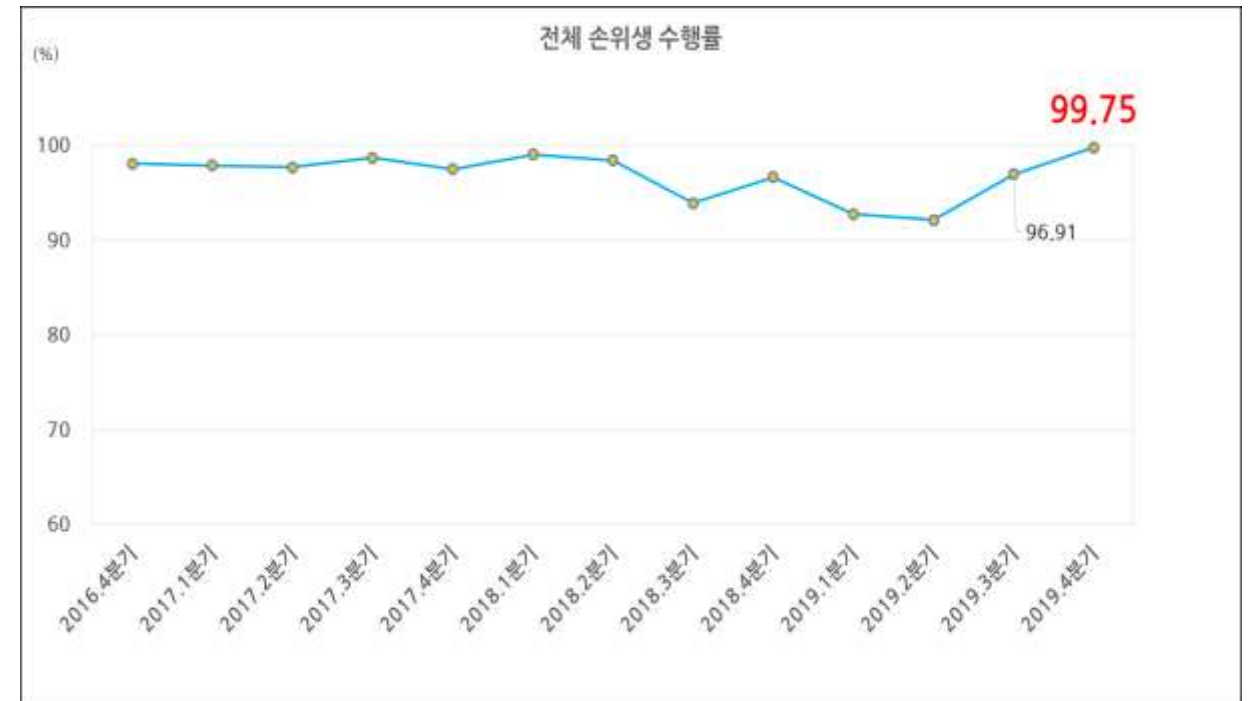


83병동

E/V 15호기 → 83병동 음압격리실로 입실

After reopening - monitoring

- ICC (Infection control coordinator) working group
 - hospital rounding 2 times per week
 - monitoring performance of new protocols, enforced infection control practice etc.
 - feed back to each dept. and monitoring improvement



After reopening – environment manage

- Cleaning and disinfection by KCDC guideline



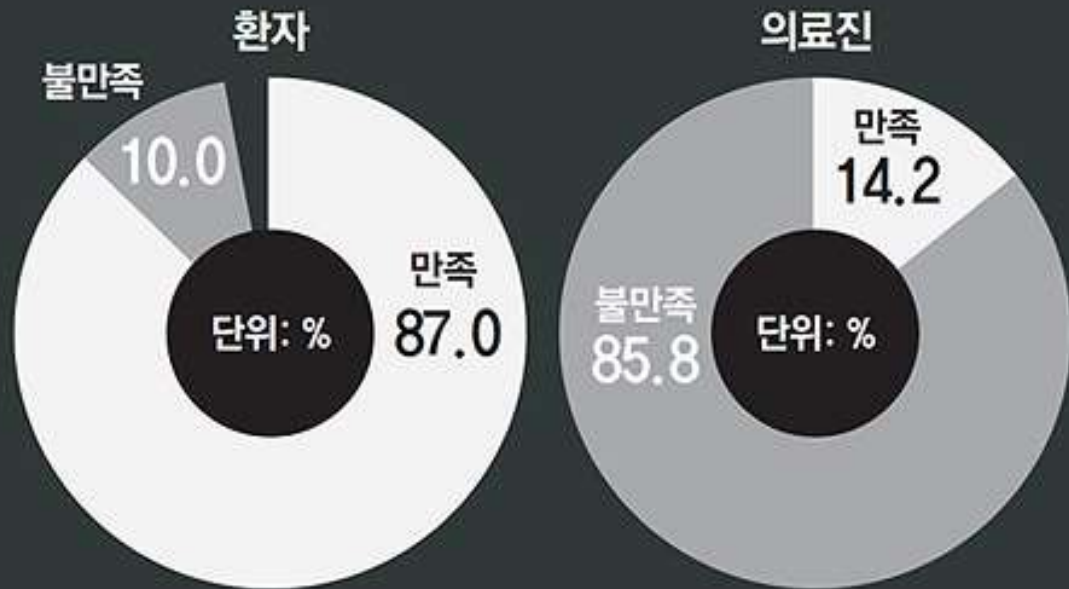
Dilemma - patients

- Reluctant to visit the hospital due to excessive concern about the risk of Covid-19
 - Treatment of severe, urgent illness maybe delayed
- Resistance or complaints about the RT-PCR test for hospital use
- Not permitted caregiver
 - As in Korea, the likelihood of accidents in hospitals increases in hospitals that require caregiving by guardians.
- Telemedicine
 - Certain parts are helpful for patient care and patients are satisfied, but safety needs to be systematically supplemented.

Telemedicine

은평성모병원 전화 진료 만족도 조사 결과

2월 21일~3월 9일 환자 906명, 의료진 155명 조사(일부 무응답).



자료: 은평성모병원

지난달 서울 종로구 서울대병원에서 간호사가 경북 문경시 생활치료센터에 입소한 ▶
코로나19 환자와 원격 상담을 하고 있다. 서울대병원 제공

Duration : 21. Feb ~ 9. Mar

Survey target : telemedicine serviced
during total closure

Patients (n=906) : 87% satisfied

Doctors (n=155) : 14% satisfied

<http://www.donga.com/news/article/all/20200502/100883349/1>

Dilemma – hospital workers

- Increased fatigue
 - Combine their professional work with circular work (eq. triage clinic)
 - Heavier education schedule about new protocols & guidelines
 - Not permitted academic meetings
- Anxiety about being infected during work in hospital
- Worry about their family members esp. who works in the Covid-19 ward
- More strongly recommended social rules than general population
- Not enough support for their mental, financial and physical support

Dilemma – hospital executives

- How to supply the necessary medical equipment without shortage
 - some PPEs are breathtaking esp. N95 mask, long-sleeve gown
- How to overcome financial difficulties in hospital management, in particular, temporarily closed hospital
- How to boost employee morale in a stagnant atmosphere
- How to keep and promote hospital's safety
- How to prepare the coming 2nd wave
 - making and managing more safe zone in the hospital &
 - hire and train more specialized staff for emerging infectious diseases

