

Socialist Republic of Vietnam
Department of Health Ho Chi Minh City
Binh Tan Hospital

**Collaboration Program with the Private Sector
for Disseminating Japanese Technology
for SPD System in Vietnam**

FINAL BUSINESS REPORT

March, 2017

Alfresa Medical Service Corporation
Alfresa Holdings Corporation

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Abbreviation List

Acronym	Official name
ACP	Alfresa Codupha Healthcare Vietnam Co., Ltd
AFH	Alfresa Holdings Corporation
AFM	Alfresa Medical Service Corporation
BTH	Binh Tan Hospital
CDP	Codupha Central Pharmaceutical Joint Stock Company
DOH	Department of Health Ho Chi Minh City
MOH	Ministry of Health Viet Nam
SPD	Supply Processing and Distribution
SQL	Structured Query Language

1 Executive summary

1.1 Executive summary

Nowadays in Vietnam, the nurses have been the administrator of medical supplies, thus they cannot focus on their original task, "nursing service", and the patients are often cared by their family. At the same time, Vietnam is facing the aging population and the revolution of medical technique, so in near future the increase of medical expense and the alteration of medical system are being expected. The same situation has been occurred in Japan before. In order to solve the problem and make in-hospital work efficiency higher, a medical supplies outsourcing technique "Supply Processing and Distribution System" (SPD system) was introduced and expanded.

In November 2013, Alfresa Holdings Corporation (AFH) has co-founded Alfresa Codupha Healthcare Vietnam Co., Ltd. (ACP) with Codupha Central Pharmaceutical Joint Stock Company (CDP; then-state-owned medical wholesaling company in Vietnam) in order to import and sale medical devices.

In December 2013, AFH and its subsidiary, Alfresa Medical Service Corporation (AFM), introduced the SPD system to Department of Health Ho Chi Minh City (DOH). DOH, AFM and AFH manually agreed to conduct the SPD system test run in Binh Tan Hospital (BTH) located at the west part of Ho Chi Minh City and directly controlled by DOH. BTH was selected as the best place to conduct the SPD system test run because the number of patients is not so much, in-hospital delivery work is smoother and the usage of the medical supplies is less compared to the hospitals in the centre part of Ho Chi Minh City.

In October 2014, AFM sent a staff to BTH and conducted the SPD system test run. At the pediatric ward and emergency outpatient department, it was done at the same logistics management level as one in Japanese medical facilities. As a result, it successfully reduced about 66% of the department's stock and the administrative work of medical supplies by the nurses.

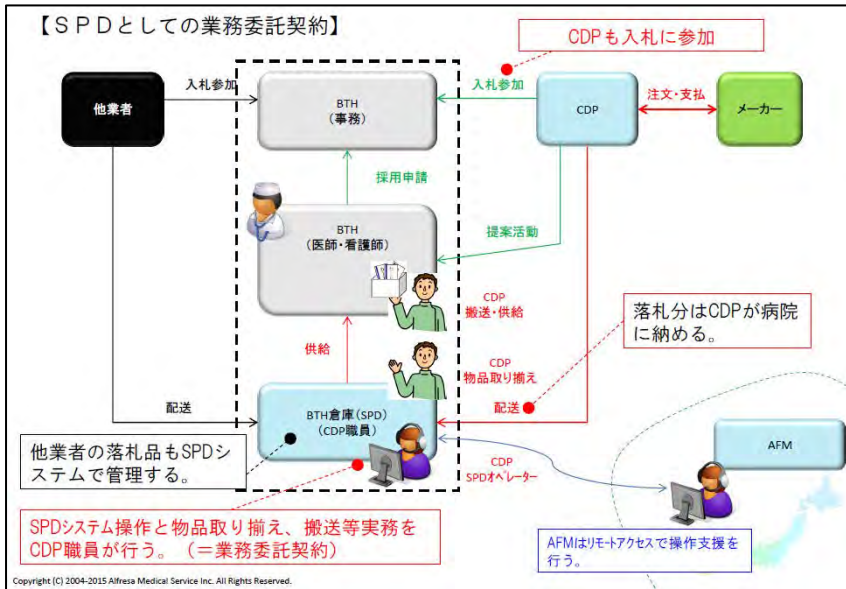
In the debriefing session of the SPD system test run held in January 2015, the results were well received by DOH and BTH regarding the numerical improvement of inventory as well as the positive comments from the nurses about workload reduction. On the other hand, it was also pointed out there that DOH, BTH, AFM and AFH would have to do more research on it in order to find out how would the result shows if we run the SPD system in an entire medical facility. To expand the SPD system in Vietnam, we needed to conduct the second round SPD system test run utilizing the local human resources, instructing the logistic technique to them, and developing the sustainable operational and localized the system. Therefore, AFM and AFH applied for the COLLABORATION PROGRAM WITH THE PRIVATE SECTOR FOR DISSEMINATING JAPANESE TECHNOLOGY in 2014.

By conducting the SPD system test run in BTH in the collaboration program, we aimed to demonstrate the improvement of stock management and in-hospital logistic efficiency of medical supplies and workload of the nurses in Vietnam, to educate the SPD system technique to CDP, and to help DOH and BTH understand the further values of the SPD system. The final target of our collaboration program was to make the SPD consignment contract between BTH and CDP, and to propose the SPD system installation plan to DOH.

The SPD system test run was scheduled during June to August in 2016, but somehow some parts of the SPD system did not fully activated in the period. In order to make sure to get the proper status of how the SPD system fully work out, it was extended for one more month until the end of September 2016.

As a result of the SPD system test run, the inventory in each department and the total warehouse was decreased 34% and 18%, respectively. DOH, BTH, AFM, and AFH recognized that the overall results were good, though the inventory period is an improvement area yet. The SPD system showed the workload reduction effect for the nurses with almost 520 hours/month decrease, which is equivalent to 147,440 Japanese Yen so that BTH could hire 3 more nurses. The consciousness survey about the SPD system also showed that 87% of the nurses positively accepted it and would like to keep using it further.

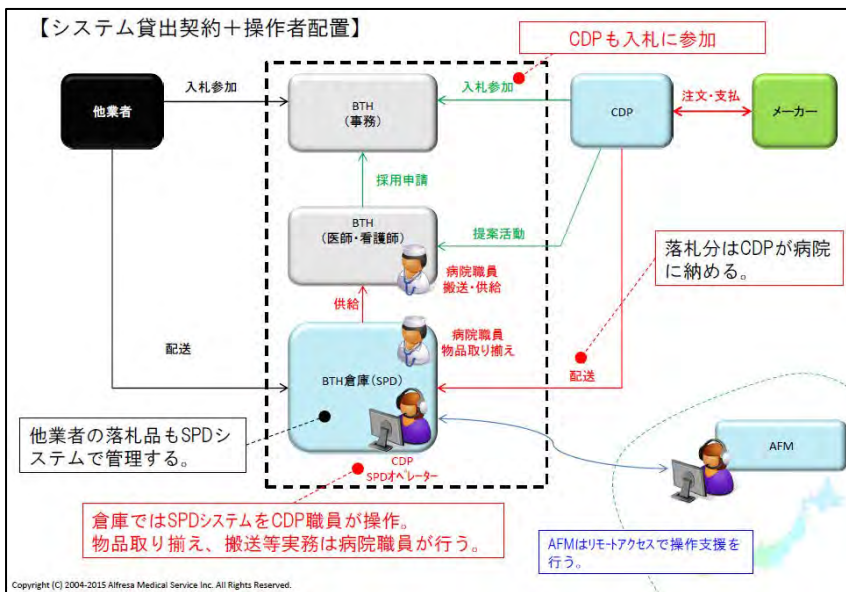
Concealment



● Outsourcing of all logistics management

SPD System	CDP stuff
Logistics management	CDP stuff
Purchasing management	Public tender
Ownership of stock	Hospital

Figure 1.1-1. Proposal to BTH



● Outsourcing of SPD system management

SPD System	CDP stuff
Logistics management	BTH stuff
Purchasing management	Public tender
Ownership of stock	Hospital

Figure 1.1-2. Request from BTH

To develop the future business, there are 3 tasks needed to be known and solved.

Concealment

The second is the low labor-costs-advantage by the SPD system in Vietnam. The SPD system is originally an outsourcing technique for the hospital management efficiency improvement. In Japan, the SPD system contractor usually secures the profits by being given purchasing right, buying the medical supplies to the hospital, and using not-qualified staffs through providing the service with lower cost for the hospital. Then the SPD system is recognized due to decreasing the running costs and releasing the nurses from the indirect work cost. However, in Vietnam, the labor cost of the nurse is quite low and the nurses are regards as the administrators for the medical supplies. In addition, as described before, it is hard for the SPD contractor to have the purchasing right.

Concealment

In Viet Nam-Japan Friendship Hospital (Cho Ray Hospital No.2) Development Project planned in Official Development Assistance (ODA), if the SPD system could be incorporated, it is likely feasible to export the whole Japanese hospital business scheme to Vietnam. In the future, as the developing countries install higher medical technique and higher-specification medical devices, the needs of the SPD system must be getting higher for the purpose of making precise management of medical supplies. Therefore, it shall be useful that the SPD system is practical in the ODA cases.

2 Background of this project

2.1 Background of this project

In November 2013, AFH has co-founded ACP with CDP (then-state-owned medical wholesaling company in Vietnam) in order to import and sale medical devices.

At the beginning of this project we gathered information and inspected medical facilities in Ho Chi Minh City, the nurses have been the administrator of medical supplies, thus they cannot focus on their original task, "nursing service", and the patients are often cared by their family.

At the same time, aging and medical innovation was occurring in Vietnam. With this matter, the use of medical devices and types of medical devices has increased, so that, stock management of medical devices in the hospital was complicated.

Also, due to unstable logistics, stock shortages and delivery delays occurred on a daily basis. Furthermore, due to the bidding system and unstable logistics environment, one hospital deals with more than 100 distributors, which had a negative impact on logistics and accounts payable management. Under these circumstances, DOH was concerned about the future of current stock management method.

In the past in Japan, management of medical devices in hospitals was one of the most important tasks of nurses.

As devices costs have increased due to the declining birthrate and aging society and technological advances in medical care, hospitals needed to improve the efficiency of operations in hospitals.

At that time, the SPD system was developed as a logistics system by outsourcing, and centralized management of purchasing and stock management of medical devices. Currently it is popular as a general consignment work.

With the SPD system, nurses became able to spend more time on their original task, "nursing service", not stocks management.

Also in Vietnam, AFM and AFH thought that adopting SPD system, we can contribute to medical development by improving logistics and safety management. In December 2013, AFM and AFH introduced the SPD system to DOH in order to expand the business of ACP in Vietnam. AFM, AFH and DOH agreed to conduct a test run of the SPD system at BTH to examine whether to adopt the SPD system in Vietnam.

The business purpose of ACP is to import medical devices of Japanese companies and distribute them through a CDP to a hospital in Vietnam, but in order to propose Japanese products, it is necessary to establish methods of business activities and information gathering in Vietnam was there. As one of the measures for that, AFM and AFH expected that if SPD system is combined with ACP business scheme, it will lead to strengthening relationship between ACP and hospital.

One AFM staff stayed in Vietnam in October 2014 and conducted a test run of the SPD system at BTH. We conducted a test run limited to two departments of pediatric department · emergency outpatient department. AFM managed logistics in the same way as Japanese hospitals and reduced stock in departments by about 66%. Because the logistics in the hospital was unified with the SPD system, the burden on nurses was reduced.

In January 2015, we held a reporting meeting to DOH and BTH. Although I was evaluated about reducing stock and reducing nursing work, DOH said that it is necessary to further study the effect of adopting the SPD system in the hospital as a whole. AFM, AFH and DOH decided whether to implement the 2nd SPD system test run, and we have applied for the "Collaboration Program with the Private Sector for Disseminating Japanese Technology" for JICA.

2.2 Technology to be popularized and potential for contributing to development issues

2.2.1 Technology to be popularized

The SPD system is an outsourcing technology that collectively manages in-hospital logistics of medical devices by professional staff and IT systems. The SPD system provider deposits medical devices to be placed in the warehouse and each department in the hospital and manages them with the determined quantity. It unifies the management of ordering, arrival, supply, and consumption, thereby stabilizing the logistics inside the hospital. This is a Japanese business model, and similar technology is exported from Japan only in China in the world. (Figure 2.2-1)

If the SPD system is adopted, the hospital can purchase the medical devices from the SPD system provider all at once, and receive the service of paying only the amount used from among the deposited deposits, thereby simplifying the purchase work. However, BTH has decided distributors of medical devices by bidding and CDP cannot sell medical devices, this service was excluded from SPD system test run of this project. (It is explained as an option in the proposal)

The SPD system can also be applied to in-hospital logistics management of medicines, but in Vietnam it is necessary for qualified persons to carry medicines, so this project covered only medical devices.

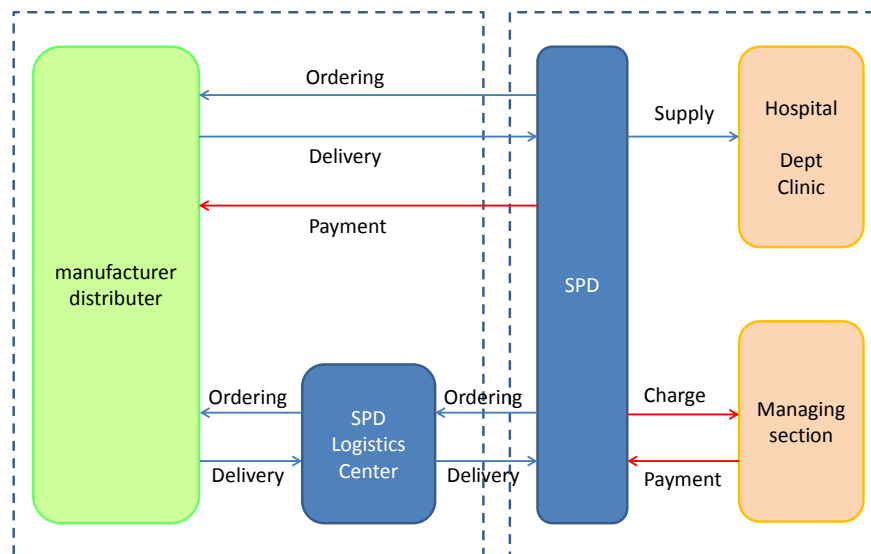


Figure 2.2.1-1. Outline of SPD system in Japan

Concealment

Table 2.2.1-1. Results of using SPD system in AFM (excerpt)

Concealment

2.2.2 Potential for contributing to development issues

In Japan, Pharmaceutical Affairs Law is enacted but in Vietnam the management methods of medical devices are not well developed despite the advancement of advanced medical devices. Also due to unstable logistics, stock shortages and delivery delays occurred on a daily basis.

On the other hand, AFM and AFH will build the foundation of hospital physical distribution management of medical devices utilizing the SPD system in Vietnam, and will expand the SPD system.

Also, due to unstable logistics, stock shortages and delivery delays occurred on a daily basis. Furthermore, due to the bidding system and unstable logistics environment, one hospital deals with more than 100 distributors, which had a negative impact on logistics and accounts payable management. In Japan, SPD system providers purchase medical devices at once for contracted hospitals. We are unifying the ordering of medical devices, stock control, and payment to suppliers, billing to hospitals. Purchasing managers at hospitals have reduced the burden on payment operations.

The stock of medical devices is supplied as a "deposit" by the SPD operator at a time, and the hospital only pays SPD operators the amount they used.

Hospital inventory holdings are greatly reduced, which can contribute to improving cash flow.

DOH is concerned about whether the current management method can cope with the use of medical devices and types of medical devices have increased, and DOH expects to be able to properly manage inventory of medical devices based on data using SPD system.

3 Outline of this project

3.1 The purpose and goal of this project

3.1.1 The purpose of this project

Through test run of SPD system in Vietnam, education on the operation and management of SPD system for CDP staff through inspections in Japan, promoting understanding of SPD system for BTH staff, AFM, AFH, DOH and BTH examined the effectiveness of SPD system in Vietnam and the possibility of adoption.

3.1.2 Goal of this project (Contribution to development issues of target countries / regions / cities)

- Construction of a framework for hospital logistics management of medical devices in Vietnam.
- Education on the operation and management of SPD system for CDP employees.

3.1.3 Goal of this project (business)

- Through test run of SPD system in Vietnam, promoting understanding of SPD system for BTH staff
- Transfer negotiation phase to adopt SPD system for BTH.
- Confirmation of how to develop business with CDP

3.2 Contents of this project

3.2.1 Schedule

AFM and AFH completed preparations for the test run of the SPD system by May 2016, using a database of medical devices collected at the time of test run of the SPD system performed by AFM in 2014.

Before AFM started the SPD system test run at BTH, AFM and AFH conducted "The training program in Japan" for DOH staff, and tried to promote understanding of AFM and AFH's aiming business model. AFM and AFH conducted "The training program in Japan" for BTH staff during the test run and compared it with the SPD system being tested with BTH.

AFM and AFH continuously educated the operation of the SPD system for the CDP staff during preparation of the test run of the SPD system and during implementation.

The goal of this project was to propose the adoption of the SPD system for BTH, but as the AFM and AFH began contract negotiation at the stage of conducting the SPD system test run, in October 2016, a formal contract was concluded between BTH and CDP. Local activities of AFM and AFH after that were used to support BTH staff and

CDP staff who operate the SPD system at BTH in order to make BTH an observation hospital where SPD system is adopted in Vietnam. (Table 3.2-1)

Table 3.2-1. Schedule

Year	Contents	Period
2015	【Local activity 1】 The test run of the SPD system preparation (First Phase)	January 2016
	【Local activity 2】 The test run of the SPD system preparation (Second phase)	March 2016
2016	【The training program in Japan 1】 Survey of SPD system by DOH staff	April 2016
	【Local activity 3】 The test run of the SPD system preparation (Third phase) • Operation	May 2016
	【The test run of the SPD system】	June - September 2016
	【The training program in Japan 2】 Survey of SPD system by BTH staff	July 2016
	【Local activity 4】 Operation management / education	August 2016
	【Local activity 5】 Support end of test run	August 2016
	【Local activity 6】 Discussion on contract of SPD system for BTH	September 2016
	【Local activity 7】 Presentation of SPD system test run result to DOH	November 2016
	【Local activity 8】 Support for SPD system operation at BTH	November 2016
	【The training program in Japan 3】 Education of SPD system to CDP staff	December 2016
【Local activity 9】 Support for SPD system operation at BTH	January 2017	
【Local activity 10】 Support for SPD system operation at BTH Collect information on local activities	March 2017	

3.2.2 System to implement

●AFM and AFH asked CDP for on-site operation of SPD system test run period (June - September 2016) and CDP prepared three persons.

●ACP supports AFM and AFH and DOH and BTH in this project.

Concealment

●AFM dispatched two staff in the SPD system test run. The objective was to prepare for the SPD system test run, to instruct the CDP staff on the SPD system, and to negotiate for the contract.

●AFH dispatched three staff in the SPD system test run. The objective was negotiation with local agencies, market research, and plan management.

(Figure3.2-1)

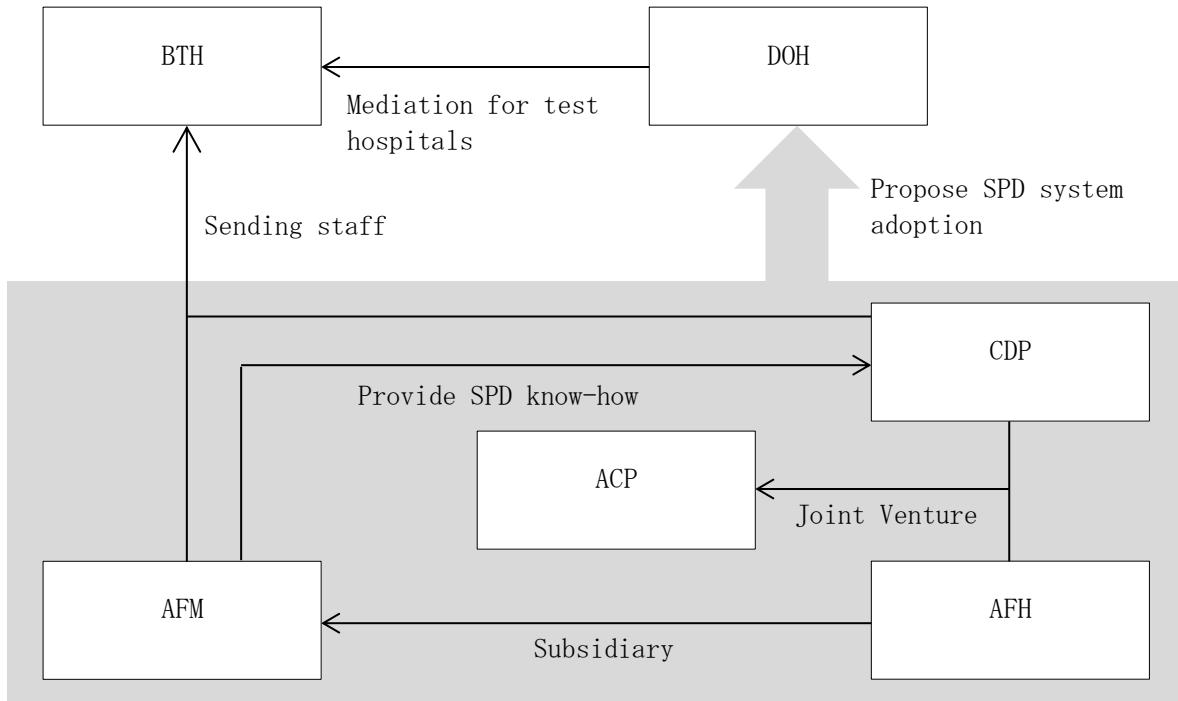


Figure 3.2-1. System to implement

3.2.3 Contents

This project reconfirms the needs of Vietnamese country for SPD system and confirms the department and product which BTH needs to manage medical material by SPD system.

At the same time, AFM and AFH investigated the possibility that Japanese business model such as bulk purchasing of medical devices and proxy payment by SPD system provider will be adopted. (Table 3.2-2)

Table 3.2-2. Contents (overview) and goal of this project

#	Task	Planning														Contents	Goal
		1st (Local)	2nd (VN)	1st (JPN)	3rd (VN)	2nd (JPN)	4th (VN)	5th (VN)	6th (VN)	7th (VN)	8th (VN)	3rd (JPN)	9th (VN)	10 th (VN)			
1	Confirm local needs Consideration of business model	-----														<ul style="list-style-type: none"> Hearing to DOH and BTH. Hearing to CDP. 	<ul style="list-style-type: none"> Clarify requirements of SPD system accepted locally.
2	Partner understands SPD	-----														<ul style="list-style-type: none"> Tour of AFM contract hospital at Japan 	<ul style="list-style-type: none"> Understanding of the necessity of SPD system and expansion of relationship with other agencies through introduction from DOH, BTH.
3	Training operation staff															<ul style="list-style-type: none"> Instruct the CDP staff at the local hospital for operation. Operation training at AFM contract hospital Training at the AFM Logistics Center 	<ul style="list-style-type: none"> At the end of the SPD test run, the CDP staff learns SPD system.
4	Perform SPD system test run at a local hospital															<ul style="list-style-type: none"> Trial of stock control by SPD system (localized version) in Japan. 	<ul style="list-style-type: none"> Clear inventory reduction effect. Clear the reduction effect of the work of hospital staff.
5	Proposed adoption of SPD system															<ul style="list-style-type: none"> Sales to DOH and BTH based on information obtained in this project. 	<ul style="list-style-type: none"> AFM will consider ways in which the BTH can continue the SPD system after this project is over.
6	Agree with alliances with local partners.															<ul style="list-style-type: none"> Jointly proposed with CDP at the candidate hospital. 	<ul style="list-style-type: none"> Determination of work sharing between AFM, AFH and CDP. Signed a memorandum agreeing on sharing work

4 Result of this project

4.1 Confirmation of local needs and consideration of business model

Concealment

4.1.1 Results of hearing with counterparts

【Hearing to CDP (1st local activity)】

AFM explained to Son Sales Deputy General Manager the Japanese business model SPD Company sells medical devices. Although that scheme is not normally accepted, If DOH recommends the SPD system and judges that it is desirable to purchase medical materials from the SPD Company; it may be accepted as a special case. For the purpose, we need to make this test run successful and make DOH recognize the usefulness of SPD system. (Figure 4.1.1-1)

【Hearing to DOH (2nd local activity)】

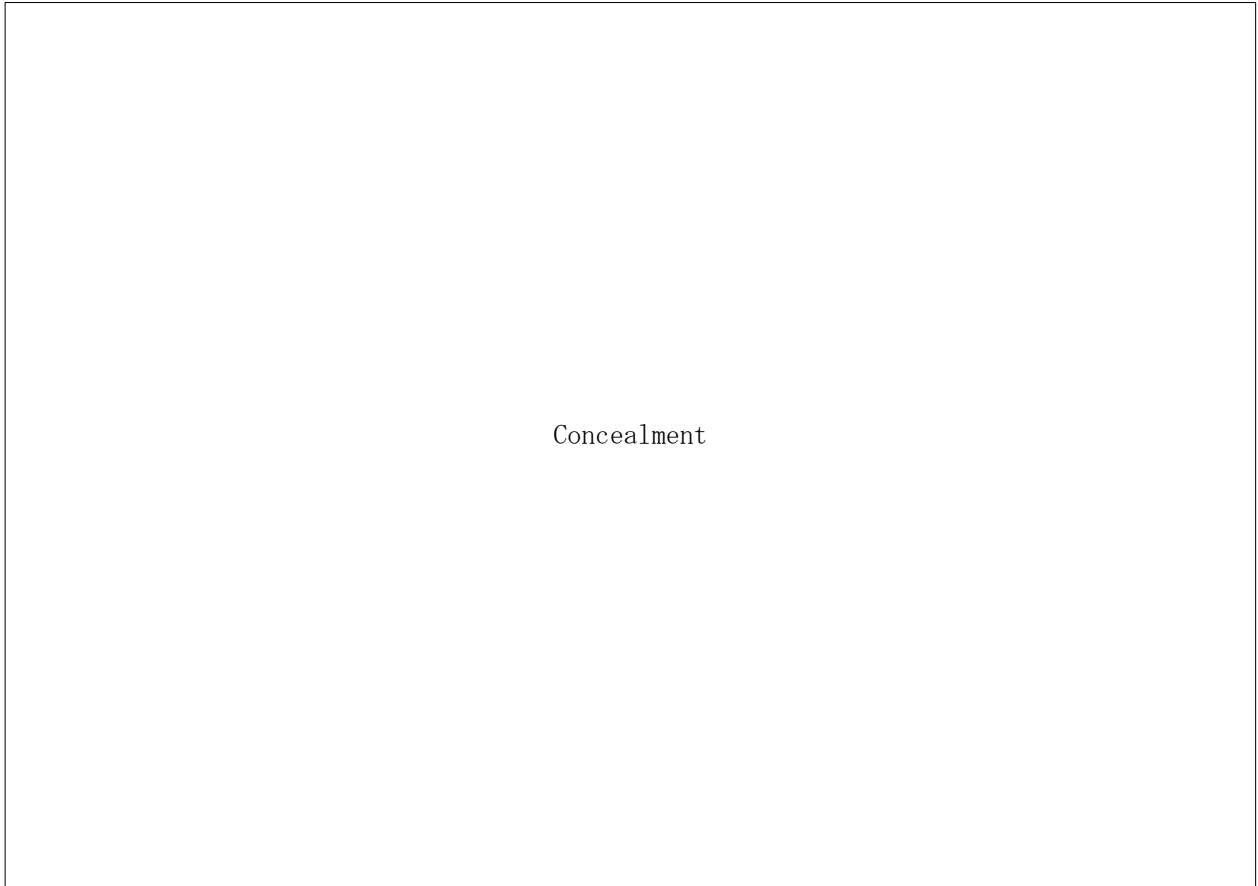
AFM discussed the business development of the SPD system with Le Anh Tuan, director of Ho Chi Minh City Health Department. AFM explained the SPD system and the Japanese business model SPD Company sells medical devices and he understood about the scheme. He suggested that it is necessary to continue discussion about the scheme proposed in this project

【Hearing to DOH (5th local activity)】

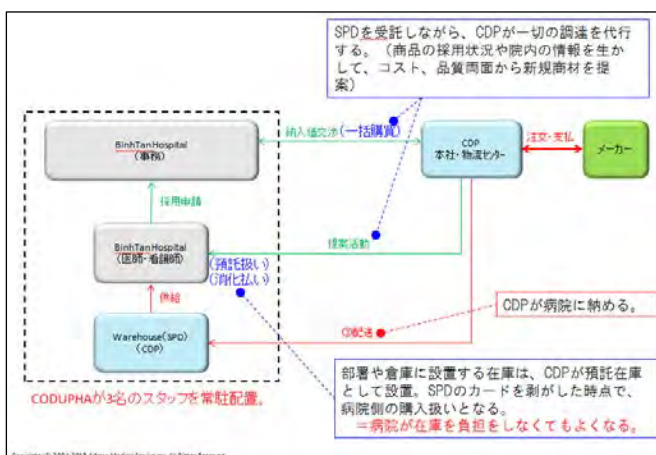
When AFM reported about SPD system test run at BTH with Le Anh Tuan, director of Ho Chi Minh City Health Department, got an opinion on the SPD business model. It is

difficult to change the current business practice in the proposal for BTH, AFM and AFH were advised that it would be better to submit opinion to MOH.

【Proposed adoption of SPD system for BTH (5th local activity)】



Concealment



● Outsourcing of General SPD system management in Japan	
SPD System	CDP stuff
Logistics management	CDP stuff
Purchasing management	Purchase from CDP
Ownership of stock	CDP

Figure 4.1.1-1. Outsourcing of General SPD system management in Japan (the original plan)

4.2 Promoting Understanding of SPD System through Inspection

In Vietnam, advances in medical technology are progressing, and the types and amounts of medical devices handled in hospitals are increasing. Along with that, DOH is aware of the necessity to upgrade management of medical devices in hospitals, such as production lot and expiration date management. DOH recognized that the SPD system can contribute to the future of medical care in Vietnam. Against this backdrop, DOH and BTH were aggressive in terms of accepting Japanese SPD knowledge, and since the AFM and AFH had been exchanging information since 2014, the attention to the SPD system test run as promotion was very high.

DOH and BTH visited the AFM logistic center and SPD contracted hospital in Japan. We explained the options of SPD operator such as One-stop traceability management in hospital from logistic center outside by package purchase, and improving cash flow by responding to pay out using amount, and reducing the risk of consumption expiration management. These services and technologies are not compatible with the SPD system test run in this project. However it would be a remedy for future problems of medical material management in Vietnam.

●DOH staff visiting Japan (First acceptance in Japan)

Visitor	Assistant Director, DOH Ho Chi Minh Children's Hospital 2 DOH general manager (this project person in charged)
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Opinions from the participants

【About the visit】

- Introducing the SPD system in Vietnam would be useful for the sophistication of medical device management which we recognize as a future task.

【On the possibility of introducing SPD system in Vietnam】

- Consignment of in-hospital logistics such as stocks management and transportation of medical materials isn't subject to laws and regulations in Vietnam, and we believe it can be introduced even in the current medical system.
- Since there is a current bidding system, we believe it's difficult to realize the SPD system including bulk purchasing of medical materials right away, And we need to continue discussions with AFM and AFH in future.

Concealment

●BTH staff visiting Japan (Second acceptance in Japan)

Visitors	Binh Tan District People's Committee Vice Chairperson
	Director of BTH
	Director of Infection Control Team, BTH
	BTH planning manager

【Visiting the SPD warehouse in Inagi Municipal Hospital】

BTH visited AFM's SPD warehouse in Inagi Municipal Hospital. AFM explained how they supply the medical devices all at once from the logistic center outside hospital. In Vietnam, it is usual to decide suppliers of medical devices by bidding, so there is no business model of collective procurement by one distributor. Hospitals have to procure from plural distributors who made a bid, so they must have a certain amount of safe stock in the warehouse. For that reason, high interest was given to the business model AFM is doing in Japan "Installing inventory at the distribution center outside the hospital and ship every time"

【A tour of the AFM logistics center】

We visited a logistics center that AFM is using to operate the SPD system. Order data was gathered from each SPD contractor to the logistics center and staff of the logistics center visited how the picking of shipping items and checking work before shipping were carried out by each hospital department.

The test run of the SPD system which is currently carried out at BTH is only in-house inventory control, and the medical materials purchased by the SPD operator at once in bulk, which the AFM considers ideal, are sent from the out-of-hospital distribution center supplied to the contract hospital, recognize that the scheme of system management of the transportation work to each department in the hospital and the traceability of medical materials is the "out-of-hospital SPD system" observed at Inagi City Hospital and Out-of-hospital Distribution Center I was able to do it.

As mentioned above, since BTH is a commercial practice the collective procurement is difficult, BTH cannot approve the same shame alone, but agreed that it's an efficient.

Concealment

4.3 Education of SPD system operator

- (1st Local Activity) Education to introduce SPD system test run to CDP staff
 - Explain the contents of this project and the outline of SPD to the 3 members.
- (2st Local Activity) Guidance on operation of SPD demonstration for CDP
 - Guidance on operation of SPD system [Logicare-SKY] for Vietnam in ACP office.
 - About the basic on SPD: Importing consumption info, Shipping to department, Ordering data output, and so on.



Guidance on operation of SPD in ACP

- SPD system training for CDP staff (The 3rd Japanese hosting activity)

Visitors	CDP sales department vice manager CDP SPD staff
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We conducted the SPD system training for the deputy manager of CDP's pharmaceutical distributor department and a SPD staff member who supported SPD test run at BTH. Both CDP's member trained the SPD system at the Saiseikai Yokohamashi Tobu Hospital, where the AFM resides. Not only the lecture by the AFM staff, we examined how to operate the SPD system in Vietnam and standards of medical facilities to be targeted. AFM and AFH recognize that there needs a regular support about the initiatives of the SPD system in BTH, and the business activities of the SPD system in Vietnam which the participants raids in this visit.

- Opinions from the participants

In order to advance the medical material management, BTH want to inventory in-hospital stocks and manage production lot and expiration date

4.4 SPD system test run at Vietnam medical facility

● Preparatory activities

[Communication “Test run” to the whole hospital]

AFM held a briefing session of the project to leaders of each nurse department

[Confirming the PQL stocks of each department]

We distributed a list of PQL stock to the SPD managed department, which was created based on inventory data received in advance. We received the desire number of PQL stock from each department on the last day of preparation

[Confirming the management system of in-hospital warehouse during the test run]

Even during the test run, 2 hospital staff in charge of warehouse stayed and supported the operation. We agreed that the hospital staff will do ordering act

[Confirming the in-hospital inventory management status]

1. Department inventory management

Since SPD system test run independently performed by AFM and AFH in 2014, in order to maintain the results of inventory reduction, we changed the rule of regular replenishment to the department from once in a week to, once a day (constant remaining number check method). Due to the decrease in department inventory, there was an opinion from the nursing department staff that the work burden has increased, because the staff have to do work every day, compared to transporting, inspecting material receipt at warehouse, and inputting supplemental information to personal computers once a week.

2. Warehouse inventory management

Regarding warehouses, as we have not changed mass orders once a month as usual, there was not much effect on cash flow in the whole hospital.

(Table 4.3-1)

Table4.3-1. Schedule on Warehouse and department shipment in BTH

	Management Department	Shipment frequency			
		~10/2014 Before test run	11/2014 Test run	12/2014 ~5/2016 Test fun unperformed period	6/2016 ~9/2016 This project Test run period
Warehouse	Corporate planning dept	Monthly	Monthly 2 dept SPD are operated in separate warehouse for SPD(7 days in stocks)	Monthly	Weekly ※change biweekly once by consultation later
Department	Nursing	Weekly ※Nursing stuff carried out logistics management such as shipment	SPD : Weekdays Non-SPD : Weekly ※PQL management in SPD	Weekdays ※Nursing stuff carried out logistics management such as shipment.	SPD : Weekdays Non-SPD: Weekday ※PQL management in SPD

● SPD test run period (Third ~ Fifth local activity)

We started the SPD system test run as planned on June 1, 2016, but the number of inventory settings for each department was inadequate, and the insufficient understanding of the operation of the onsite nursing department staff caused significant operation correction.

Three to four CDP staff re-entrusted to SPD system management, conducted warehouse shipping work, transfer work, SPD system operating during the period from June 1 to September 30.

In the preparation stage, PQL stock questionnaires of each department were conducted three times in total, but many requests from the target department to change the number of PQL stock occurred from the first day of the test run.

The numbers of inquiries from the department concerning shipping contents were 1 to 2 per day, and many of them were pointed out on mistakes in number and card misspellings. For the first two weeks until the CDP staff got used to it, hospital staff resident in warehouse carried out preliminary inspections to prevent miss-shipment.

Since SPD test run has been carried out from June 1, 2016 to August 31, 2016, it took much time than anticipated to educate CDP staff. Therefore, we could not use automatic order quantity calculation which is an important function of SPD system.

We extended the implementation period of the SPD system test run until September 30, 2016.



State of SPD system test run in BTH



State of goods-stocking work



Collection box of goods management card

● Summary

In the implementation of this project, Nguyen Van Muoi of the BTH director had previously accepted the advancement of the SPD system test run basically with the contents requested by AFM. Therefore, BTH correspondence during the SPD system test run period was very cooperative.

Regarding the medical material logistics management system "Logicare-SKY", we were able to reduce the work and minimize the final adjustment in Vietnam, due to the preparation work in Japan.

Immediately after the start of the SPD system test run, there were insufficient understanding of SPD system operation by BTH staff and CDP staff. For that reason, requests for changes in the number of stocks in the department and shipping errors occurred. Even under such circumstances, BTH executive notified to follow the operation instructions of AFH and AFM. Therefore we were able to stabilize the operation in the first two weeks.

At the beginning of this project, the final goal was to propose introduction of SPD system to DOH and BTH, but from the stage of SPD system test run, we were able to negotiate contract with BTH earlier than planned. As a result, on October 1, 2016, a support contract related to the SPD system between BTH and CDP was concluded.

5 Summary of this project (Evaluation of the results)

5.1 Results of this project

5.1.1 Contribution to the target country/region/city society

As a result of the SPD system test run, the inventory in each department and the total warehouse was decreased 34% and 18% respectively. DOH, BTH, AFM, and AFH recognized that the overall results were good, though the inventory period is an improvement area yet. The SPD system showed the workload reduction effect for the nurses with almost 520 hours/month decrease, which is equivalent to 147,440 Japanese Yen so that BTH could hire 3 more nurses.

Particularly in the survey conducted by the BTH SPD test run target department staffs, we were able to obtain a 100% favorable response to the formal adoption of the SPD system. We gained much positive feedback on the future introduction of the SPD system from BTH and DOH officials. We received comments from Nha BTH's Assistant director "Thanks to CDP staffs, nursing department staffs are very helpful. Nurse's work has decreased." "Through this test run, we were able to understand the contents of the SPD system" "We are expecting further use of other functions used in Japan in the future"

Also, DOH general manager Le Anh Tuan commented "SPD brings new technology and it is also a big system as economic effect" and received a good evaluation.

The results which BTH obtained by the SPD test run are as follows.

① Learning the stock management method

Using the order point method that the distribution management system has as a standard function, we utilized the function that can automatically calculate the minimum order quantity (Necessary replenishment quantity) for warehouse inventory. In addition, we have decided the amount of orders based on the experience value of nursing staff so far as the necessary amount for one month, and changed from the order schedule once a month to once in 2 weeks to each wholesaler, and led to decrease in warehouse stocks.

Before the SPD system introduction, BTH's department nurses have confirmed the stock remaining number and charged the necessary quantity to the warehouse the next day, which was a burden of nursing work. Since the constant management method which controls the quantity of inventory was introduced, the management was simplified. When we regularly visited from Japan, we managed to reduce the warehouse inventory by adjusting the order quantity with hospital warehouse personnel.

②Department nurses focusing on their original task (Chart5.1.1-1)

Because the SPD system manages inventory management as one stop, the nursing department staff no longer needs to worry about department stock.

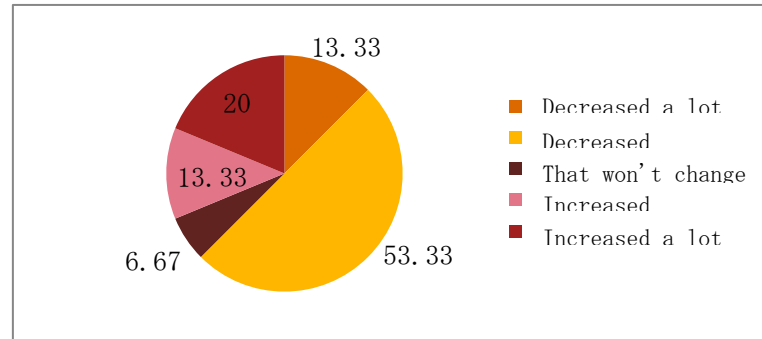
CDP staff responded to logistics related work such as transportation work, which led to reduction of nurse' s burden. However, it' s necessary for the BTH to consider the conversion of room for new productivity caused by burden reduction, into patient service.

Regarding in-hospital department stocks, PQL was set based on the usage amount of 3days. Temporary item claims to medical material warehouse due to stock shortage decreased. Therefore the burden of hospital staff going to the warehouse has decreased.

Table 5.1.1-1. According to the Survey on Attitude toward SPD system testrun by opinion among nursing staff of BTH

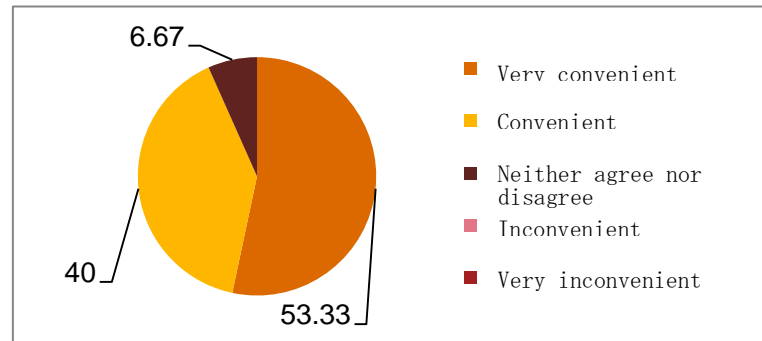
(Q1) Did the work decrease about medical devices?

Decreased a lot	13.33%
Decreased	53.33%
That won't change	6.67%
Increased	13.33%
Increased a lot	20.00%



(Q2) Was the work done by the SPD staff convenient?

Very convenient	53.33%
Convenient	40.00%
Neither agree nor disagree	6.67%
Inconvenient	0.00%
Very inconvenient	0.00%



(Q3) Do you agree with adopting the SPD system?

Strongly agree	53.33%
Agree	40.00%
Neither agree nor disagree	6.67%
Disagree	0.00%
Strongly disagree	0.00%

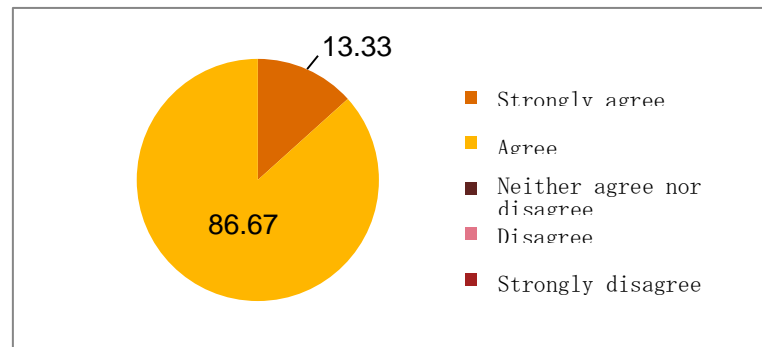


Table 5.1.1-2. The effect of hospital staff's work reduction

A monthly salary 40,000JPN • 20 Working days/month • 7 hour work/day

A unit of money : JPN

Working contents	Part	Working time (minute) /1 time	Department	Persons	Working time (Minute) /1 day	Days	Working time (Minute) /Month	Payment by hour	Subtotal /month
Confirmation of stocks in department	nursing staff	15	14	1	210	20	4,200	285	19,950
Department ⇒ General Planning Division Input to system the quantity of each supply item	nursing staff	20	14	1	280	20	5,600	285	26,600
Picking	General Planning Division	15	14	2	420	20	8,400	285	39,900
Inspection at the time of delivery to the department	nursing staff General Planning Division	5	14	2	140	20	2,800	285	13,300
Ordering warehouse stock	General Planning Division	240	1	1	240	1	240	285	1,140
Delivery from warehouse to department	nursing staff	15	14	1	210	20	4,200	285	19,950
Replenishment to shelf in department	nursing staff	10	14	1	140	20	2,800	285	13,300
Temporary shipment	General Planning Division	20	7	1	140	20	2,800	285	13,300
direct costs (/month)							31,040		147,440

③Acquisition of logistics data management

It became possible to acquire data on “when”, “which department”, “what” and “how many” were shipped, from the medical material warehouse.

④Changes in the BTH warehouse before and after this project (Chart5.1.1-3)

Comparison of the warehouse situation before and after the system test run and the implementation period, the layout in the warehouse was changed, which made it hard to compare. However, by comparing the warehouse inventory amount before the first SPD test run in 2014, and the amount at the end of the second test run, stocks of about 18% were reduced.

A hospital bed capacity was increased from 600 beds to 700 beds from 2014 to 2016. Therefore, the number of medical materials use was expected to increase, but the fact of the stock reduction will be considered to be a certain achievement for PQL management and order management.



【September 2014】



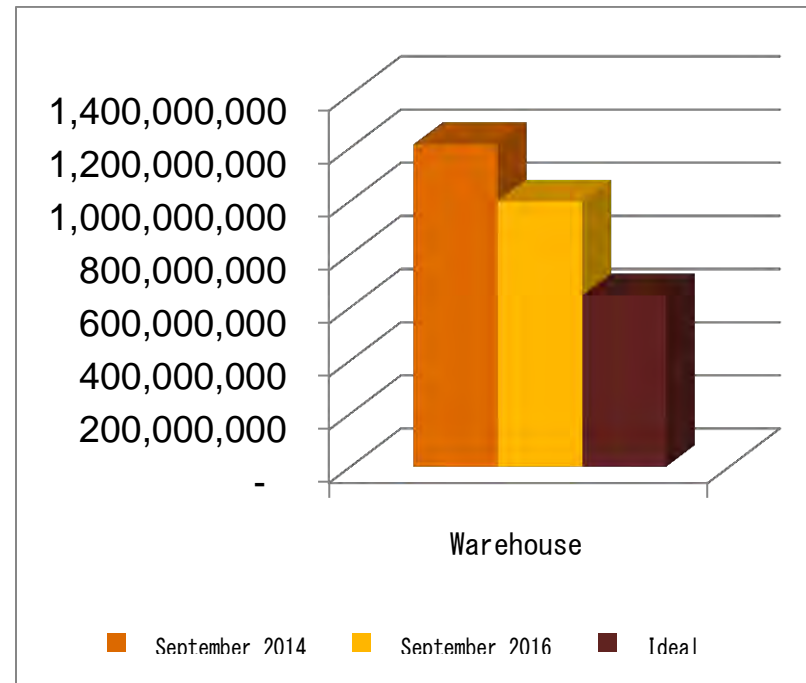
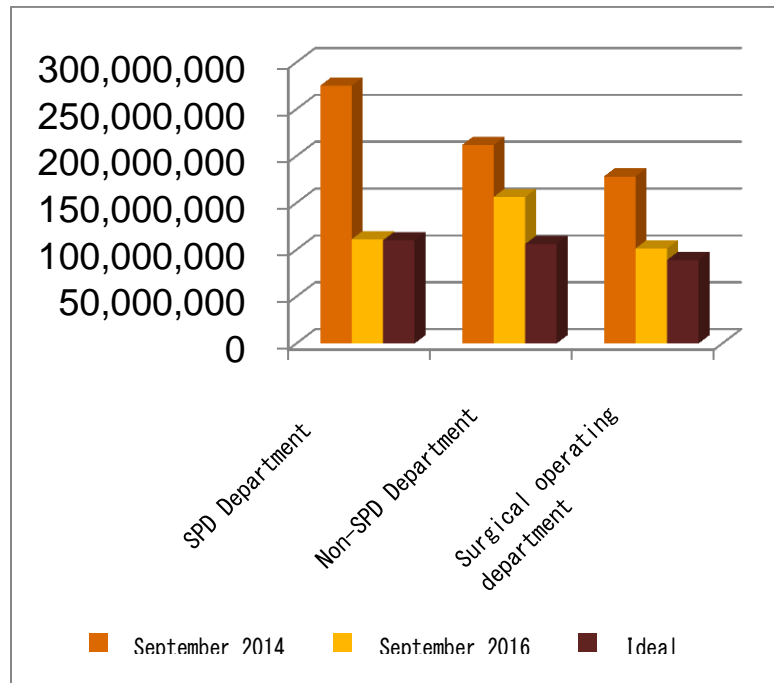
【September 2016】

Table 5.1.1-3. Changes in inventory value of medical devices in BTH before and after this project (Each department)

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Table 5.1.1-4. Changes in inventory value of medical devices in BTH before and after this project (By section)

(A unit of money : VND)



(A unit of money : VND)

	September 2014	September 2016	Reduction rate	Ideal	Reduction rate
SPD Department	275,027,101	111,071,112	▲59.61%	110,000,000	▲60.00%
Non-SPD Department	211,775,493	156,194,053	▲26.25%	106,000,000	▲49.95%
Surgical operating department	178,265,389	101,296,859	▲43.18%	89,000,000	▲50.07%
Warehouse	1,212,891,807	997,527,834	▲17.76%	644,000,000	▲46.90%

5.1.2 Result on Business

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5.2 Task and Solution

5.2.1 Problems on the management of medical devices

①Promotion of practical uses on SPD System

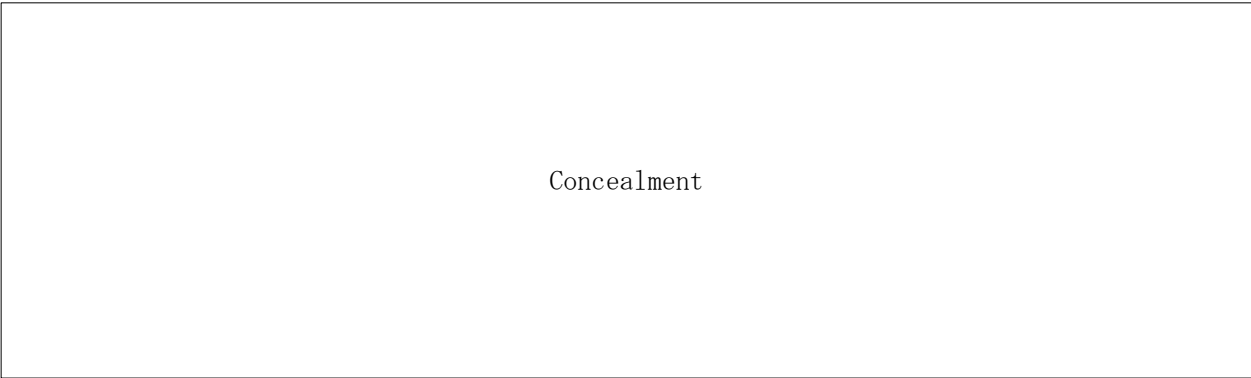
Regarding the automatic ordering data creation function by the SPD system, during the test run period, there was no compromise between the safe inventory amount recognized by the BTH side and it did not work. During the SPD system test run period, the determination of the order quantity between the AFM staff and the BTH staff may be delayed, and due to the irregular ordering timing, some items may be missing or urgently ordered Occurred, etc.

We reanalyze the safe inventory quantity of warehouse inventory using integrated data at test run and promote automation of order data creation. At the same time, by analyzing inventory turnover of warehouse inventory and department constant inventory with accumulated data at SPD system test run, it is necessary to promote optimization of inventory quantity and to review the way of thinking about safe stock. In addition, proposals can be made to further effectively utilize the medical treatment space by reducing inventory.

②Training SPD experts and reducing labor

Knowledge of medical devices of CDP staff doesn’ t know medical devices very well, so it is better to place BTH officials as supervisors of CDP staff until sufficient experience is gained.

5.2.2Tasks on Business Model



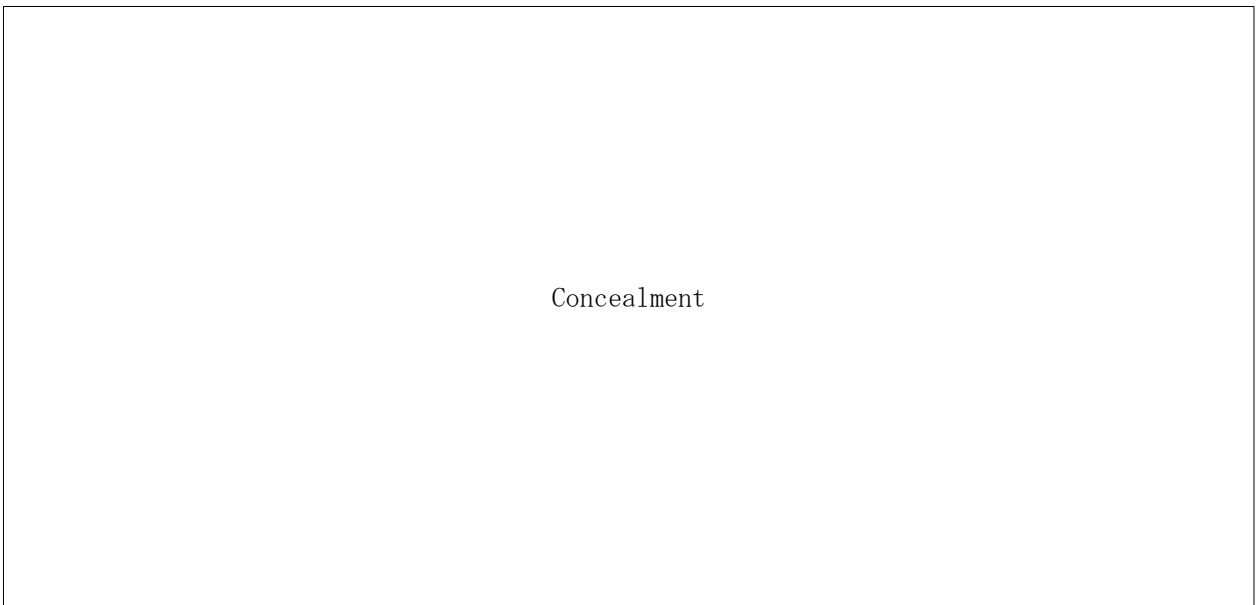
②Outsourcing contract between BTH and CDP

Introduction of SPD system in BTH cannot be said to outsource in-hospital logistics operations to SPD system operators and is not the same SPD system as in Japan. It seems that it will be necessary to improve the efficiency by entrusting the entire business in order to develop a system around the medical care in accordance with the future progress of Vietnamese medical technology. It is important to show the usefulness of the SPD system as a means of dealing with it. For example, it is necessary to deepen the understanding of the nurse's labor reduction effect by the SPD system not only in terms of cost but also in the essence of improving the quality of medical services.

③outsourcing expenses

In hospitals in Vietnam, the personnel costs of nurses and other hospital personnel are low, so there is a high possibility that cost benefits cannot be obtained for the consignment costs when CDP entrusts the SPD system. Therefore, it is necessary to consider options that can expand commercial transactions, and to propose a proposal method that can reduce outsourcing expenses presented to hospitals as much as possible.

5.2.3 Difference in basic design of hospital system between Vietnam and Japan



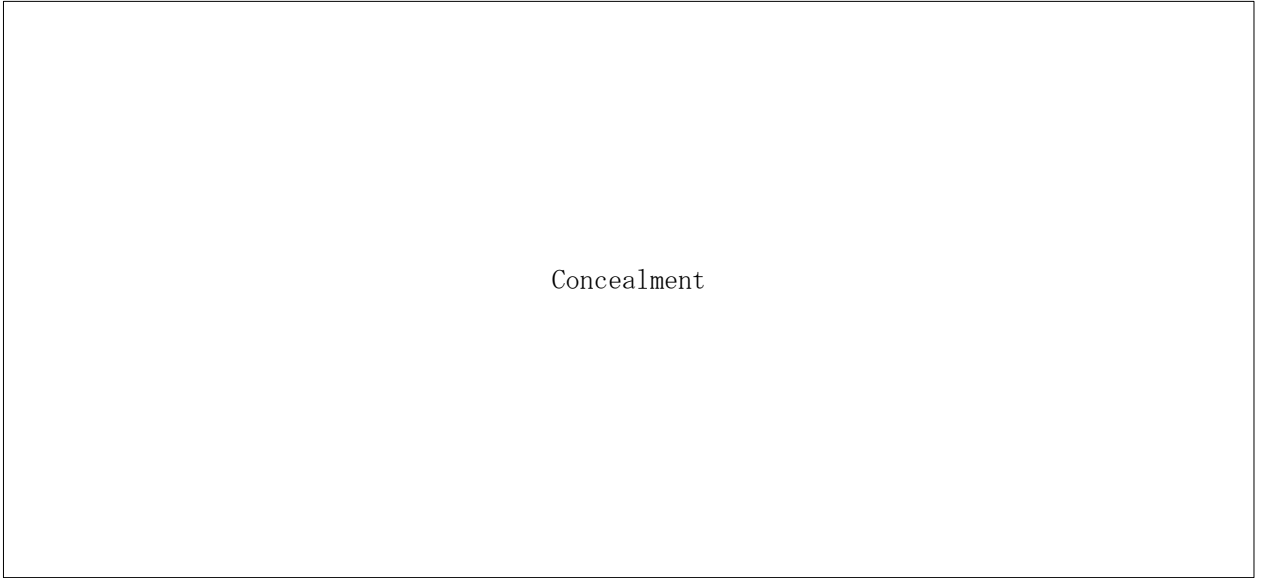


Figure 5.2.3-1. System Configuration on hospital in BTH)

6 Business Plan after this project

6.1 Business Purpose and goal

6.1.1 Expected outcomes through business (contribution to the target country / region / city society and economic development)

【Reduction of hospital operating expenses】

In Japan, it has undergone a period of high economic growth, and now it is in a very aged society. It's a possibility that it will have this situation in the future and suppression of medical expenses will be considered. At the same time, it is also predicted that personal medical costs will rise along with sophisticated medical technology. Before such a social situation is formed, we suggest that CDP and ACP should improve the medical management system to each medical institution through the SPD system from the viewpoint of suppressing labor cost and material cost.

【Response to independent hospital's profitability】

Even in Vietnam, the administrative authority is shifted from the state administration to the hospital, and there is a movement to secure independent profitability. Not only proposals to the national ministries but also suggestions to hospitals individually are expected to require more in the future.

6.2 Business development plan

6.2.1 Business overview

【Donation activity to DOH】

CDP and ACP will suggest SPD system in Vietnam and will offer the hospitals interested in SPD visit to BTH. Specifically, they will be the director / deputy director of DOH (director of medical devices / medicine, supervisor of bidding for medical devices and medicine) and so on.

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6.2.2 Target

It target hospitals with a high purchase price of medical devices. CDP shows three conditions as criteria fit to this target. In addition to public hospitals including jurisdiction over the Ministry of Health that fit these conditions, I would like to

continue the proposal activity of the SPD system to private hospitals that are not affected by the bidding system and that could possibly realize collective purchasing by SPD operators I believe.

- Have a large number of beds.
- Have advanced medical technology.
- The number of hospitalized patients is large.

6.2.3 Organizational Structure

After the end of this project, ACP and CDP will continue to propose the SPD system locally under the support of AFH. AFM will regularly support the operation of the SPD system at BTH, and will continue guidance to SPD staff of CDP and continue to improve the operational situation suitable for field visit facilities. Also, when ACP and CDP sign a new contraction on SPD system, it will support its introduction and operation.

Continually acquire effect amount data on goods management in CDP so that we can propose the usefulness of SPD system to introduction investigator who visited SPT system to BTH. AFM will support it. (Figure 6.2-1)

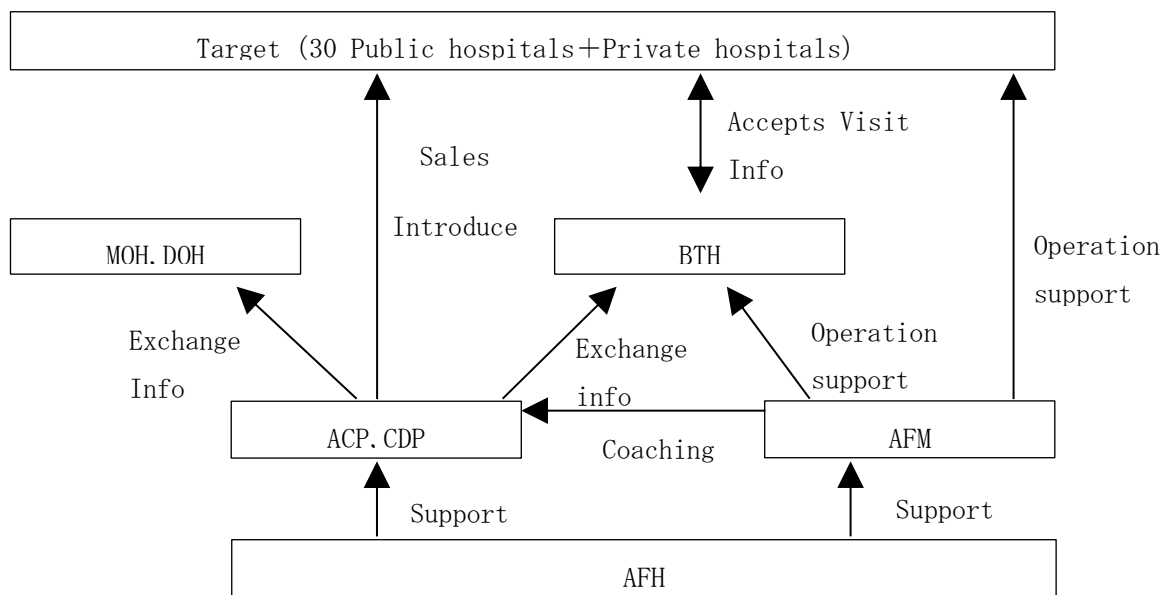


Figure 6.2.3. Organizational Structure

6.2.4 Expansion Scheduling

In 2017, CDP and ACP conduct initial business with 30 hospitals set by CDP. We regularly exchange information with MOH and DOH for the purpose of forming large projects. AFM and AFH will support these activities as necessary. In hospitals interested in the SPD system, we actively carry out facility visits to BTH and encourage new contracts. Ask MOH and DOH to prompt visits to BTH at the jurisdiction facilities. To establish BTH as an observation facility, we also provide guidance and operation guidance to CDP staff who expands the use of unused SPD system functions such as expiration date management at the same time. We will revise the result of activity during 2017 and re-establish the activity policy after that. In collaboration with the JICA project in Vietnam, we will continue to explore collaboration and possibility of introducing the SPD system in the Chorai Niigoe Friendship Hospital Development Project. (Figure 6.2-2)

Figure 6.2.4. Schedule of business development for future

Theme	Content	Detail	2017	2018	2019	2020	In charge			
							AFH AFM	ACP	CDP	
Phase			Policy Decision		Expansion of SPD					
SPD	Sales	To hospital	30 hospitals (CDP selected)	R e c o n s i d e r	Sales to new targeted hospitals		△	○	○	
		To MOH/DOH	sales and share info		Collective introduction to multiple hospitals		△	○	○	
	Educate to CDP	Guidance Regularly by AFM	Lecture of SPD		Collective introduction to multiple hospitals		○			
	System supply	System Supply method	Consideration appropriately (System Supply, contents, and so on)		○	○				
Sales promotion goods	Japanese products sale to SPD contract hospital		Japanese products sale to BTH and to new SPD contract hospitals				○	○		
	Expansion of dealings		Japanese products sale to BTH and to new SPD contract hospitals					○		
JICA business cooperation	Cho Ray hospital No.2 maintenance project		Suggestion preparations	Cho Ray hospital No.2 maintenance project ※ An adopted case is assumed		○				

6.2.5 Competitors

The competition that can propose the SPD system is limited to Japanese companies that have advanced to Vietnam. Currently, there are no companies, which have been proposing concretely SPD system in Vietnam and have entered into this agreement relating to SPD system, other than CDP, subcontractor to AFM, and AFH.

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6.2.6 Tasks and solution on developing business

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6.3 Collaboration potential with ODA project

6.3.1 Necessity of cooperative project- Possibility to contribute to domestic regional economic revitalization

In ACP, expansion of SPD system expansion is expected to increase opportunities to strengthen ties with introduction hospitals and enlighten activities of Japanese products. As a result, it becomes possible for ACP to increase sales opportunities and sales of medical equipment and medical devices of Japanese companies that have signed agency contracts, and it is possible to establish the foundation for expanding business development of Japanese companies in Vietnam I believe.

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