모바일 자가격리 관리 표준화 현황

김용운
2021-11-11
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배경 (1/13)

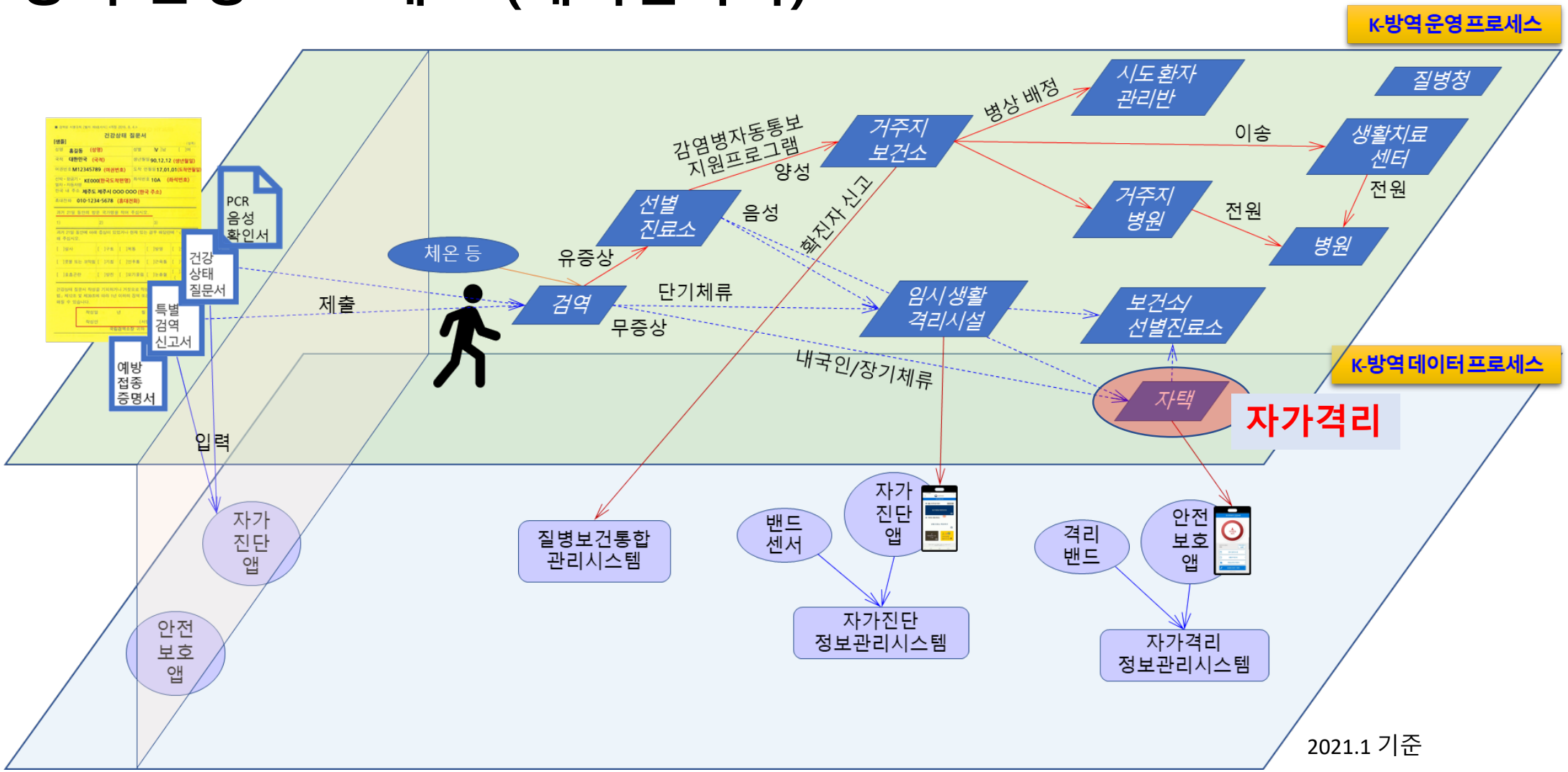
- **K-방역 운영 프로세스**

Disclaimer

- 이 자료는 공개된 문서 및 웹 상의 설명 자료를 바탕으로 논리 관계의 해석에 따라 작성된 것이기 때문에 실제 현장 상황과 맞지 않는 것이 있을 수 있습니다.
- 따라서, 전체적인 과정에 대한 대략적 파악의 용도로만 쓸 수 있으며, 정확성을 담보하는 근거 출처로서는 사용할 수 없습니다.

배경 (2/13)

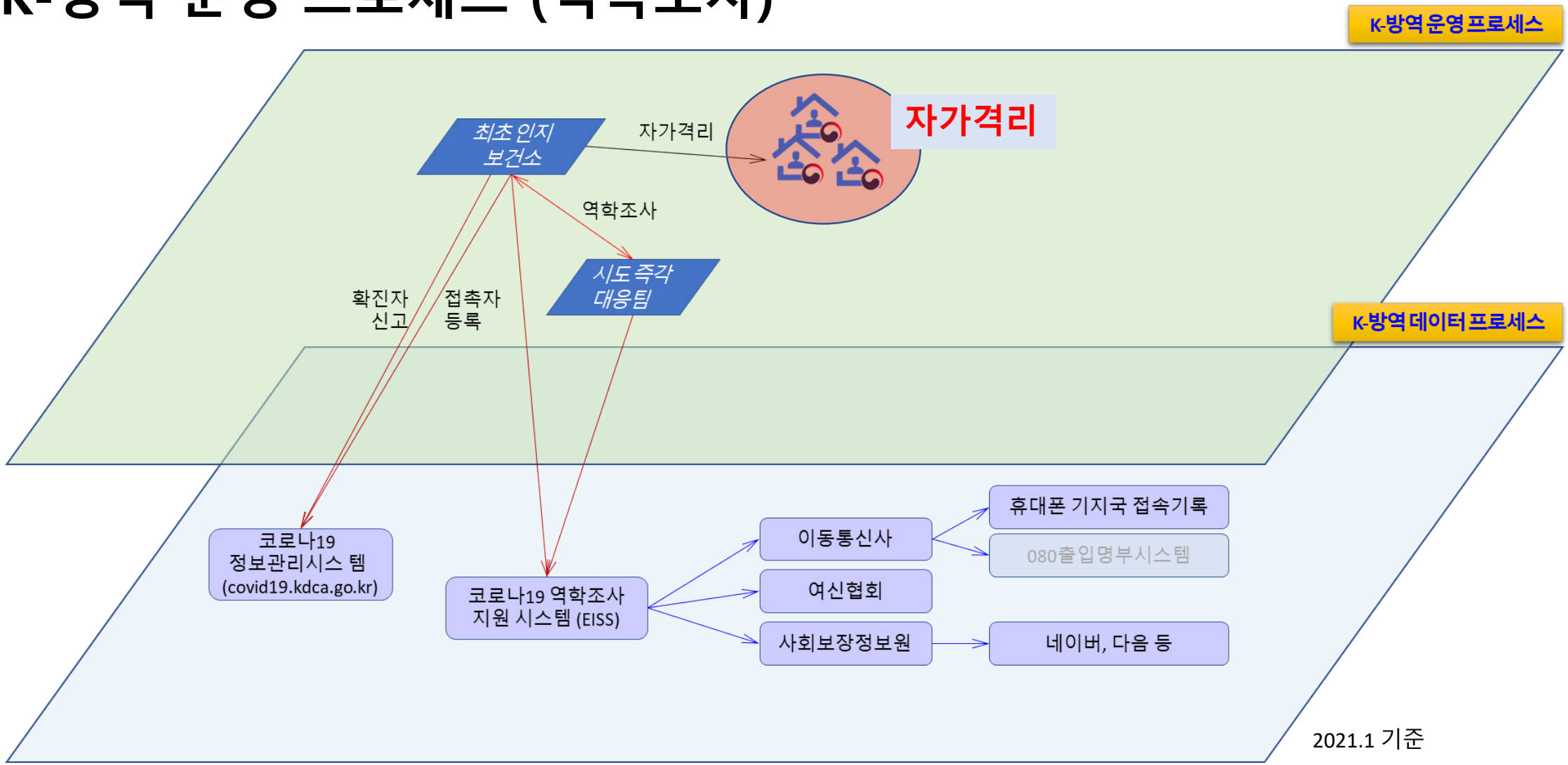
- K-방역 운영 프로세스 (해외입국자)



2021.1 기준

배경 (3/13)

- K-방역 운영 프로세스 (역학조사)



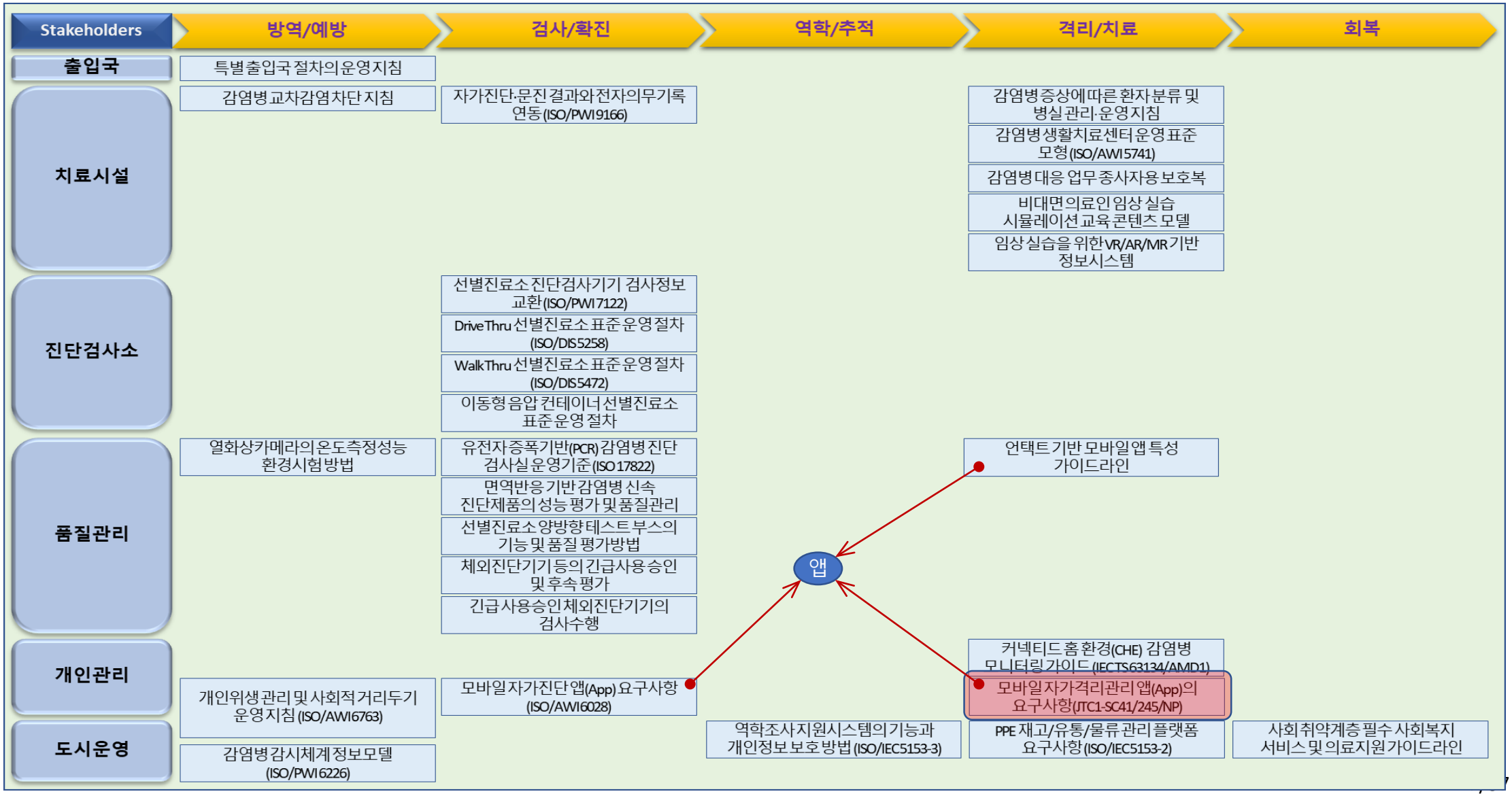
2021.1 기준

배경 (4/13)

- **K-방역 표준 맵**
  - 표준 맵 목적
    - 어떤 복잡계를 어떤 틀, 관점, 기준으로 해석할 것인가, 또는 어떤 틀, 관점, 기준으로 설명할 것인가의 문제를 풀어내어 도식화 (How to analyze a complex system for ourselves from what frame, perspective or criteria; or How to interpret a complex system to others from what frame, perspective or criteria)
  - 설계 방식
    - 맵 사용자를 설정하고,
    - 맵 사용자가 자신의 문제 도메인을 어떻게 인식하고 풀어가는지 도메인 이해당사자들의 의사소통 특성을 이해하고,
    - 맵 사용자에게 의사소통 특성에 맞게 어떤 틀, 관점, 기준으로 설명하는 것이 대상 복잡계를 효과적으로 이해시킬지 설계하여,
    - 대상 복잡계에 대한 해석 및 설명의 틀, 관점, 기준을 맵 형식으로 도식화

배경 (5/13)

- K-방역 표준맵



배경 (6/13)

- 용어 정의: quarantine vs. isolation

QUARANTINE keeps someone who was in close contact with someone who has COVID-19 away from others.

Source:
https://www.cdc.gov/coronavirus/2019-ncov/downloads/COVID-19-Quarantine-vs-Isolation.pdf

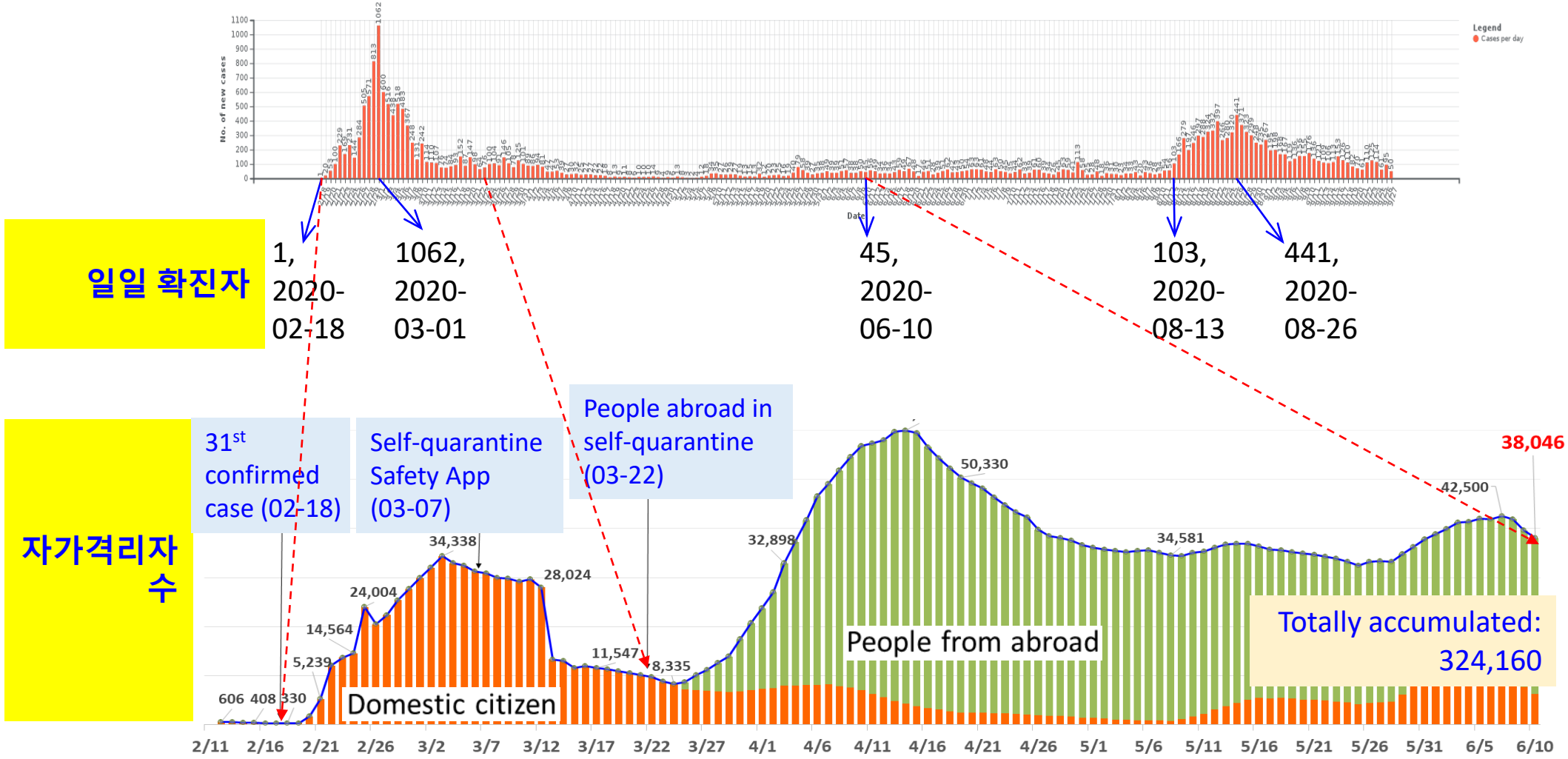
If you had close contact with a person who has COVID-19

ISOLATION keeps someone who is sick or tested positive for COVID-19 without symptoms away from others, even in their own home.

If you are sick and think or know you have COVID-19

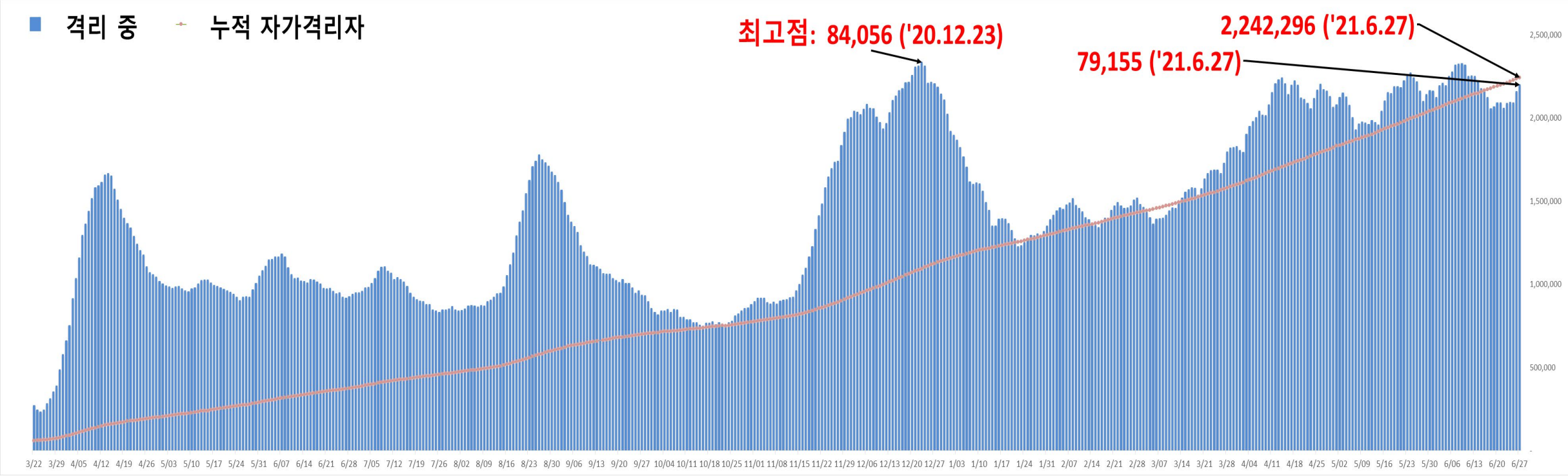
배경 (7/13)

- 자가격리자 현황('20.6.10 기준)



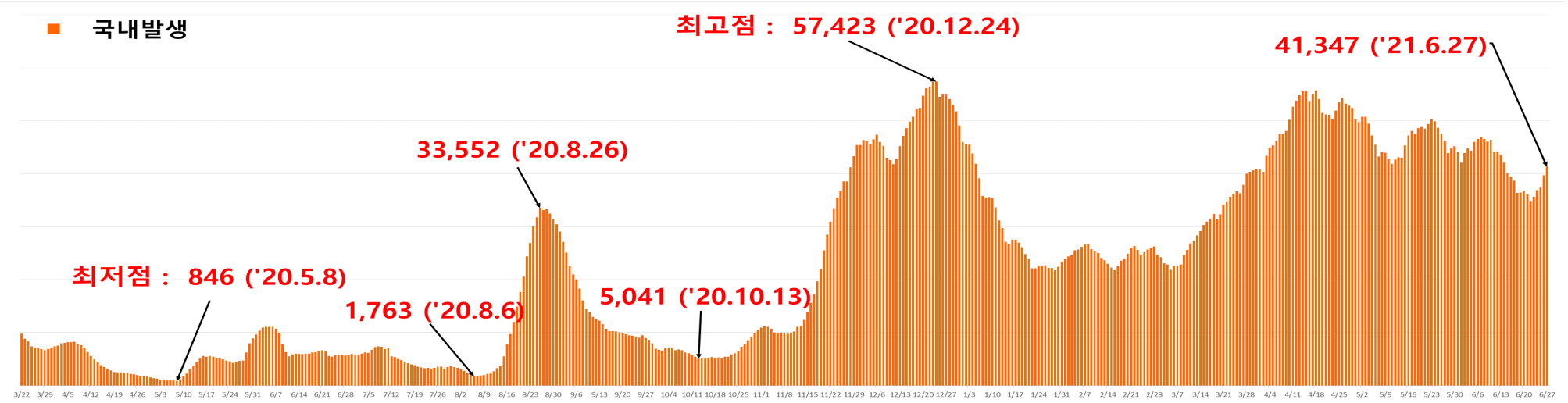
배경 (8/13)

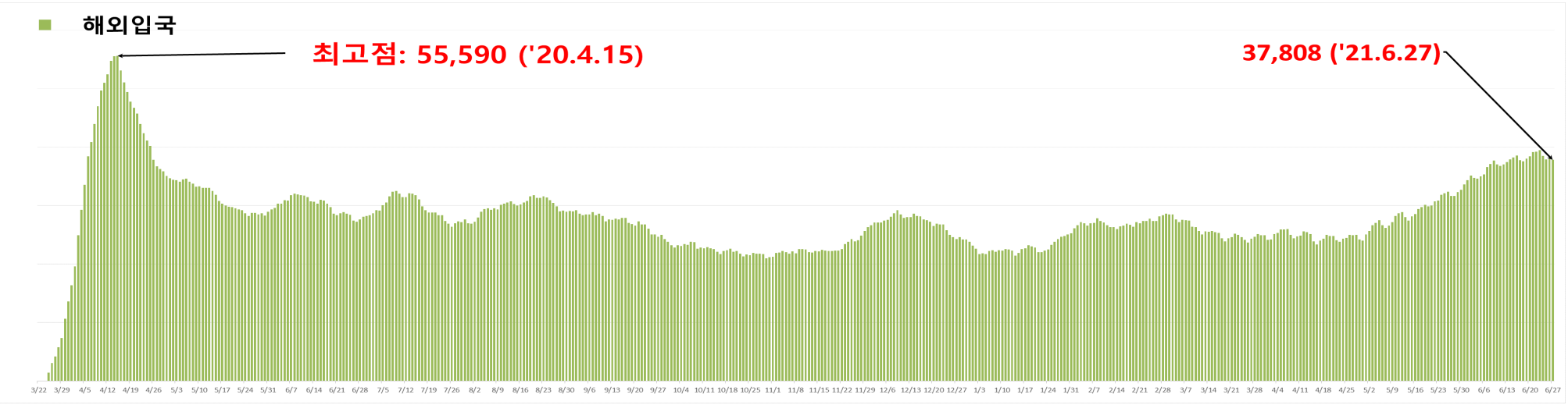
- 자가격리자 현황(‘21.6.27 18:00 기준)



배경 (9/13)

- 자가격리자 현황('21.6.27 18:00 기준, 79,155명(국내 41,347명, 해외37,808명)





배경 (10/13)

- **자가격리 위반 현황('21.6.27 18:00 기준)**

현황		2020-06-10	2021-06-27
누적 자가격리자		324,160	2,242,296
앱 설치율		93.8% (국내: 87.7%, 해외입국: 95.0%)	94.2% (국내: 92.9%, 해외입국: 95.5%)
무단이탈		531 (0.164%)	3,145 (0.140%)
적발경로	방문	138 (26.0%)	1,081 (34.4%)
	앱	141 (26.4%)	748 (23.8%)
	신고	162 (30.5%)	700 (22.3%)
	전화	73 (13.7%)	517 (16.4%)
	역학조사	-	89 (2.8%)
	기타	17 (3.2%)	10 (0.3%)
안심밴드		**116 (21.8%)**	**1,167 (37.1%)** **1,158 (해제)** **9명 착용 중**

배경 (11/13)

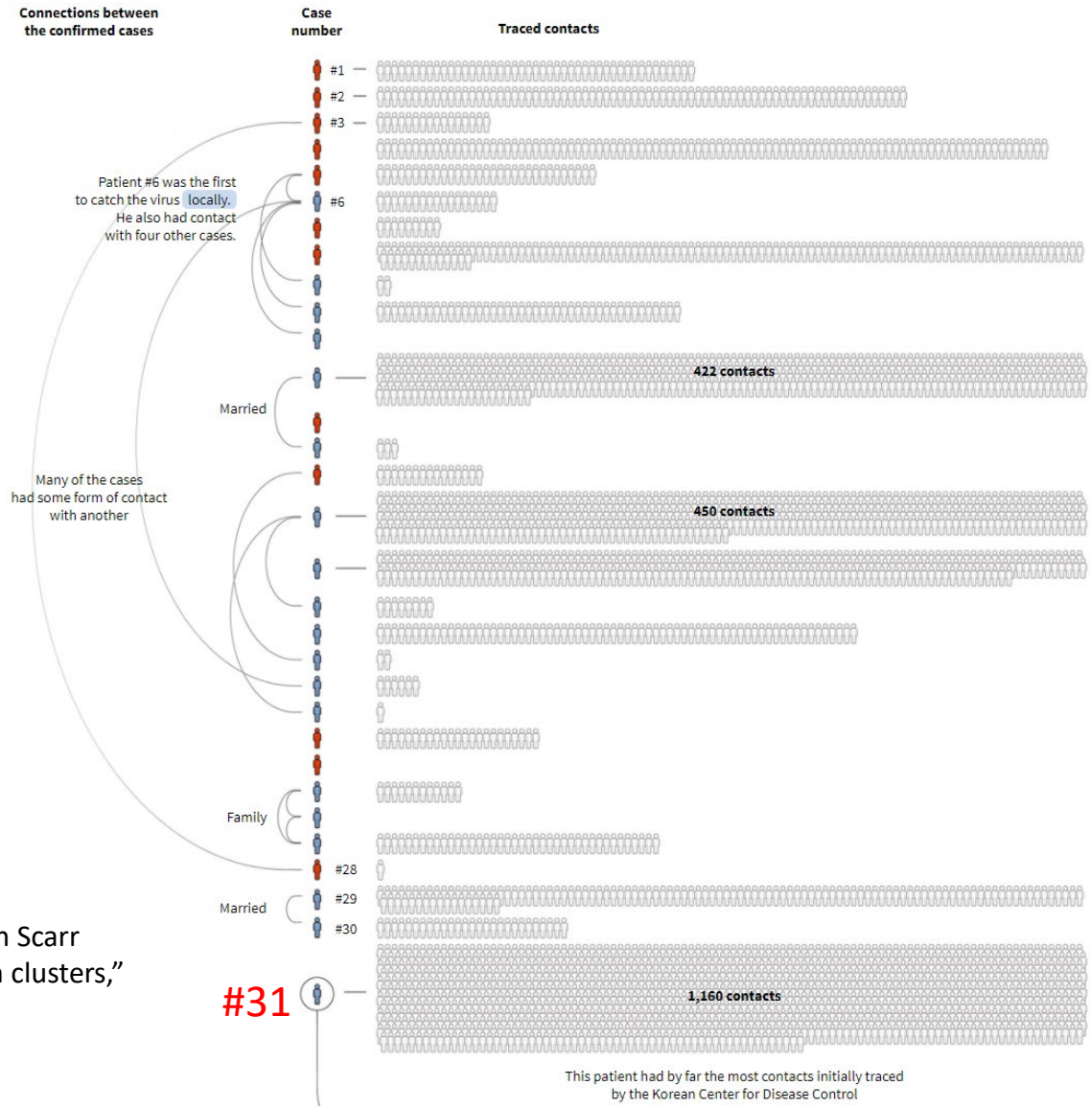
- **안심밴드,**
  - 다수 위반자 대상 강제 착용 시행('20.4.27)
  - 다수 위반자 비율(21.8%/'20.6.10, 37.1%/'21.6.27)

배경 (12/13)

- **Lessons learned**
  - 2주 **자가격리는 잠재적 감염자를 찾는 매우 효과적 수단**
  - 절대 다수 자가격리자는 **자가격리 규칙을 잘 준수**
  - 그러나, **소수 일부가 광범위한 전파** 가능 (예: 대구#31)
  - 자가격리자 관리를 위한 **기술적 해결책 필요**

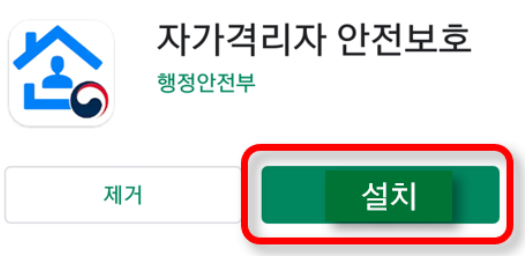
배경 (13/13)

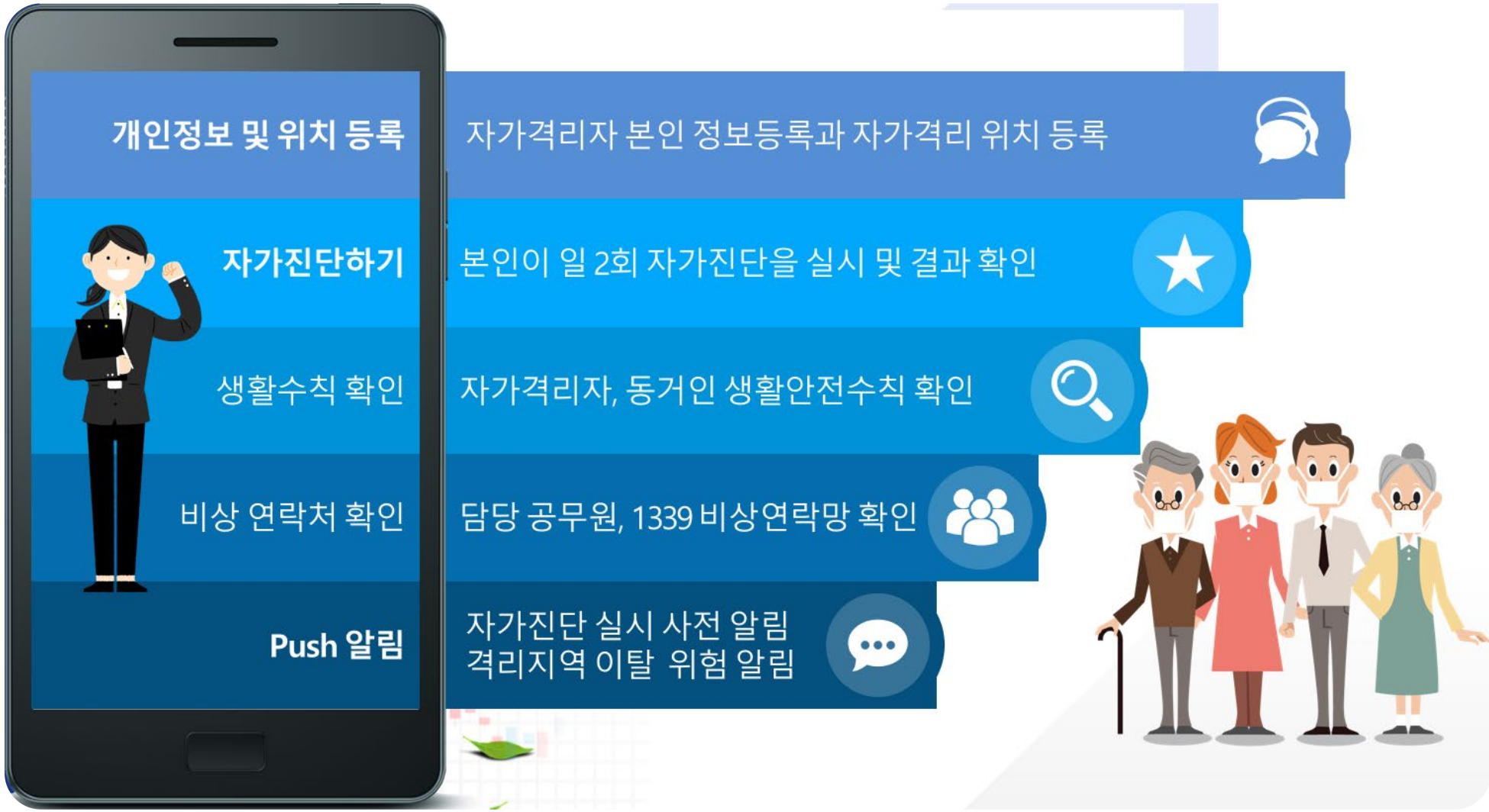
- **Lessons learned**
  - Case for the patient #31



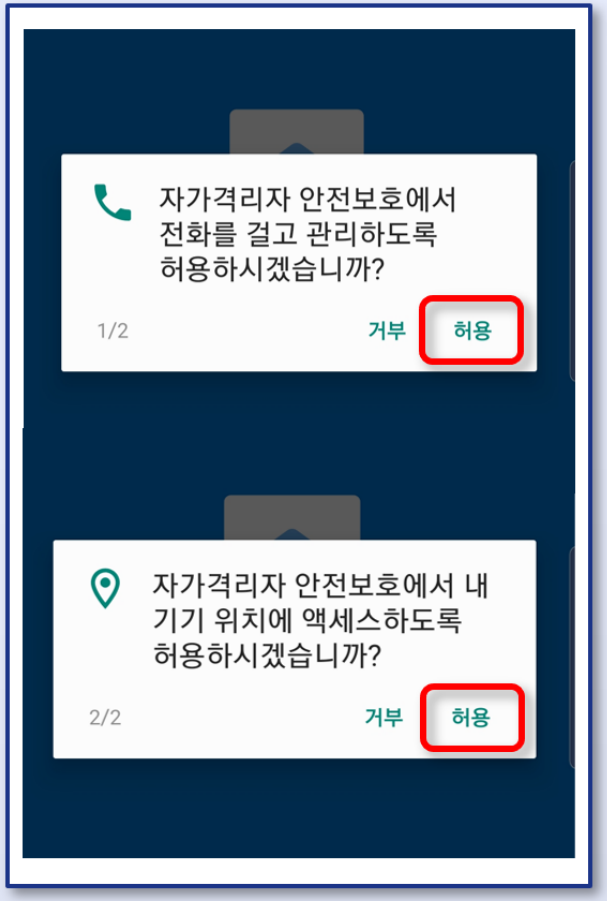
Source: Marco Hernandez, Simon Scarr and Manas Sharma, “The Korean clusters,” Reuters, MARCH 20, 2020

자가격리자 관리 앱 현황 (1/6)



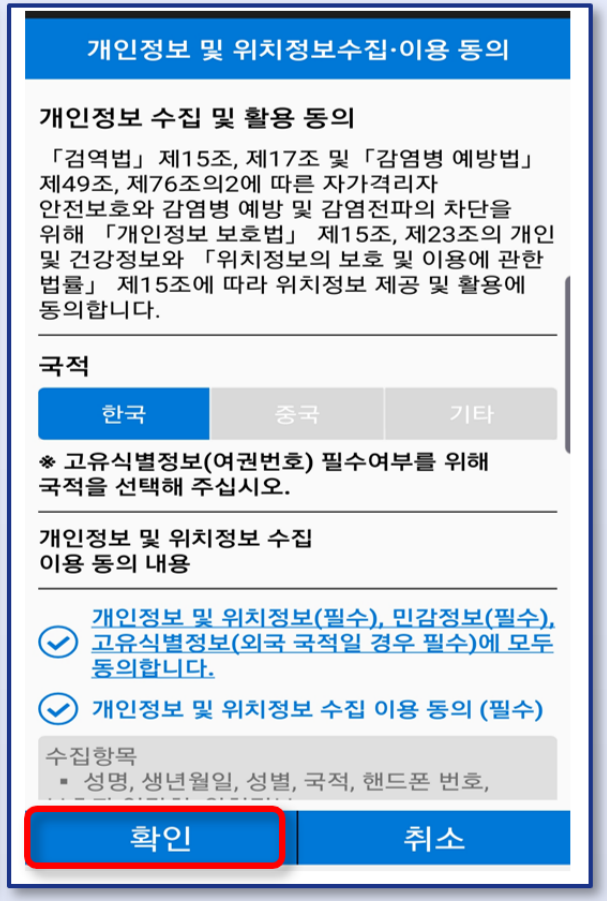


자가격리자 관리 앱 현황 (2/6)



1 앱 실행 후 필요한 권한을 허용 합니다.

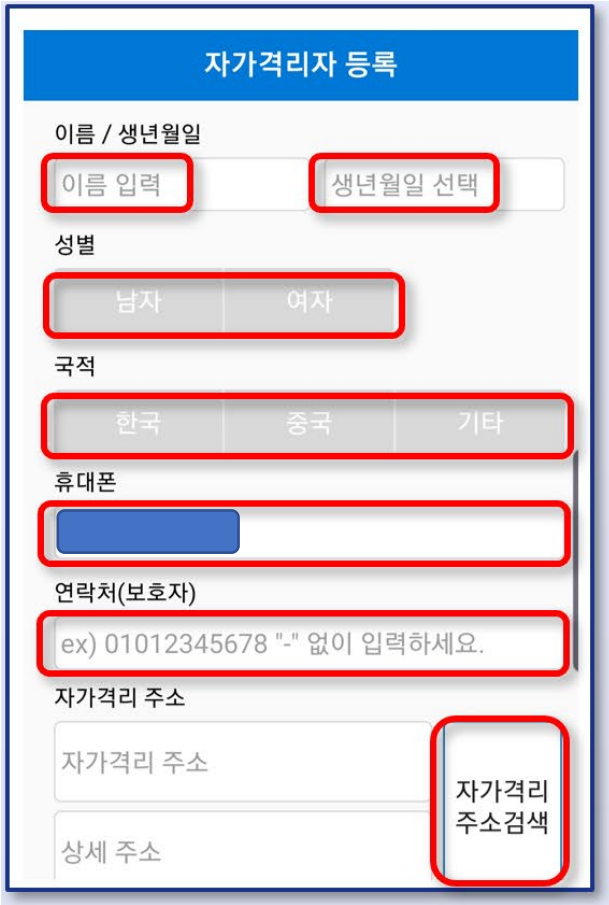
2 사용자 언어를 선택하고



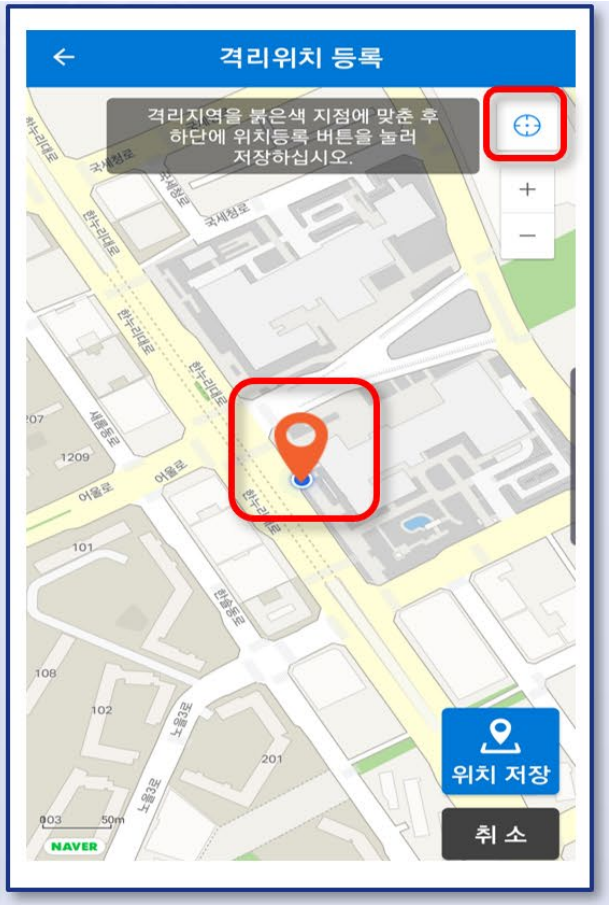
3 개인정보 수집 동의를 합니다.

4 전담공무원 ID를 입력하고 저장하기 버튼을 선택합니다.

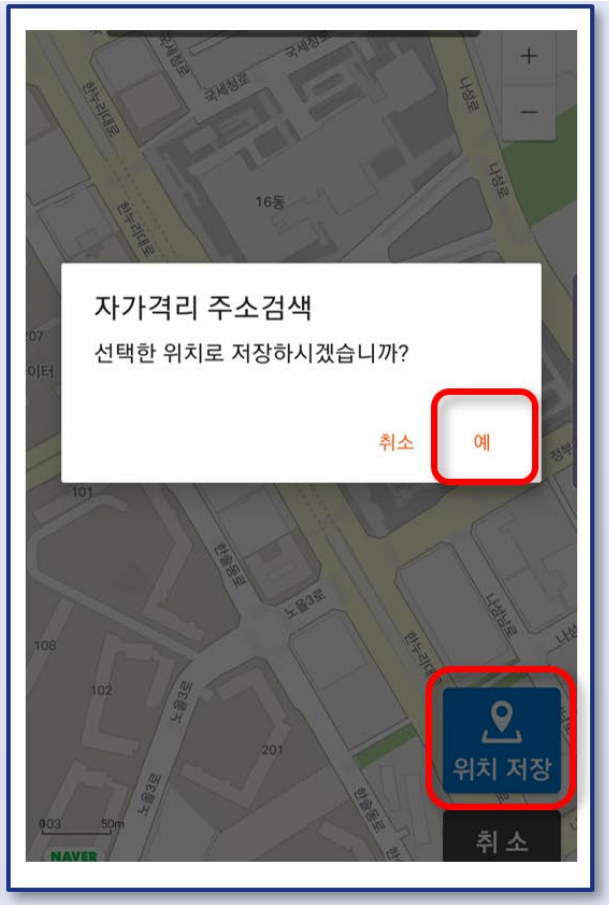
자가격리자 관리 앱 현황 (3/6)



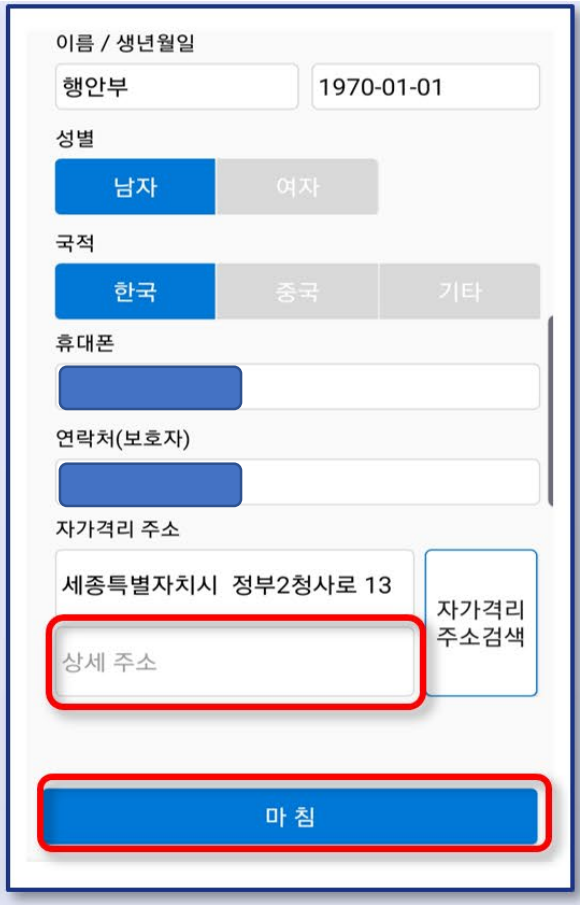
1 개인정보를 등록합니다.
(주소는 주소검색 버튼 활용)



2 풍선 아이콘을 조정하여
자가격리 위치를 지정합니다.



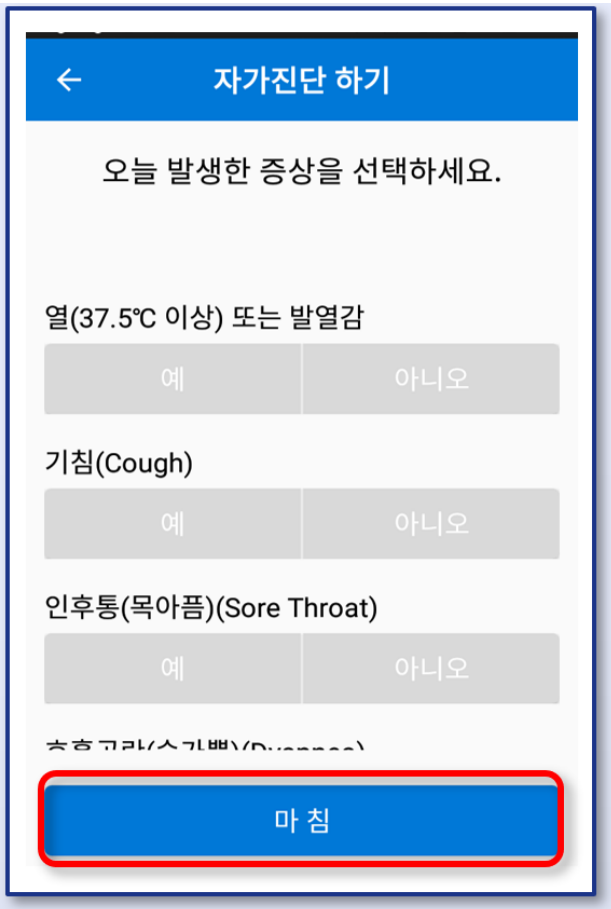
3 위치저장 버튼 클릭하여
저장합니다.



4 상세 주소를 설정하고
마침을 선택합니다.

자가격리자 관리 앱 현황 (4/6)

1 자가진단 하기 버튼을 선택합니다.



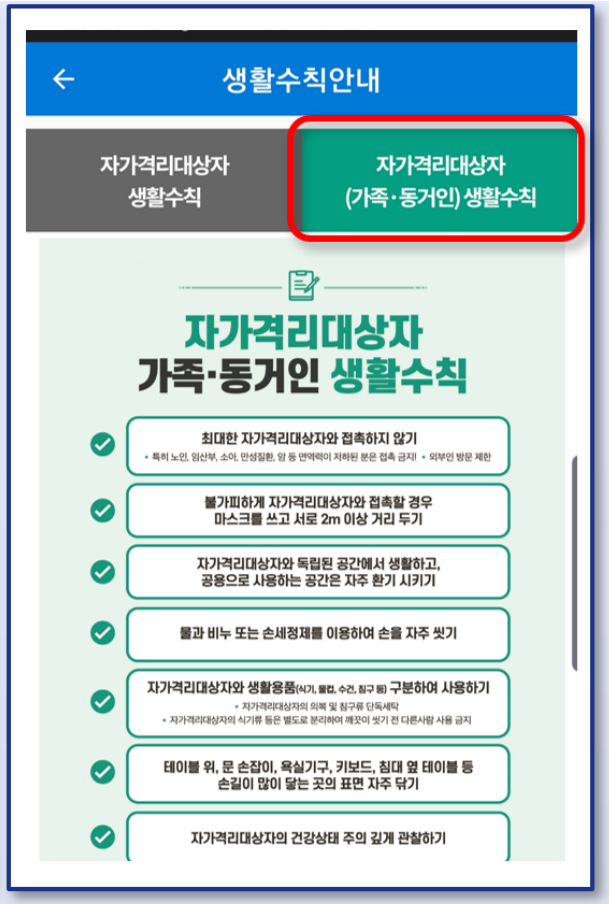
2 현재 증상을 선택하고, 제출을 누릅니다.

3 목록을 선택하면 제출결과를 확인할 수 있습니다.

자가격리자 관리 앱 현황 (5/6)

1 생활수칙과 나의 전담공무원 연락처를 확인할 수 있습니다.

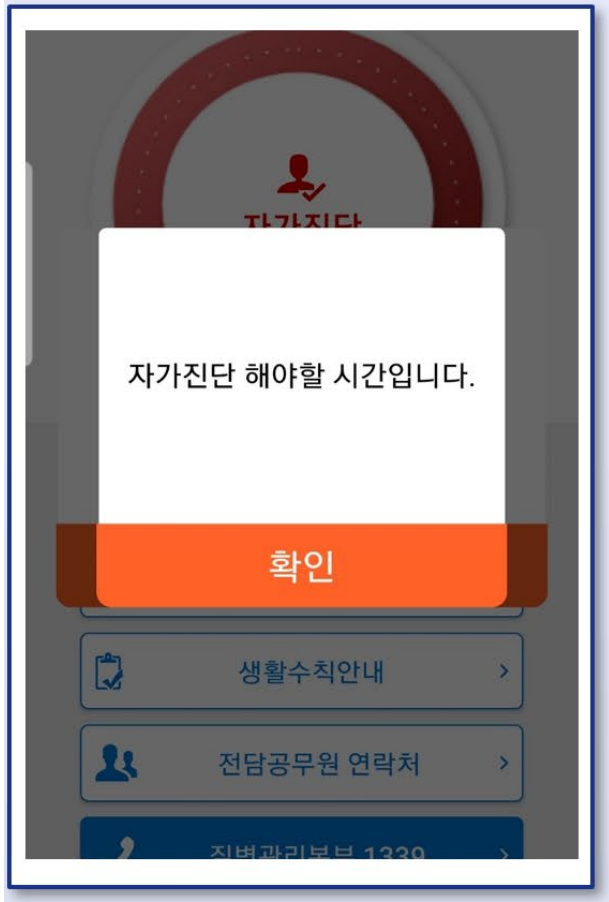
2 자가격리대상자 생활수칙을 확인할 수 있습니다.



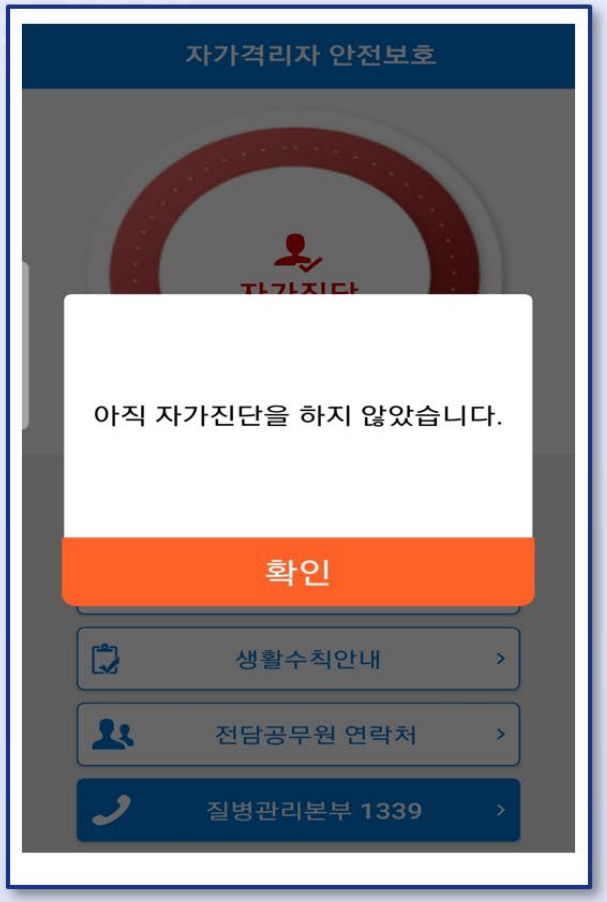
3 가족, 동거인 생활수칙을 확인할 수 있습니다.

4 전담공무원 정보를 확인할 수 있습니다.

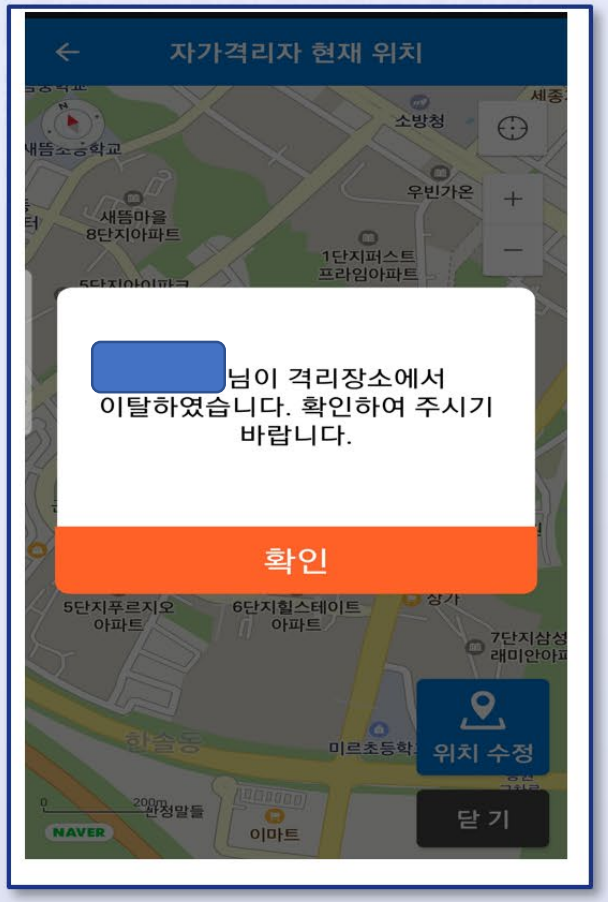
자가격리자 관리 앱 현황 (6/6)



1 매일 2회 자가진단 시간을 알려줍니다. (11:00, 19:00)



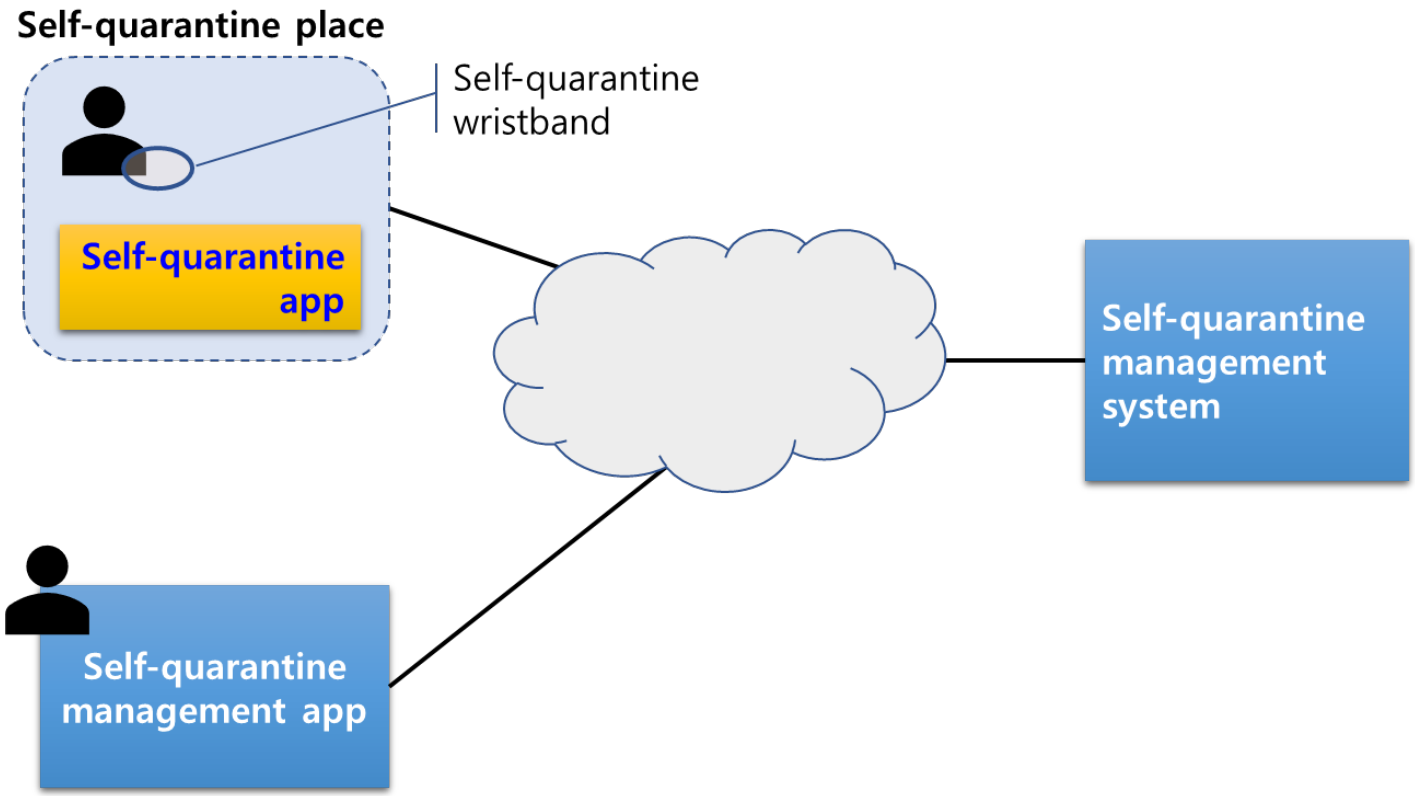
2 진단을 하지 않았을 경우 다시 알려줍니다. (11:30, 19:30)



3 격리지역을 벗어날 경우 알림 메시지를 줍니다

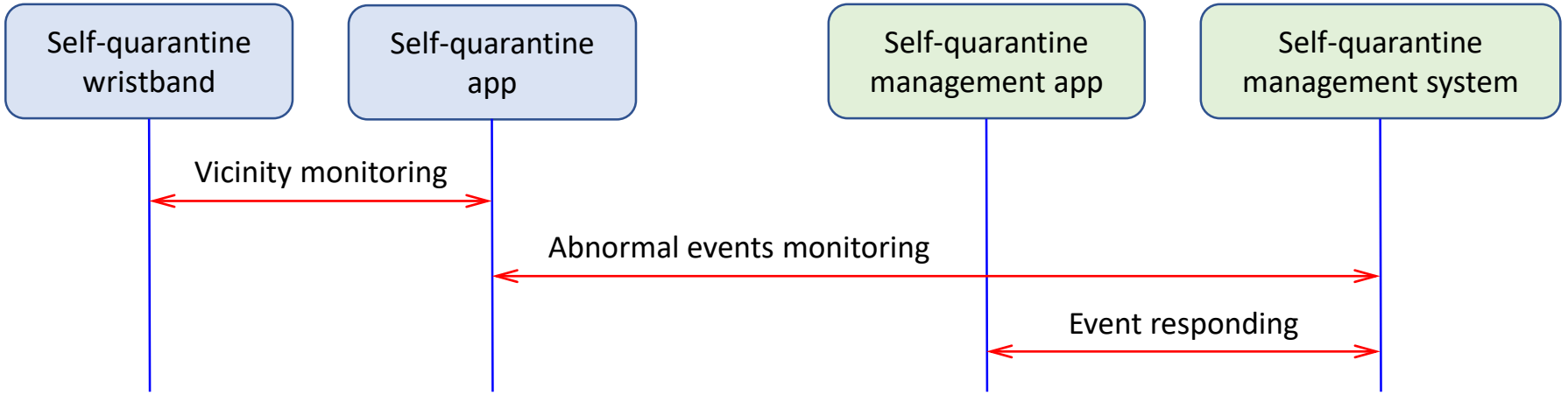
Title and scope (1/3)

- **Title**
  - Functional requirements to figure out the status of self-quarantine through IoT data interfaces
- **Scope**



Title and scope (2/3)

- **Title**
  - Functional requirements to figure out the status of self-quarantine through IoT data interfaces
- **Scope**



Title and scope (3/3)

- **Scope**
  - This document specifies the functional requirements about the following items to figure out the status of self-quarantine through IoT data interfaces working over a set of hand-held devices, wristbands, and a management system:
    - Functional requirements for **self-quarantine app** and **optional wristband** at a self-quarantine place;
    - Functional requirements for **self-quarantine management app** and **system** at the management side; and,
    - Functional requirements for the **protection of the self-quarantine status and the privacy** information

Expected skeleton of document (1/3)

- **Design principles**
  - Data and privacy protection is #1 priority.
  - Particular technologies shall not be specified, but may be given just for examples.
  - How to implement a functional requirement shall be out of scope, but may be described as an example, if needed.
  - Wristbands shall be optional.

Expected skeleton of document (2/3)

1. Scope
2. Normative references
3. Terms and definitions
4. Abbreviated terms
5. Functional reference configuration
    - 5.1. General
    - 5.2. Reference configuration
    - 5.3. Use-case scenarios

Expected skeleton of document (3/3)

6. Functional requirements

6.1. General

6.2. Requirements for self-quarantine app

6.3. Requirements for self-quarantine wristband

6.4. Requirements for self-quarantine management app

6.5. Requirements for self-quarantine management system

6.6. Requirements for data and privacy protection

Functional requirement examples (1/2)

- **Requirements for self-quarantine app**
  - Leaving self-quarantine places shall be detected.
  - Non-movement of mobile handset for specified time shall be detected.
- **Requirements for self-quarantine wristbands**
  - Wireless connection between wristband and corresponding mobile handset should be established.
  - Connection failure between wristband and mobile handset shall be detected.
- **Requirements for quarantine management app**
  - Only if a quarantine direction is violated, management officer should be able to see location of mobile handset of self-quarantined person.
  - Only if a check point from self-symptom data is detected, management officer should be able to see symptom data of self-quarantined people.

Functional requirement examples (2/2)

- **Requirements for quarantine management system**
  - Turning off mobile handset shall be detected.
  - Uninstalling self-quarantine app shall be detected.
- **Requirements for data and privacy protection**
  - Any access to private information of self-quarantined people including symptom data shall be recorded to track violated access.
  - Private information shall be encrypted when exchanged and stored.

On-going relevant projects and gap analysis (1/5)

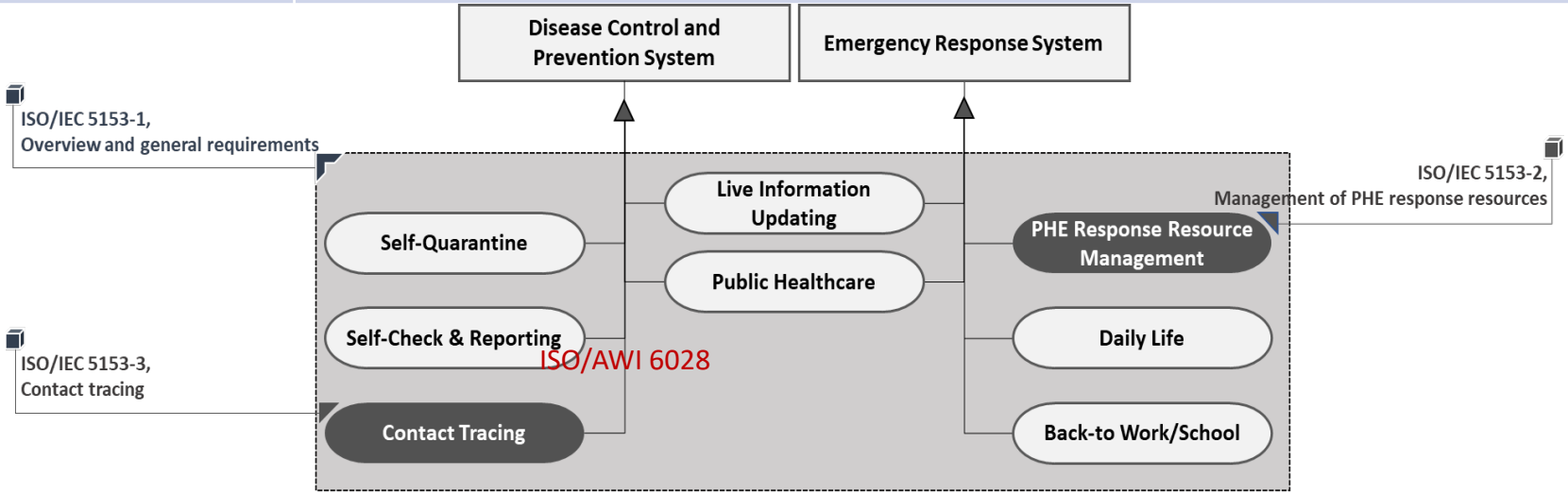
• On-going relevant projects

ISO & IEC	Existing projects
JTC 1/WG 11 (Smart cities)	• ISO/IEC WD 5153, Information Technology — Smart City — City Service Platform for Public Health Emergency
IEC SyC-SC (Electrotechnical aspects of Smart Cities)	• IEC SRD 63233-4, Systems Reference Deliverable (SRD) — Smart City Standards Inventory and Mapping — Part 4: Guidance on standards for public health emergencies • IEC SRD 63347, Systems Reference Deliverable (SRD) — Use Case Collection and Analysis — Management of Public Health Emergencies in Smart Cities
ISO/TC 268 (Sustainable cities and communities)	• ISO/AWI TR 37112, Sustainable Cities and Communities — Good practice case studies in how smart city operating models support effective public-health emergency response
ISO/TC 215 (Health informatics)	• ISO/AWI 5477, Health Informatics — Reference standards portfolio (RSP) — Public health emergency preparedness and response information system
ISO/TC 304 (Healthcare organization management)	• ISO/AWI 6028, Pandemic response — Self-symptom checker

On-going relevant projects and gap analysis (2/5)

• On-going relevant projects

ISO & IEC existing projects	Gap analysis
• ISO/IEC WD 5153, Smart City — City Service Platform for Public Health Emergency	• ISO/IEC 5153 aims to provide a general framework for public health emergency responses through a smart city digital platform. Specific standards such as contact tracing and health resources management will be developed separately for municipal public health emergency management. • Self-quarantine management is also a specific standardization item to be developed separately.



City service platform for PHE response

On-going relevant projects and gap analysis (3/5)

• On-going relevant projects

ISO & IEC existing projects	Gap analysis
• IEC SRD 63233-4, Smart City Standards Inventory and Mapping — Part 4: Guidance on standards for public health emergencies • IEC SRD 63347, Use Case Collection and Analysis — Management of Public Health Emergencies in Smart Cities	• ISO/IEC 63233-4 aims to create an inventory map of public health emergency-related standards and guide identifying and categorizing relevant standards for epidemic prevention and control. • IEC SRD 63347 aims to describe a comprehensive set of high-level use case scenarios of how smart cities can best respond to public health emergencies. • This proposed item needs to be listed in IEC SRD 63233-4 and incorporated into the inventory map. It should refer to IEC SRD 63347 to analyze current public health emergency response situations and collect functional requirements.

On-going relevant projects and gap analysis (4/5)

• On-going relevant projects

ISO & IEC existing projects	Gap analysis
• ISO/AWI 5477, Reference standards portfolio (RSP) — Public health emergency preparedness and response information system	• ISO/AWI 5477 aims at presenting the principle standards that should form the basis of implementing and deploying interoperable applications. ISO/AWI 5477 and IEC SRD 63233-4 seem to have similar scopes. • This proposed item may need to be listed in ISO/AWI 5477.
• ISO/AWI TR 37112, Sustainable Cities and Communities — Good practice case studies in how smart city operating models support effective public-health emergency response	• ISO/AWI TR 37112 aims at compiling use cases of PHE responses and identifying requirements from smart city operation perspectives of city authorities.
• ISO/AWI 6028, Pandemic response — Self-symptom checker	• ISO/AWI 6028 aims to specify how to check and report their symptom information to test sites. • This proposed item can apply to quarantined persons together with ISO/AWI 6028.

On-going relevant projects and gap analysis (5/5)

- **Conclusions**
  - ISO/IEC WD 5153: No overlap, conflict, or similarity. This proposed item is complementary, but should belong to JTC 1/SC 41 because it works based on the IoT concept.
  - IEC SRD 63233-4 and ISO/AWI 5477: No overlap, conflict, or similarity. This proposed item needs to be listed in them and incorporated into the inventory map.
  - IEC SRD 63347 and ISO/AWI TR 37112: No overlap, conflict, or similarity. This proposed item should refer to them to analyse current public health emergency response situations and collect functional requirements.
  - ISO/AWI 6028: No overlap, conflict, or similarity. This proposed item is complementary. Self-symptom check and reporting, and self-quarantine status check can apply together to a mobile handset.

JTC 1/SC 41 Status (1/2)

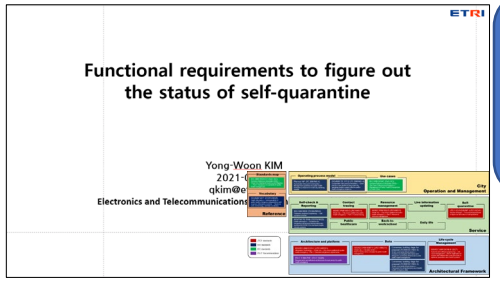
JTC 1/SC 41 MANAGEMENT

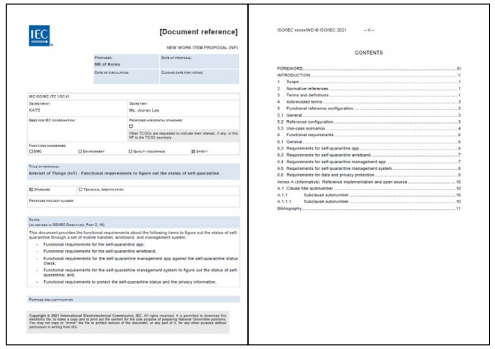
NWI Circulation

45	JTC 1/SC 41 instructs its Secretariat to circulate NWI originating from the SC only if: 1) There is evidence that the work is sufficiently mature to start, e.g., annotated Table of Contents, working draft, base document, requirements document ① 2) ② IEC Form NP is correctly filled in, e.g., indicates the target WG, schedule, and the name of the future editor-in-chief * IEC From NP is available at http://www.iec.ch/standardsdev/resources/forms_templates/ 3) The submission Is accompanied by an SC 41 resolution ③ justifying this NWIP (resolution number)
46	JTC 1/SC 41 kindly requests NBs to submit NWI that are conforming to point 1) and 2) of Resolution 45 and that have been socialized in SC 41 and other relevant groups. ④

JTC 1/SC 41 Status (2/2)

Form 4, pre-WD, Presentation (~2.24)





SC 41-K (2.25)

SC 41 Resolution 358 (6.4)

Socializing (6~7)

SC 41-K (8.11)

SC41/245/NP ('21.8.20~11.12)

Q/A