

How Seoul Medical Center overcome 2015 MERS outbreak with service design

-Medical Service Design for Emergent Situation

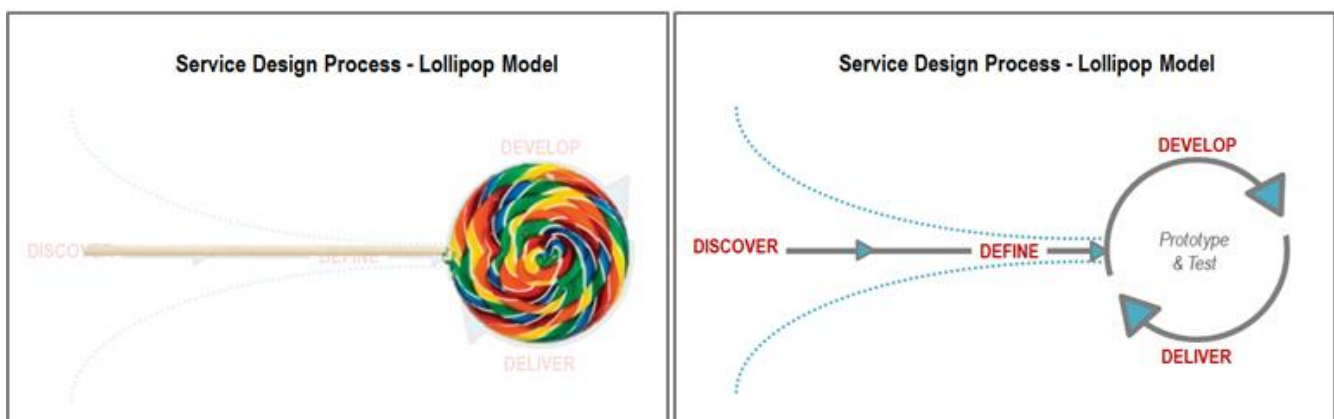
1. Overview

This is the descriptive research which we applied the Service design to MERS outbreak in Seoul Metrocity Medical Center(SMC) in May, 2015. I&D (innovation & Design) center in SMC has been prepared to innovate the 13 Seoul metrocity public hospitals health care system from March, 2015 by Seoul metro city government. The first MERS patient started in 22th, May and MERS outbreak has propagated to whole KOREA based on initial inappropriate response. MERS is based on contact infection in Hospital, so iatrogenic infection has been spread to Mega sized general hospitals. Some hospitals had shut down the whole system or others did their best to prepare whole system for prevention of further infection. Some unrecognized MERS patients entered one hospital and then hospitalized and infected the medical staffs, inpatients and visitors in that hospital. This is the routine track of the KOREAN MERS OUTBREAK 2015. This situation initiated the special immediate reaction part based in the leader of Seoul Health care innovation and Service design center for coming down the feeling of uneasiness and sudden breakage from unrecognized MERS patients. The first mission of immediate reaction part is separation the MERS suspected patients who had fever of respiratory symptoms from the normal patients. This mission was the starting point of gate keeping and surveillance for whole people who entered the SMC. This procedure was some kind of a war of attrition. We need effective process and manual based on service design thinking and process which applied to emergent situation.

2. Process

New paradigm of Service design process applied emergent situation: Lollipop Model

We need emergent action plan for prevention from entering of suspicious patients via whole gates of SMC. This distrust induced the feeling of uneasiness to whole staffs and patients in SMC and finally produced the emergent action plan and manual .We did our best to get the fastest research and analysis, and Ideation and production of our first manual based on Service design thinking. The first version applied to gate keeping process promptly. We also started the second research system to get the problems based on the first version of manual for immediate reaction part. The second turn research created the second version which fixed the recognized the ineffective or inappropriate steps of first version manual. This keep going procedures continued until the version 13 which reflected the our own problem on fast changing environment of other MERS outbreak situation.



**Service design process for emergent situation: Lollipop Model*

The Lollipop Model is the optimal process which can apply to the emergent hospital based situation by Service design center stationed in Medical center. This process started from making simple prototype and simultaneously starting the manual and collecting the ideas and resources related to the emergent issues by stakeholders (Discover). After that we made the objects and principles to solve our problem confronting (Define), and then we develop the new manual based on those objects and principles (Develop) and then did the immediate application to field (Deliver). If we found the expected situation and problem, we got the feedback from the field voice. After that we DEVELOPed again and DELIVERed the new ones as the complete process of Prototype & Test. The maintenance of this repetitive process controlled the number of correction procedure and minimized the revision. This whole new approach involving repetitive Prototype & Test resembles the Vortex of Lollipop. We concluded our process as the Lollipop Model.

- **How did you gather (customer) insight?**

The starting point of Discover is the national wide manual and other hospitals' manual for MERS break as much as we could get from networks.

Desk Research: We did the fastest collection of national wide manual and other hospitals' manual for MERS break and researched the points which could be applied to our system promptly. We also utilized the SNS and internet news to get the prompt information about MERS outbreak including the outbreak hospitals and the situations of patients and their processes. We did do our alarming even though the officially unconfirmed data, because we decided that we preferred the over-response to late response.

Focus Group Discussion: We listened from the whole stakeholders who had related to gate keeping procedures and medical examination and treatment in MERS outbreak, for example medical staffs, officers who checked the fever on the gate and nurses in outpatient clinic and receptionists, QI team members. This listening could be the base of materialization.

Observation: We also continued the observation to analyze the real gate situation and any break points (the place where people could pass any surveillance system such as fever checking and asking about their symptoms and previous hospital visiting history, and neck holder points which induced the jamming, for application of our ideas.

Journey Map Analysis: We made Journey Map to find the physical breaking points to blocking the entrance of patients or visitors which had not experienced the any surveillance system. We also made the plans to overcome to any expected problems in any site of our Journey Map

- **How did you test the product/service concept?**

We made the first manual as version .01 to let gate keepers feel the continuous revision of our manual. We also educated the gate keepers in every morning to get the proper idea about our manual. The gate keepers also had been asked to deliver the feedback to the members of Seoul Health care innovation and Service design center when they confronted the unexpected situation. This real time feedback and continuous education delivered the manual of Version 11, 11th revision based on the various ideas with minor field to major part issues.

3. The benefit of design

- Describe where/how design adds value to the service

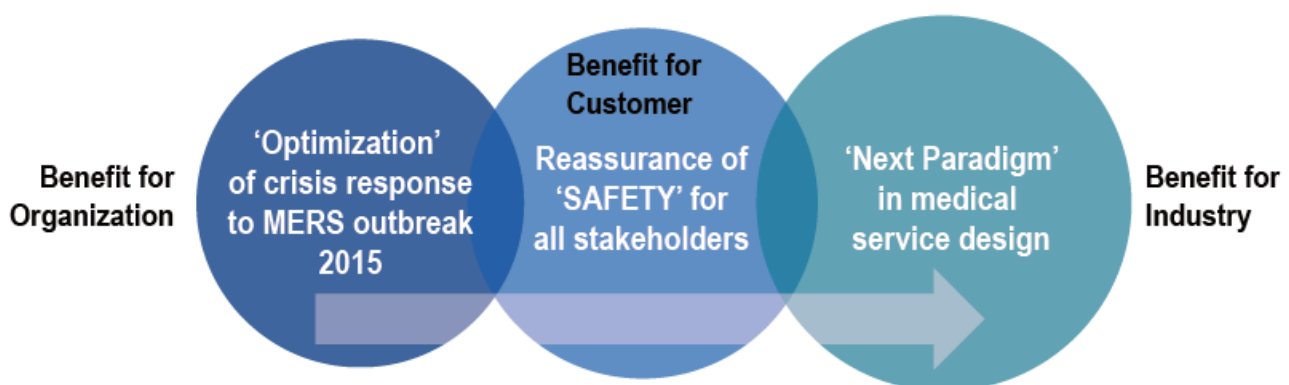
These various ideas could be explained as Human, Communication and Touch point

Human: This emergent situation gave the importance in allocation of human source and roles like as disaster medicine. The control tower who fulfilled whole decision making from chaotic reporting system had been separated from immediate reaction part about whole gate keeping procedure. We excluded the possibility of any ambiguous decision from gate keeper who did the history taking, fever checking and visitor's listing based on the non-medical standard. They must toss that issue to medical doctor who could make the proper medical decision and sedation to feared patients and gate keepers.

Communication: All gatekeepers must get the education about the daily modified manual and get the information about safeness and relief related MERS. They also had educated the skills to communicate the patients who had the MERS suspicious symptom (high fever, respiratory symptom) and then must visit special sorting clinic which had located in outside of main hospital. They also had got the idea how to calm down and inform the safe process for the patient who felt inconvenience about this uneasy process.

The news which must be spread to gatekeepers, patients and visitors had been changed accordingly MERS Outbreak situation. At first the information contained the facts about MERS symptom and the origins (-visiting middle east) and then the information has been changed as the prevention methods (hand washing, coughing methods) and the issues had focused on the hospitals which got the MERS outbreak during the period of high peak of MERS outbreak, and finally whole message had converged as the cheer up message for any participants to control the MERS outbreak. Time based contents about commination had been changed.

Touch Point: SMC have 11 gates previously, we controlled the number of gate as 7. For the main gate where passed around the 1000 people, we prepared the line mimicking the waiting line in airport to inform the exact direction. We created the sticker which has applied the non MERS symptom patients. This sticker gave the feeling of safeness and gave the effective control by saving the repetitive fever checking efforts. We also tentative clinic for the patients who come from the hospitals which had been experienced the MERS outbreak and no epidemiological relationship to MERS, but who had no methods to get their prescription from their previous hospital.



- **Benefits for the customer?**

- ✓ This system guaranteed the feeling of safety for the patients without any MERS suspicious symptom who had obscure fear about MERS contamination.
- ✓ MERS surveillance system could induce the additional procedure .This system cut down the any inconvenience which could come from the MERS surveillance system.
- ✓ We categorized the all patients as 6 groups and invented the optimal responding process to minimize complaints from any visitors and gave the safety feeling.

- **Benefits for the organization?**

- ✓ The screening and separation of any MERS suspicious patients from the hospital gate got rid of the fear from the MERS contamination and induced the environment for maintenance of normal hospital activity.
- ✓ The prompt educational and physical support for Gate Keeper got rid of the any obscure fear about infection and gave the perfect accomplishment of screening
- ✓ This special immediate reaction part alleviated the process overloading of situation room (MERS Outbreak control tower in SMC), it also induced faster response for the OPD patients.
- ✓ “The MERS safety hospital “through this process was important issue for the Exit plan after the MERS outbreak. This message was one of the defense mechanism for the maintenance the patient numbers.

- **Impact on the competition/market?**

- ✓ The service design based the MERS manual for immediate reaction part gave the application for the other hospitals during other infection outbreak which had no experience and system
- ✓ The service design based the MERS manual for immediate reaction part is first trial and is easily understandable for any stakeholders and has many applicable points in any medical emergency surveillance issue.
- ✓ This manual can the proper guideline for hands on manual in next other infection outbreak issue for any hospital without hesitation and can give the early outbreak control power.

4. Effect

- Describe cause and effect related to the project

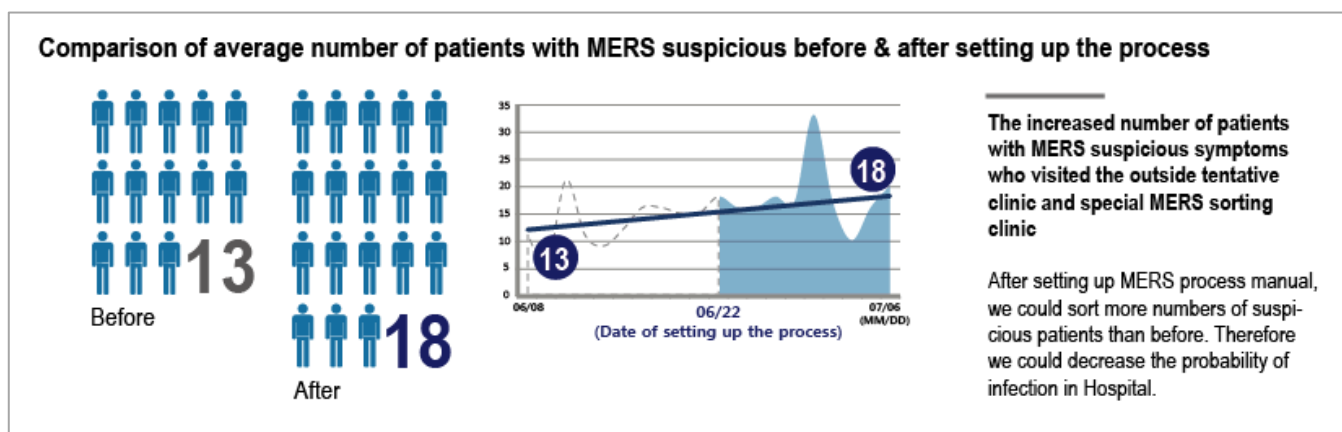
The initial objects of the OPD MERS immediate reaction part were the separation of the patients who had the suspicious MERS symptom. The unknown origin fear about MERS in patients, their family members, medical staffs, and whole worked in SMC had been caught by deep interviews and this fear induced the angers around the whole stakeholders. The perfect gate keeping plans must cover up the complete

surveillance system and also must offer the rescue the people from this unknown origin fear about MERS outbreak. These two objects - complete surveillance system and rescue from the fear -has been coexisted. We had no nosocomial MERS infection after the whole 2015 Korea MERS outbreak. IPD and OPD patients and all visitors could got the feeling of relief. We also were also certified as the: MERS safe hospital from Korean Ministry of health. We also reorganized the works of whole MERS control tower that was hesitated from all kinds of muzzy MERs things which happened simultaneously. As results, the control tower focused on other pending issue and fulfilled the important roles as a comprehensive site.

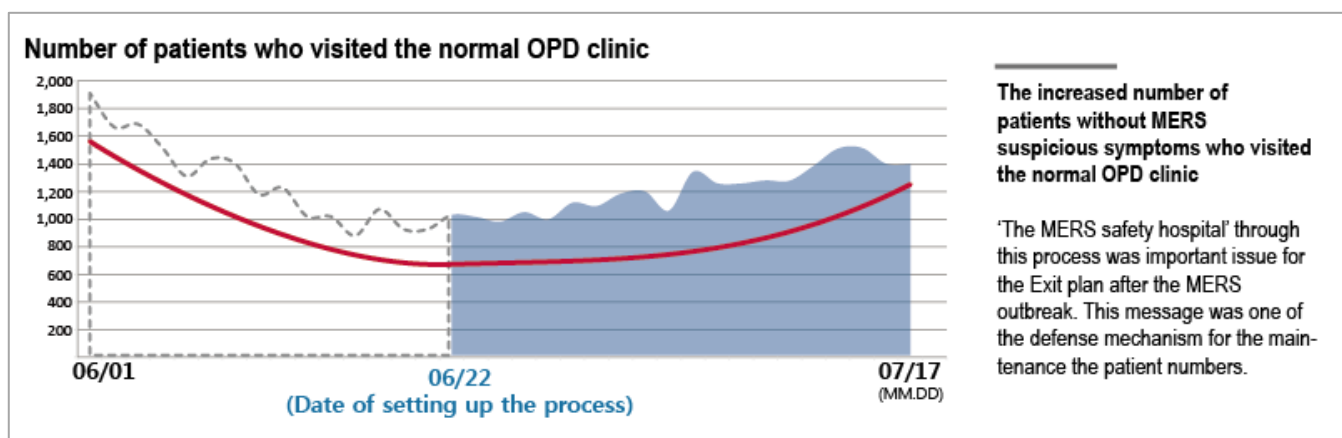
- **Describe the scale of effect**

The service design based manual for OPD MERS immediate reaction part started without any quantitative data, so it was very hard to explain the exactly quantitative improvement. But we can conclude the effect of this system based on these results.

-The increased number of patients with MERS suspicious symptoms who visited the OPD MERS sorting clinic :



- The increased number of patients without MERS suspicious symptoms who visited the normal OPD clinic



The whole number of MERS were 186 patients outbreaks from 99 national wide hospitals. Finally, The SMC finished this outbreak without any nosocomial or community based MERS infection. This results could revealed as the Certification as the **“MERS safe hospital from Korean Ministry of health”**.

The application of this new process is the real live case to get the **perfect protection** from MERS for citizen and nation and to respond promptly to any kind of disaster situation or emergent infection issues without any previous experience.