

## Service Design of Implementation Primary Health Care Management Model Service “Andal” in PG Kebonagung Polyclinic, Malang District

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**Abstract.** The concept of Primary Health Service Management Model “Andal” (LKP Andal) in Indonesia was initiated by the Public Health Association of Brawijaya University (IKEMAS UB) to solve the health service management problem in Indonesia. LKP Andal was piloted into a first-level organization that provide the health service/facility in PG Kebonagung polyclinic in Malang district. This research uses a service design approach to explore the problems and this study also provide a service solution to the LKP Andal implementation in IT perspective that suits to the organization characteristics as an entirely service delivery process support. As the result, this study has explored 23 main problems of the entirely service delivery process and also resulted 4 service solution ideas which were visualized using Service Journey Modelling Language (SJML) to acquire more detailed images and they can become the standard communication among stakeholders.

### 1. Introduction

The family-doctor-based primary health service management model (Layanan Kesehatan Primer – LKP) is a proposed model of Public Health Association of Medical Faculty, Brawijaya University (IKEMAS UB) on the health management issues raised in Indonesia [1]. LKP is the first individual contact as well as community group contact as the beginning of health service [2]. This model is an update management model of the pre-existing primary health service management by applying the family medical clinic. Family medical clinic is a practice where there are basic preventive and basic treatment efforts. Later, this model is called as LKP’s organization and management model that is “reliably (andal)”. Andal is meant that the characteristic of the proposed management model are strategic, integrative, effective, efficient, quality, equally, and affordable [1]. One of the issue can be solved by proposed LKP ANDAL management model is the high allocation of state-budget (APBN) expenditure for the health sector is not proportional to the health effect of improvement in Indonesia.

The family-doctor-based primary health service management is now being applied in a polyclinic of a private company in Malang city. It is implemented in an outpatient

clinic of PG. Kebonagung, Pakisaji, Malang district. On the implementation process, there are some issues in the adjustment between the main purpose of LKP Andal and the characteristics of the polyclinic (such as human resources, organizational skill, patient habit, ect.).

Patients' constraints and perceptions to the service quality of the LKP Andal management implementation should be well defined correctly. The purpose is that the polyclinic can see the internal problem of the PG Kebonagung Polyclinic organization. By settling down the LKP Andal management implementation problem, PG Kebonagung polyclinic can perform the LKP Andal management that suits to the polyclinic characteristics without reducing the objectives achievement of LKP Andal management. Moreover, the obtained cognition in this research can be applied in other first-level-health-facility or polyclinic that will apply the LKP Andal management. The approach that can be used to reveal the constraints of the LKP Andal management implementation and make a service solution idea to overcome the problem, the researcher proposes the service design approach.

This research use the approach of service design to explore the problem deeper and provide the service design approach from the point-of-view of the IT implementation in service. The service design approach is an approach that used to illustrate the a complex [3] and the whole experience and interaction in the service delivery process [4] by making the stakeholders as the center of service design [3] [5].

The developing of service design in health sector has been done by Lell [6] and Dahlgren & Lycke [7] in the previous studies. The research made the service design from the arisen problem from the unavailability of service systematic that suits to the service user requirement. Both studies revealed that there were some advantages in designing service by involving the users especially in eliciting the intangible service elements, such as the interaction and understanding of the actors involved in the service process.

## **2. Methodology**

This research applies the service design process to collect information by using the semi-structured and questionnaire interview deeply technique. The interview is done to all stakeholders, while the servqual is given to elicitate the patient's satisfaction.

### **2.1 The Problem Analysis**

In this stage, the analyzing of data collected is done which is used for building the idea/thought/insight. The idea then becomes the the base in the service design visualisation process. The researcher makes 3 analysis in this phase, which are: Touchpoint Analysis, Patients' Satisfaction Analysis and Stakholder Analysis.

#### **2.1.1 Touchpoint Analysis**

Touchpoint analysis is done by visualizing the service delivery process of LKP Andal (planning) of the Nugraha's research [8] into a journey map service form by using SJML. The same process is also done for the health service delivery process in polyclinic PG Kebonagung (actual). Next, both of the service delivery maps is being compared one to another and the analysis is done for the service touchpoint of the planned service to the actual service. The touchpoint analysis categorizes the touchpoint into 3 categories, which are: Missing, Failed and Completed [9].

### **2.1.2 Patients' Satisfaction Analysis**

Besides the touchpoint analysis, the researcher also analyze the result of the patient perception collecting to determine the patients' satisfaction level. The process is done to find out whether the questions in the questionnaire that leads to the LKP Andal management characteristics which influences the patients' satisfaction to the whole process of service delivery.

### **2.1.3 Stakeholder Analysis**

For the data enrichment as the basic materials of service system implementation consideration, the researcher also does the analysis to the stakeholder involved in health service in polyclinic PG Kebonagung. The stakeholder are the company manager, polyclinic supervisor, doctor, midwife, administration officer, and pharmacy clerk. The analysis starts by doing the data collecting phase which are the problems faced by stakeholders in LKP Andal implementation at polyclinic PG Kebonagung in accordance with the stakeholders role.

## **2.2 Insight Definition**

In this stage, the researcher defined the insight obtained based of the data analysis result from the analysis phase. the researcher defines the problems and filters the problems that can be solved by implementing the IT system. This is because in this study, the researcher only focuses on the IT implementation based solutions.

### **2.3 Service Solution Idea Development**

The next service design approach stage is the service solution idea development stage. this development is done by considering insight that obtained from the previous phase. The final output of the idea development stage is in the form of service idea and also scenario when it is implemented in the service process at polyclinic PG Kebonagung.

### **2.4 Prototype Development (Service Design Visualization)**

The prototype development is the stage that is done in the end of the service design process. There are some prototype development methods, one of them is by doing service design visualization to obtain the user's feedback [3]. In this prototype development stage, the researcher develops the service journey map visualization by using the modelling language Service Journey Modelling Language (SJML) [10]. This modelling language is chosen because it allows more actors involve in on overall service design illustration along with the actors interactions one to another in the service delivery process [10]. Furthermore, SJML also describes the whole activities of the actors whether they are TP or single activity that does not interact to other actor (action) which use swimlane view.

## **3. "Andal" Primary Health Service Design**

From all the description in the previous sections, this section will describe each stages of the service design in this study furthermore .

### 3.1 Problem Analysis

#### 3.1.1 Touchpoint (TP) Analysis

Touchpoint is analyzed based on the status in the implementation, which are Missing, Failed and Completed. The TP analysis description is shown in Table 1. After the service delivery process has been analyzed by using SJML in the LKP Andal management to the implementation in polyclinic PG Kebonagung, and the status has been determined, there are 11 *Missing* Touchpoints, 3 *TP Failed* Touchpoints, and 14 *TP Completed* Touchpoints found.

**Table 1.** The TP Status on Service Journey Map

Status	Description
Missing	The TP that is in the planned service journey map, which is LKP ANDAL, but the TP is not found in the polyclinic which runs the LKP ANDAL concept.
Failed	The TP that is in the planned service journey map, which is LKP ANDAL, and it also runs in the polyclinic which runs the LKP ANDAL concept, but there is technical failure/difference in the implementation that becomes the output TP changes.
Completed	TheTP that is in the planned service journey map, which is LKP ANDAL, and it also runs in the polyclinic which runs the LKP ANDAL concept well and correctly.

The conclusion of the touchpoint analysis can be seen in Table 2. There are 14 Completed TPs, 3 Failed TPs, and 14 Missing TPs.

**Table 2.** Touchpoint Analysis Results

TP Code	Touchpoint	Actor	Status
TP1	Giving the Health Basic Data Form	Health worker	Missing
TP2	Receiving the Health Basic Data Form	Patient	Missing
TP3	Giving the Health Basic Data Form	Patient	Missing
TP4	Receiving the Health Basic Data Form	Health worker	Missing
TP5	Giving the local community health basic data	Health worker	Missing
TP6	Saving/keeping the health basic data	Administration Officer	Missing
TP7	Coming to polyclinic	Patient	Completed
TP8	Giving the health insurance (BPJS) identity	Patient	Completed
TP9	Receiving Patients	Administration Officer	Completed
TP10	Checking the Patients BPJS status data	Administration Officer	Completed

TP11	Sending the patient health basic data	Administration Officer	Failed
TP12	Receiving the health basic data	Doctor	Failed
TP13	Entering to the Doctor's chamber	Patient	Completed
TP14	Receiving the patient	Doctor	Completed
TP15	Giving the health caring by using the appropriate module that suits to the illness and the triggers	Doctor	Failed
TP16	Giving the prescription	Doctor	Completed
TP17	Receiving the prescription	Patient	Completed
TP18	Giving the prescription to the pharmacy	Patient	Completed
TP19	Receiving the prescription	Pharmacist	Completed
TP20	Giving the medication according to the prescription	Pharmacist	Completed
TP21	Receiving the medication and going home/working	Patient	Completed
TP22	Visiting patient's home/workplace	Doctor	Completed
TP23	Meeting the doctor at home/workplace	Patient	Completed
TP24	Sending workplace management request letter	Doctor	Missing
TP25	Receiving workplace management request letter	Public health officer	Missing
TP26	Passing on the workplace management request letter	Public health officer	Missing
TP27	Receiving workplace management request letter	Labor departement	Missing
TP28	Doing the workplace management	Labor departement & Public health officer	Missing

From the entire touchpoint analysis result, there are some basic problems obtained regarding the LKP Andal that implemented in polyclinic PG Kebonagung. the problems is shown in Table 3.

**Table 3.** The Problems Summary of Touchpoint Analysis

ID	Problem
P1	Lack of human resources
P2	The relationship with external (village apparatus)
P3	The data is not well integrated yet
P4	There haven't been a module to overcome the illness/disease triggers

### 3.1.2 Service Quality Analysis

This analysis is done by using servqual technique, where the patient is asked for their response through the statement given based on the tangible, reliability, responsiveness, assurance and empathy aspects.

**Table 4.** The Patients's Satisfaction Average Result to the Service in polyclinic

<b>Respondent</b>	<b>ES</b>	<b>PS</b>	<b>ES-PS</b>	<b>Satisfaction</b>
1	4.7	4.17	0.52173913	Less satisfied
2	4.7	4.043	0.739130435	Less satisfied
3	5	4.09	0.9130435	Less satisfied
4	4.13	4	0.0869565	Satisfied
5	4	3.8	0.17391	Less satisfied
6	4.7	4.74	-0.043478	More satisfied
7	5	4.87	0.1304348	Less satisfied
8	4.57	4	0.5652174	Less satisfied
9	4.3	4.3	0.08696	Satisfied
10	4.9	4.4	0.47826	Less satisfied
11	5	4.1	0.86956	Less satisfied
12	4.57	4.43	0.130434	Less satisfied
13	4.65	4	0.6086957	Less satisfied
14	4.4	4.65	-0.217391	More satisfied
15	4.96	4	0.956522	Less satisfied
16	4.57	4.8	-0.26087	Less satisfied
17	4.4	3.9	0.478261	Less satisfied
18	4.09	4.35	-0.26087	More satisfied
19	4.6	4.35	0.2608696	Less satisfied
20	4.6	3.96	0.652174	Less satisfied
21	4.6	3.96	0.652174	Less satisfied
22	4.52	4.7	-0.173913	More satisfied
<b>TOTAL</b>	<b>101.087</b>	<b>93.74</b>	<b>7.34783</b>	<b>LESS SATISFIED</b>

In Table 4, we can see the analysis result of patients satisfaction as the service user. In this analysis, there were 22 patients involved as the respondents with 23 statements given to the patients. The patients' response analysis result to the statements is shown in Table 5.

In Table 5, we can see the statement number 7, "The availability of medication is completed" has a very high gap between the expectation and the reality received by the patients. It is not only because of the polyclinic self-decision, but there is also other responsible party, such as BPJS, so a joint solution is required.

From the whole service quality result, some basic problems occur regarding the LKP Andal implementation in polyclinic PG Kebonagung, from the patient's point of view, as the service recipients. The problems are shown in Table 6.

There are some effects of the external factor from the gaps found in retrieving data from patients that may cause the patient's answer to be biased. For example, the condition of the ill patient, the service condition of the polyclinic at that time may not be good, the patient's ability to determine the questionnaire level. Therefore, the servqual uses only one of the three techniques in this study.

**Table 5.** The Gap results to the SERVQUAL questionnaires

Statement	ES	PS	ES-PS (Gap)
1	4.818181818	4.636363636	0.1818
2	4.818181818	4.636363636	0.1818
3	4.454545455	4.409090909	0.0455
4	4.545454545	3.818181818	0.7273
5	4.500000000	4.363636364	0.1364
6	4.545454545	4.363636364	0.1818
7	4.681818182	3.818181818	0.8636
8	4.590909091	4.272727273	0.3182
9	4.727272727	4.227272727	0.5000
10	4.409090909	4.272727273	0.1364
11	4.500000000	4.363636364	0.1364
12	4.727272727	4.272727273	0.4545
13	4.590909091	4.272727273	0.3182
14	4.500000000	4.363636364	0.1364
15	4.681818182	4.318181818	0.3636
16	4.454545455	4.272727273	0.1818
17	4.545454545	4.272727273	0.2727
18	4.636363636	4.227272727	0.4091
19	4.590909091	4.363636364	0.2273
20	4.727272727	4.409090909	0.3182
21	4.454545455	3.863636364	0.5909
22	4.454545455	4.000000000	0.4545
23	4.727272727	4.181818182	0.5455

**Table 6.** Service Quality Analysis Problems Summary

ID	Problem
P5	Incomplete equipment
P6	Medical supplies that are considered incomplete
P7	A long time for the whole service process
P8	Less Medical Worker for Hearing the patients
P9	Lacking in greetings
P10	Lacking in the provision of Healty Lifestyle instruments

### 3.1.3 Stakeholder Analysis

The stakeholder analysis is done by defining the role of every stakeholder and finding out the obstacles faced during the LKP Andal implementation process. The stakeholder specification involved in the interview session can be seen in Table 7. Afterward the problems prioritizing is done to recognize the problem which can be solved by the organization. The result is shown in Table 8.

In table 7 there are 7 stakeholders interviewed to collect the data in form of problems with the LKP ANDAL implementation. From those problems there are 13

problems obtained with highest priority to be solved by the polyclinic with the existing resources. The problems identification is also become the important consideration in making service solution idea.

From the stakeholders analysis result and the priority setting to the problems, there are some problems obtained with the high level solving requirement priority. Table 8 shows the high priority problems and Table 9 shows problem summary from stakeholder analysis.

**Table 7.** Stakeholder Specification involved in the research

Code	Stakeholder	Age (year)	Gender	Education Background
A	Administration officer	25	Woman	Accounting
B	Polyclinic supervisor	60	Men	Accounting
C	Doctor	39	Woman	General Practitioner
D	Paramedics	27	Woman	
E	Pharmacist	35	Woman	Pharmacy
F	Manager	75	Men	Doctor
G	Patient	45	Woman	Senior High School

**Table 8.** Stakeholder analysis result and problem prioritizing

No	Stakeholder	Role	Obstacles	Priority
1	Manager	Supervising and Managing the polyclinic PG Kebonagung	Purpose Difference with LKP ANDAL The concept of LKP ANDAL management is still a new concept and has not proven profitable Difficulties in monitoring the service process within the polyclinic Unable to see the whole transaction in polyclinic lifetime	High High Medium High
2	Polyclinic Supervisor	The medical personel who also serve as policymaker and are responsible for the operation of the polyclinic PG Kebonagung	Less of human resources for the thoroughly LKP ANDAL implementation There's still no significant result of the LKP ANDAL management implementation There is no cooperation between the polyclinic with other stakeholders (Labor department, village apparatus, public health officer) The absence of a system that integrates patient health data. Different types of organization implementing LKP ANDAL Difficult to monitor daily/weekly/monthly performance to take short/long term decision	low High low High low High



3	Doctor	Provide the medical action in the form of treatment and healthy lifestyle counseling	Lack of medical support facilities There is no clear decision between the manager and the doctors team for the service concept in the polyclinic. Unable to do analysis using genogram/genosociogram The module in the treatment and handling of disease trigger factors are not used yet Can only do the the 50% preventive and 50% curative in polyclinic Lack of extension in the form of posters, bulletin boards, television, etc. Difficult to socialize the healthy lifestyle in the patient community	High High High medium medium low low
4	Paramedics	Paramedical workers who assist in checking the patient's health status	-	
5	Pharmacist	Serving the medication redemption in polyclinic	The drug in stock become more generic Records are not entirely in pharmacy, because it is still concentrated in the administration section	low High
6	Administration Officer	Conduction Patients Registration	Application from BPJS for patients data management are still limited The hospital and polyclinic are still un-well integrated for patient referral cases Medical digital record is time-limited	medium High High
7	Patient		Unfamiliar with the preventive method of treatment The given drug has decreased from quality Unable to see the number of medication queues that are running	High High Low low

**Table 9.** Problems Summary from Stakeholder Analysis

ID	Problem
P11	Unable to see all transactions that exist in the polyclinic lifetime.
P12	The concept of LKP ANDAL Management is still a new concept and has not proven profitable.
P13	Goal Difference with LKP ANDAL
P14	Not seen significant results from the implementation of LKP Andal management
P15	The absence of a system that integrates patient health data.
P16	Difficult to monitor daily/weekly/monthly performance to take short/Long term decision.
P17	Lack of medical support facilities
P18	There is no clear decision between the manager and the doctors' team for the service concept in the polyclinic.

ID	Problem
P19	Unable to do analysis using genogram/genosociogram
P20	Records are not entirely in pharmacy, because it is still concentrated in the administration section
P21	The hospital and polyclinic are still un-well integrated for patient referral cases
P22	Medical digital record is time-limited
P23	Unfamiliar with treatment process with preventive methods.

### 3.2 Defining Insight

Based on the problem analysis in the previous stage, then in this stage of the insight defining, the researcher filters any problems that can be solved from the view of solution using the IT implementation. Table 10 shows the insight in the form of obtained problems.

In this study, besides filtering the problems that are going to be solve, the researcher also defining the correctness of filtered problems. The result in Table 10 also shows that 94.5% of defined problems are validated correctly by the stakeholders. As for the stakeholders involved are five people, that is enough to get the result of > 80% of the overall validation results [14].

**Table 10.** The Definition and Validation of Problems to be Resolved

ID	Problem	Stakeholder Validation				
		A	B	C	D	E
P3	The data have not well integrated	1	1	1	1	1
P4	There is no module to overcome the disease triggers	1	1	1	1	1
P10	Lack of Healty Lifestyle counseling	1	0	1	1	1
P11	Unable to see the transaction thoroughly in the polyclinic lifetime	1	1	1	1	1
P15	There haven't been any system to integrate the patients health data	1	1	1	1	1
P16	It is difficult to monitor the daily/weekly/monthly performance to take a short/long term decision	1	0	1	1	1
P19	Can not do the analysis using genogram/genosociogram	1	1	1	1	1
P20	The drug records is not fully done in the pharmacy, but it is still concentrated in administration office.	1	1	1	0	1
P21	The hospital and the polyclinic have not been well integrated for patient referral case	1	1	1	1	1
P22	Medical digital record is time-limited	1	1	1	1	1
P23	Unfamiliar with treatment process with preventive methods.	1	1	1	1	1
<b>TOTAL</b>		100%	81.8%	100%	90.9%	100%
<b>Average</b>				<b>94.5%</b>		

### 3.3 Service Design Solution Idea Development

After obtaining the problems to be resolved in the research, the next phase is to develop the service solution idea. In this stage, the researcher has been succeeded generating 4 service design ideas, which are:

- A. Establish an IT system in a service process that is capable of integrating all elements in polyclinic.
- B. Develop an integrated data storage and management system.
- C. Build a system or use a third party service to create a genogram from the existing patient data.
- D. Moving the service process in the form of disease triggers counseling and healthy lifestyle in to digital form (SMS).

All service solution design produced by obtained problems and relates to the information technology implementation to support the service delivery process and also the stakeholders' requirement of the system. The conformity between the problems and the service solution ideas are shown in Table 11.

**Table 11.** The Problems and Solution Conformity

No	Problem Analysis Phase	Problem	Solution Idea
1	Touchpoint Analysis	The data has not being well integrated There is no module to overcome the disease trigger	A & B D
2	Service Quality Analysis	Lack of healthy lifestyle counseling	A & D
3	Stakeholders Analysis	Unable to see the whole transaction in the polyclinic lifetime There is no system that integrate the patient health data It is difficult to monitor the daily/weekly/monthly performance to take a short/long term decision Can not do the analysis using genogram/genosociogram The drug records is not fully done in the pharmacy, but it is still concentrated in administration office. The hospital and the polyclinic have not been well integrated for patient referral case Medical digital record is time-limited Unfamiliar with treatment process with preventive methods.	A B A A,B, & C A A A & D

### 3.4 Prototype Development (Service Design Visualization)

In this stage, the result obtained from the solution formulation is being prototyped into service design solution idea visualization that has been made in the previous stages. The visualization is in the form of service journey map (see Fig. 1). The service

journey map is using the service modelling language (SJML) [10]. The main purpose of making the prototype in the form of service design visualization is to make a standard language of service solution that will become the communication tool for the stakeholders to understand the service delivery process thoroughly.

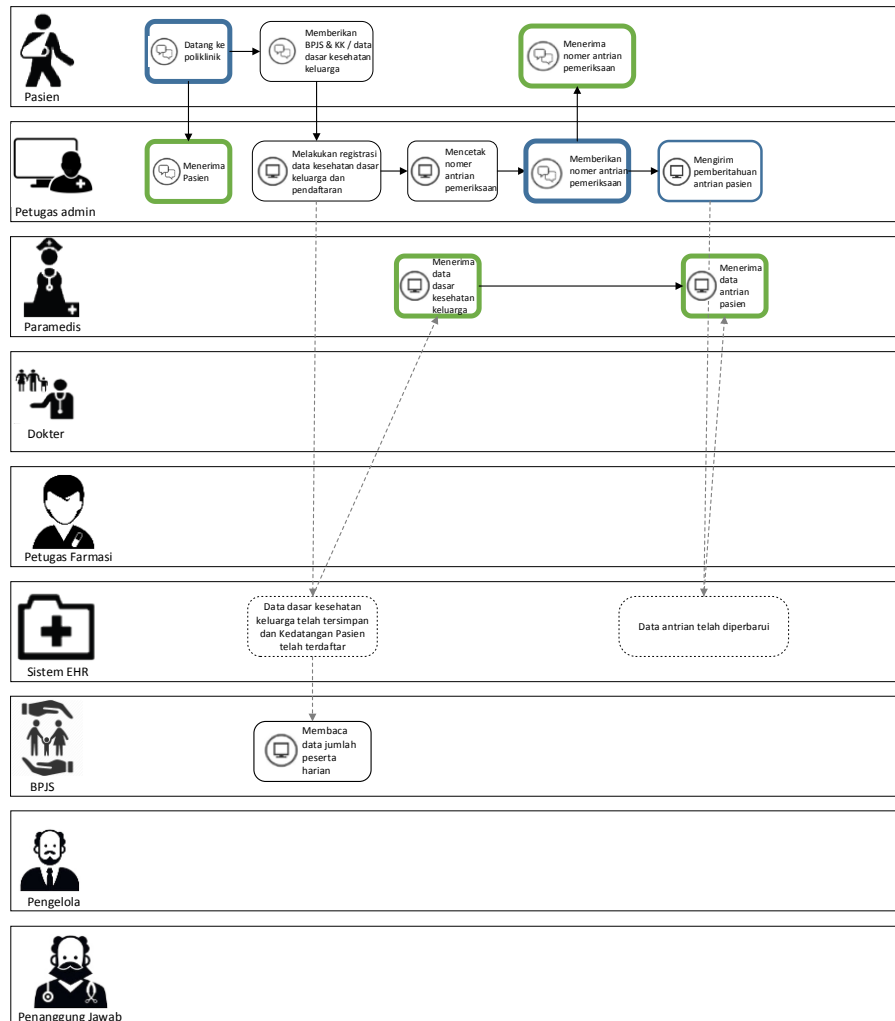


Fig. 1 Service Journey map Visualization using SJML

Before the visualization, the researcher makes the scenario of service delivery process that apply the service design solution idea that produced descriptively, then it is made as the reference material in making the service design visualization. The service design visualization result can be seen in Appendix A.

The service design solution idea scenarios are:

1. The patient comes to polyclinic and make registration by showing their identity card or BPJS card and family card.
2. The administration officer registers the patient's registration by inputting the patient's family health basic data (for new patient) into the system. And old

- patient only has to show their BPJS card (old patient's family health basic data has already been registered).
3. The administration officer prints the patient queue number and gives it to the patient
  4. At the same time, the health worker receives the information regarding the patient arrival and receive the patient's family healthy basic data.
  5. Patient comes to the health checking table to get the current health status (blood pressure, body temperature, body height, body weight, respiratory rate, etc).
  6. The paramedics do to patient's health status checking.
  7. The paramedics send the patient's family health basic data and patient's status data to the general practitioner.
  8. Patient comes into the doctor's room and receives the medical treatment and counseling.
  9. Doctor gives the diagnosis, medication and counseling to the patient according to the patient's status data and family health data in the form of genogram (The genogram is automatically made according to the patient's family basic data input).
  10. Doctor gives the prescription to the pharmacist.
  11. Doctor gives the module of patient's disease trigger to the patient. After that, the doctor gives the explanation about the disease prevention and also gives the healthy lifestyle almanac made by polyclinic.
  12. Doctor gives the notification to the administration officer that the patient has finished the examination and the doctor sends the checkup data and also the disease trigger module.
  13. Administration officer sends the message to the patient via mobile device (SMS) which informs the patient's disease trigger and the healthy lifestyle.
  14. The pharmacist receives the prescription and provides the drugs according to the prescription.
  15. The pharmacist inputs the patient's prescription data into the system. Then the system automatically will differentiate the BPJS drug to the non-BPJS drug.
  16. The medicine that is paid by BPJS will be reported to BPJS automatically.
  17. The paramedics send the drug stock status data to the manager.
  18. Doctor appraises the patient's illness status and the properness to make home visiting.
  19. Doctor sends the request to the polyclinic supervisor in order make home/workplace health visit
  20. The polyclinic supervisor receives the request and send the assignment letter for paramedics to make the home/workplace health visit.
  21. Paramedics make the patient's home/workplace visit and do the medical action regarding the patient's illness and also do the counseling for the patient and the patient's family/co-workers. The given counseling is about the contagion prevention of the same disease and also the healthy lifestyle almanac, based on the family doctor's module.
  22. Paramedics send the report of the medical treatment and counseling result to the doctor via Electrical Health Record (EHR). And the report is also sent to the polyclinic manager and supervisor.

After developing the prototype, the correctness evaluation of the service solution idea by using produced prototype is being done. In the correctness evaluation, the aspect to be judged is the truth about activity that is done by stakeholder in the

process of service delivery. Other than activity, the time-spent rationality in one service is also being evaluated. In this evaluation, the stakeholders are asked to give the judgement regarding the service design solution idea validity, which is divided into 3 parts; stakeholder validity, activity validity and actor interaction validity with total of 29 valuation items. Stakeholders are asked to rate “TRUE” (if the activity is absolutely true), “LESS TRUE” (if one of variable in the activity is not accordance such as the relation, channel, TP description, etc), and “FALSE” (if the activity is done wrong, for instance wrong executor of activity, no intended activity, etc). Channel is the media used in the interaction of the touch point. Table 12 shows the result of correctness evaluation to 5 stakeholders.

**Table 12.** Correctness Evaluation Result

Participant	TRUE	LESS TRUE	FALSE	Correctness (%)
I	26	2	0	89.6
II	23	4	1	79.3
III	26	1	1	89.6
IV	25	3	0	86.2
V	26	2	0	93.1
	<b>Average</b>			<b>87.5</b>

The result in Table 12 shows that generally the average of validity percentage of the service design solution is majorly validated, which is 87.5%, and there are some minor fault that has to be considered to earn maximum service design. After doing the deeper analysis about the entirely correctness evaluation result (for the “LESS TRUE” and “FALSE” points) from the stakeholders, the feedback are obtained. The feedbacks are in form of arisen problem at the service solution idea that can be the consideration in service design refinement; which are:

1. The short message service delivery in the form of illness triggers and digital counseling can be moved to the paramedics or doctor. It is because the administration officer does not very understand the patient’s condition.
2. For the manager role, the interaction can be expanded, because the manager should know the progress of the polyclinic condition daily.
3. Time estimation must be more realistic and detailed per activity.
4. Tablet channel used on doctor’s activity can be 1 type, for example: all use the tablet without anymore computer interaction.

For service design enhancement based on correctness evaluation result can be seen in Appendix A.

#### 4. Conclusion

This research digs up the problems occur on LKP ANDAL implementation at polyclinic PG Kebonagung by using service design approach, and it generates 23 problems. This study only focuses on the completion which done by IT system implementation to support the accomplishment. The LKP ANDAL concept purpose is by putting forward the consideration of characteristics of polyclinic PG Kebonagung. The result is there are 11 problems worth 94.5% that has been validated by the stakeholders.

The outcome were 4 service solution ideas: (1) Establish an IT system in the service process that capable for integrating all elements in polyclinic, (2) Developing an integrated data storage and management system, (3) Build a system or use a third party service to create a genogram from the existing patient data, (4) Moving the service process in the form of disease triggers counseling and healthy lifestyle in to digital form (SMS).

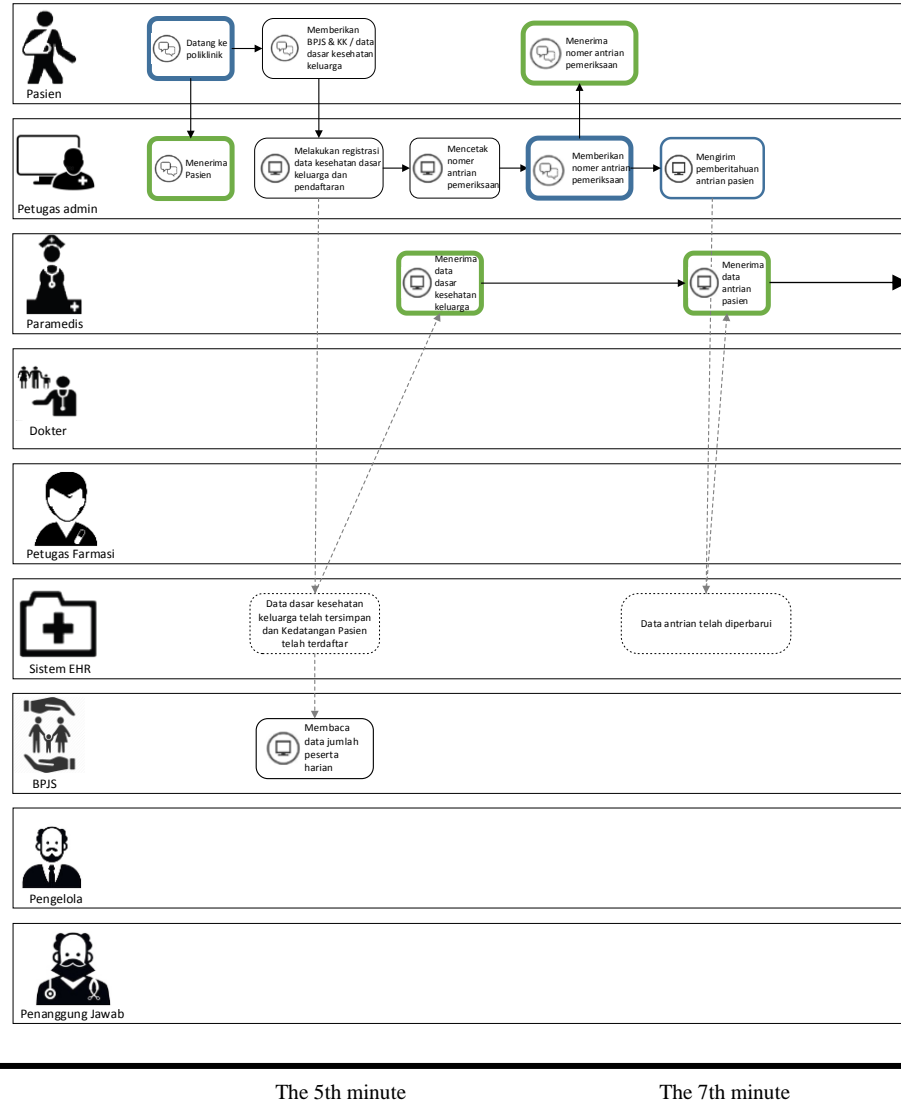
The service solution ideas then is made into a prototype in form of service design visualization to illustrate the service journey map when it is implemented in form of modelling language SJML and than being evaluated. The result of evaluation shows that the modelling language is 87,5% TRUE (logic, suits to the requirement and applicable)

## References

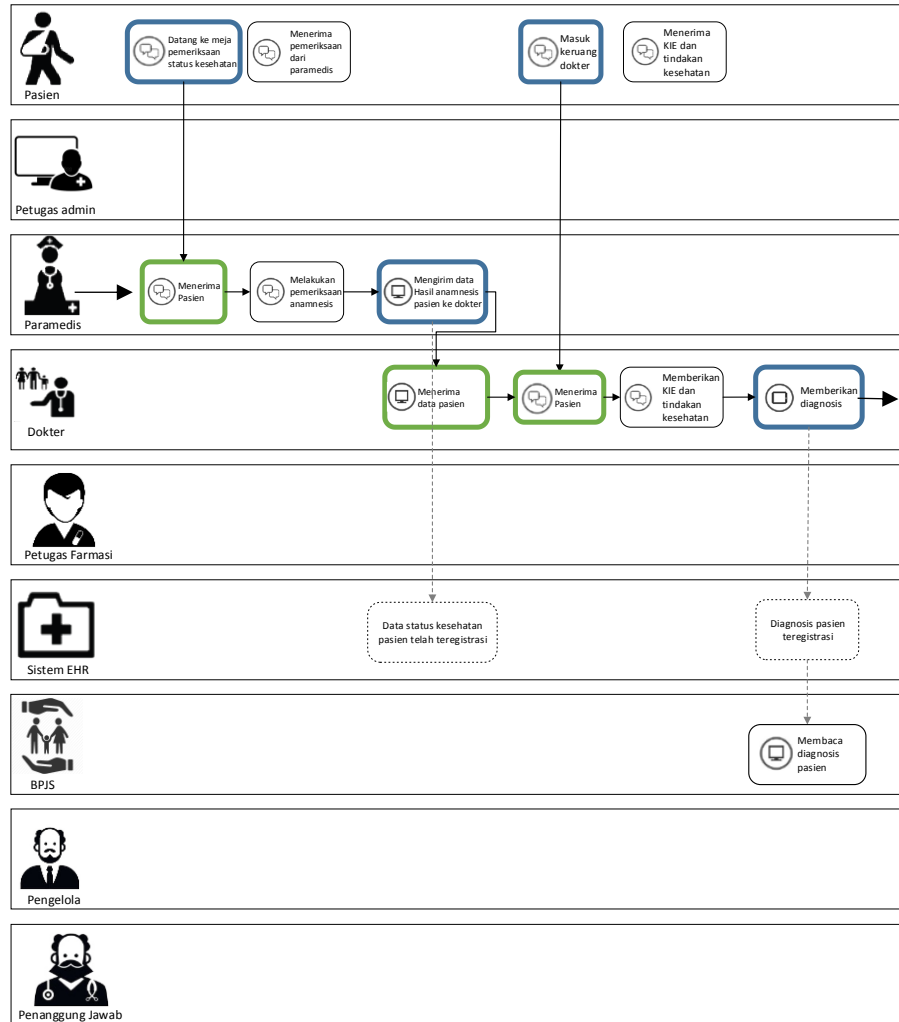
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APPENDIX A.

Service Journey Map

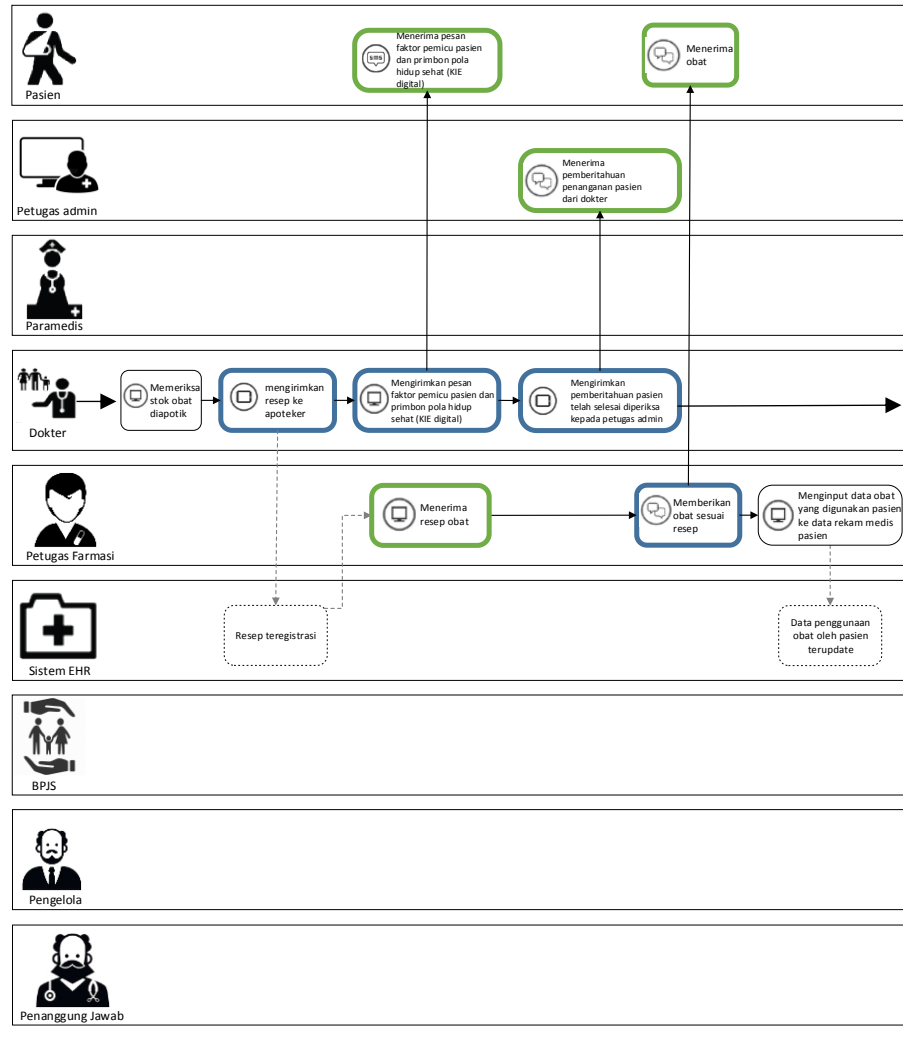




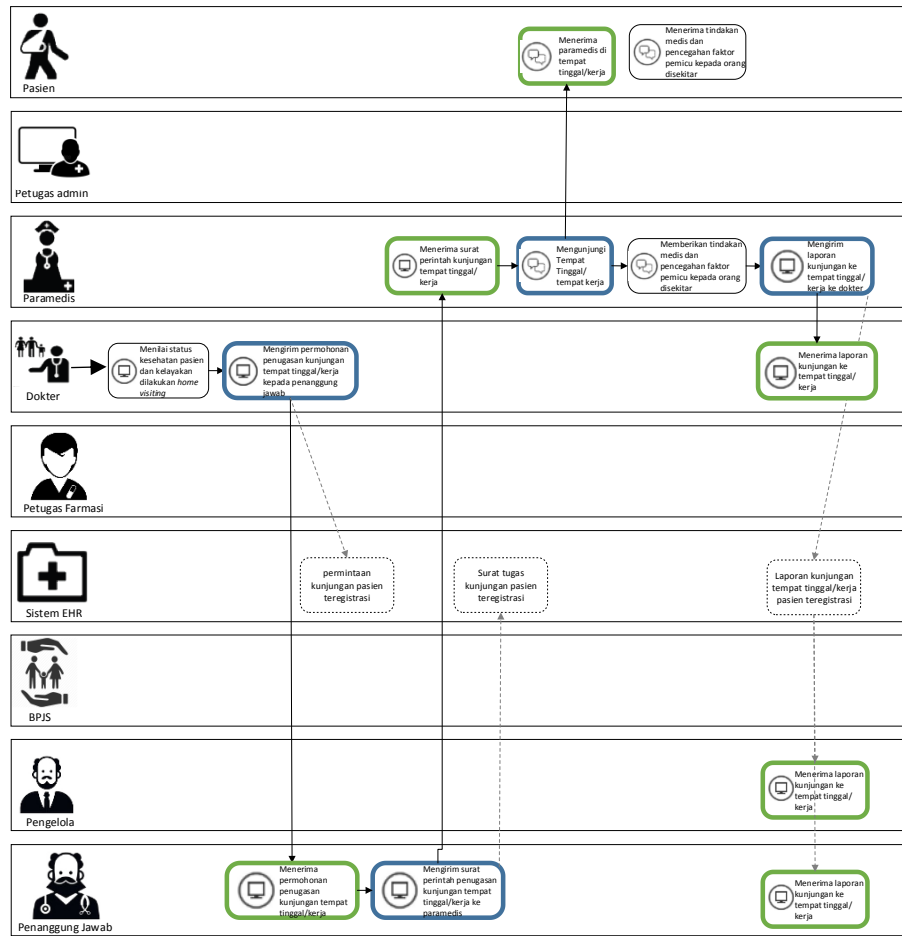


The 17th minute

The 27th minute



The 29th minute      The 31th minute      The 37th minute      The 40th minute



\*) Estimation of time consumption on different day.