# **Business Process Modelling**

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**TABLE OF CONTENTS**

## EXECUTIVE SUMMARY

ACH Group is a healthcare organization dedicated to assisting patients in transitioning smoothly from hospital care to home through structured care programs. The existing processes are heavily manual, involving data entry from PDFs into systems and coordinating care through multiple healthcare professionals with significant reliance on physical documentation. Antoinette Nguyen, as the Care Manager, is pivotal in managing the transition care program. She is responsible for the initial assessment, ongoing coordination, and final discharge processes, ensuring that each patient's care plan is tailored to their specific needs. The roles of allied healthcare professionals are also critical as they collaborate to update and review the patient's progress and adjust care plans as needed. The analysis of the current 'As-Is' processes has highlighted several areas for improvement, particularly in reducing manual tasks and enhancing system integration. The proposed 'To-Be' processes include the adoption of Care Management System (CMS) to streamline data handling, improve accuracy, and facilitate real-time communication and updates. Recommendations focus on automating patient profile creation, using intelligent algorithms for staff assignments, and centralizing documentation to enhance operational efficiency and patient care quality.

# BUSINESS PROCESS 1 | ACH Homecare Program Acceptance Process

**As-is Business Process 1**

The first process (Figure 1) of the ACH company is the ACH Homecare Program Acceptance Process, which is used for analysing the feasibility and accepting the program request. This process contains several steps including receiving the request, starting the analysis of the program feasibility, checking the healthcare team's schedule, accepting or denying the request, and sending the decision to the hospital. This is one of the main businesses in the ACH company, therefore, denying the program request does not mean they reject the request, the care manager may need to communicate with the hospital for more or different plan's details in the program, and after the hospital modify the request requirements, the ACH care manager will run the process again to check the feasibility with the new requirements. The below contains the diagram explanation and steps analysis to dig deeper into this process and for future improvement.

The BPMN diagram (Figure 1) starts from the top-left-hand side when hospitals send a program request PDF file which contains the patient information and treatment care plan to the ACH company. When the ACH care manager receives the PDF file, she first needs to save the file into their G-drive database manually in order to share the data with their colleagues. Then she starts analysing the program's feasibility to decide whether to accept or deny the program request.

The program feasibility is mainly checking the ACH company healthcare team's schedule whether they are able to fit the requirements or not, such as their available time, and treatment types. By understanding all necessary healthcare team's time and feasibilities, the care manager based on this decides to accept or deny the request. Then the care manager needs to send the messages to the hospital and patient for notice. If the care manager denies the request, she needs to communicate with the hospital for further discussion.

**Challenges in the As-Is Business Process 1**

Based on the business process that we have drawn, the process has some steps that can be seen as redundant such as storing the data files. Besides, there are two main challenges that can be improved including:

- o Analysis the program feasibility:

Analysing the feasibility of the healthcare team and requirements is critical in this process which is time-consuming due to the care manager waiting for the result of the feasibility, and if the feasibility check needs to be rescheduled, the process will need to go back to check and start again.

- o Communicate channel with the hospital:

Our interviewee has mentioned that only E-mail for discussion can be insufficient since some of the tasks or requests can be urgent, and message is not an effective way for communication.

These two parts of issues impact the process heavily, hence future improvement should mainly consider these issues and provide some better solutions.

**Figure 1**

*ACH Homecare Program Acceptance Process | As-is Diagram*
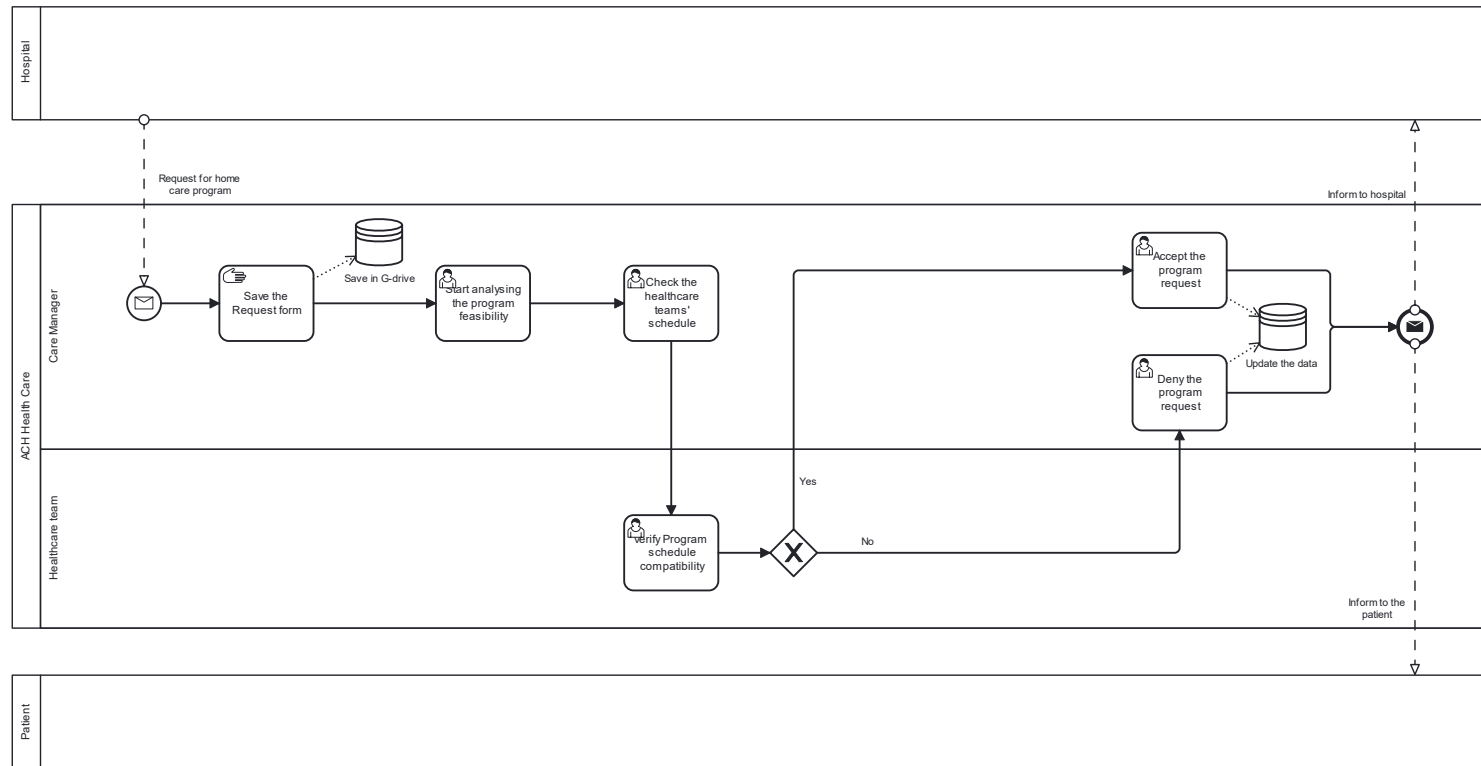


*Note*. Source: (created by the author).

**To-be Business Process 1**

According to the concerns expressed by present employees, there is a requirement to manually handle many documents online utilising word processors, spreadsheets, and PDF readers. Managing many projects with various documents can be time-consuming. We provide three potential changes to streamline this process **(Figure 2).**

1. **Implement Automated Document Management System:** Propose the implementation of a novel automated system for the reception, storage, and administration of documents using an online platform. The hospital will be given an online web form through which they may make a request for the home care program via integrated with Care Management System (CMS), eliminating the need to physically email a PDF file.

2. **Enhanced Collaboration:** Instead of manually uploading files to G-Drive online, the new automation system will automatically trigger and store the specified requests via a cloud service. Implementing a centralised document storage system will improve cooperation among team members by allowing authorised individuals to access the most up-to-date version of the material.
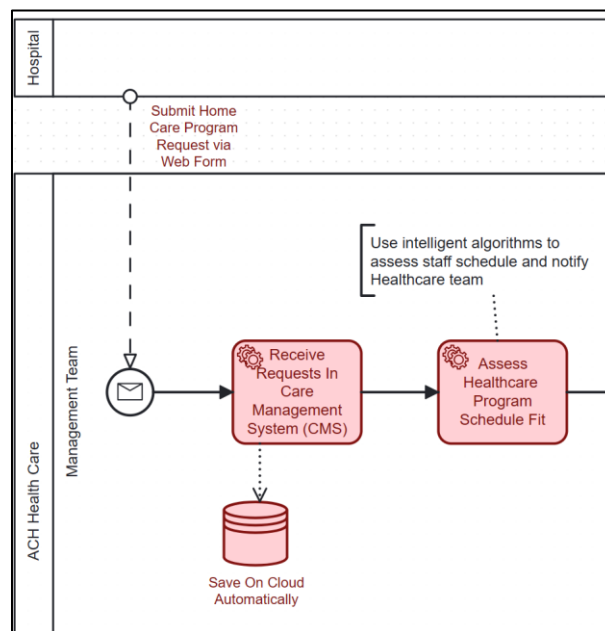
- **Feasible:** Homecare already has a PDF format, making it possible to transform the manual PDF file into an online form. Storing data online has become a feasible solution with popular services like Cloud Storage, Amazon Web Services...
- **Benefits:** Automating the management of documents would decrease human error, resulting in time savings and improved data security and accessibility.

3. **Automate Feasibility Analysis Processes:** Propose an extra program for **analysing automation feasibility** to decrease the need for manual review by human resources. The system will **automatically assess** the *program's feasibility* prior to receiving confirmation from the healthcare team. Following the confirmation of healthcare team compatibility, the team management will conduct a final review to either approve or reject the procedure. Subsequently, an automated email will be sent to both the hospital and the patients.
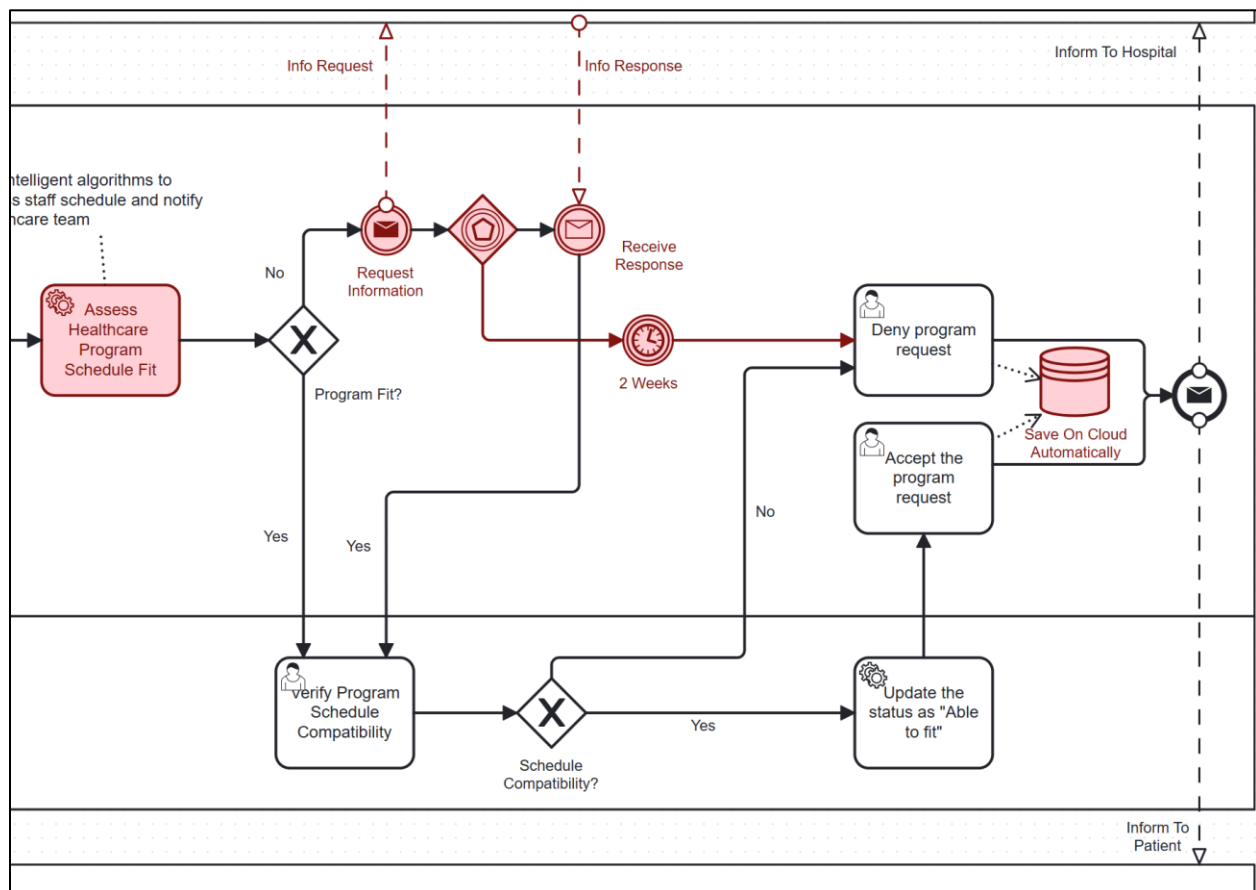
- When determining whether a program is suitable for a patient or not, if the patient is not suitable for a 12-week program, we propose implementing a handle request and response procedure. ***This method would enable communication between the hospital and care team to improve patient needs, rather than rejecting the patient instantly.*** The system will initiate a request to the hospital in order to get any extra or missing papers that are required.
    - o If the hospital responds within ***a two-week timeframe***, the system will initiate an automatic analysis process to reevaluate the patient's eligibility for the program and assign them to a healthcare team for availability verification.
    - o If the hospital does not respond within a two-week period, the system will automatically revoke the request and begin denying it on the grounds of being unfit.
- **Feasibility:** Implementing automated tools for patient assessment is feasible because homecare already has a set of specified standards for assessing feasibility manually. The development team may utilize these same principles while reviewing patients, just like a human would.
- **Benefits:** These improvements will expedite the program analysis process and facilitate decision-making. Implementing this strategy will enhance customer responsiveness and support a larger client base, ultimately leading to increased income for the company in the future.

**Figure 2**

*ACH Homecare Program Acceptance Process | To-be Diagram.*
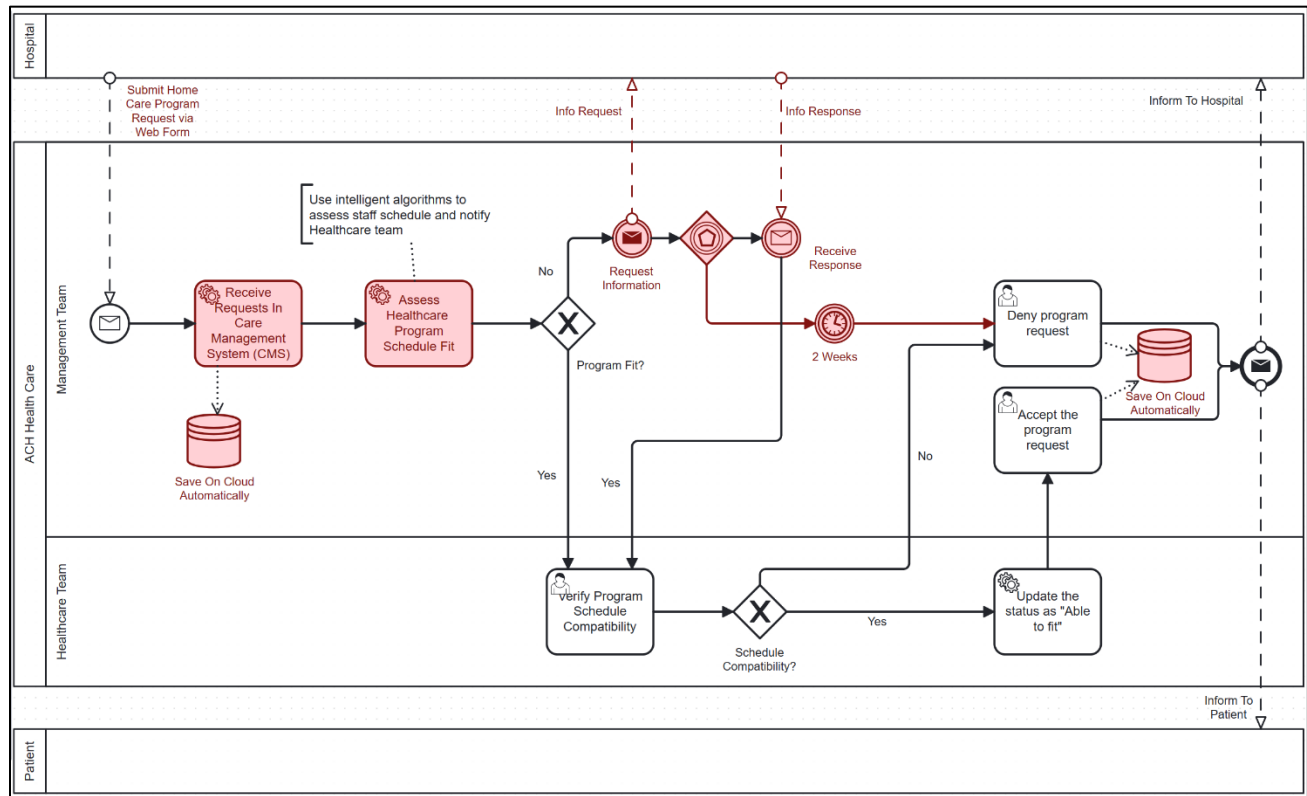


*Note*. Source: (created by the author).

## BUSINESS PROCESS 2 | 12 Week Transition Care Program

**As-is Business Process 2**

In the Gilles Plain office of ACH Group, Antoinette Nguyen, the Care Manager (CM), oversees the 12 Week Transition Care Program, designed to help patients smoothly transition from the hospital back to their homes. It's a comprehensive process that requires coordination among various healthcare professionals.

The illustrated As-is diagram, as shown in Figure 3, comprises nineteen distinct activities, encompassing both manual and user tasks. It also delineates four primary swim lanes: CM, Nursing, Allied Health, and Doctors. Additionally, it encompasses two pools: Hospital and Patient.

The process begins when the CM, receives a PDF from the hospital, detailing the patient's condition. Then creates a patient profile on the Comcare system, inputting all the relevant data including support plans and progress notes. Once the profile is set up, she uploads the PDF onto Comcare. Next, the CM assigns the necessary staff members to the Care Program. The team, including allied health professionals, nurses, and doctors, then defines the transition Care Program. Once it is finalized, the team processes it, ensuring that it aligns with the patient's needs and goals. There is a sub-process that review the patient's goals at Week 3, Week 6, Week 9, and Week 12, and evaluate the patient progress. Patient goals and it reviews are documented and stored on G Drive and are documented using a Word template. At the conclusion of the program, or earlier if considered appropriate, a decision is made regarding the patient's readiness to return home. If the patient's goals have been achieved and they are considered safe at home, they are discharged. Otherwise, the program continues, by requiring an extension, which is also a sub-process. Additionally, decisions are made regarding any necessary arrangements or support needed for the patient upon discharge. This could involve directing the patient to My Aged Care for ongoing support or discharging them home without additional assistance, based on their individual needs and circumstances. Throughout this process, the roles of the patient, Care Manager, Nursing, Allied Health professionals, and Doctors are central to ensuring a successful transition and

continuity of care. Throughout this process, patient folders are meticulously organized on the G Drive, by the patient's name ensuring that all information is easily accessible.

**Challenges in the As-Is Business Process 2**

Several challenges were identified within the as-is business process, as described on the Table 1 below:

**Table 1**

*12 Week Transition Care Program Challenges*

| Challenge | Description |
|---|---|
| Manual Data Entry Errors | The reliance on manual data entry for creating patient profiles and inputting data into Comcare introduces the risk of errors or inconsistencies. |
| Resource Allocation | Allocating a team to the 12 Week Transition Care Program may pose challenges in terms of resource availability and workload distribution. Care Managers must ensure appropriate personnel are assigned to the program while managing other responsibilities. |
| Coordination and Communication | With multiple stakeholders involved, effective coordination and communication are paramount. Parallel activities such as reviewing the care program and patient goals necessitate clear communication channels to ensure alignment and timely decision-making. |
| Documentation and Compliance | Proper documentation of patient goals, progress notes, and decision-making processes is essential for compliance and continuity of care. Ensuring accurate, up-to-date documentation, and appropriate storage can be challenging, especially with manual processes. |
| Patient Involvement and Consent | Engaging patients in the review process and obtaining their consent for goal setting and discharge decisions can be challenging. |

*Note*. Source: (created by the author).

**Figure 3**

*12 Week Transition Care Program | As-is Diagram*
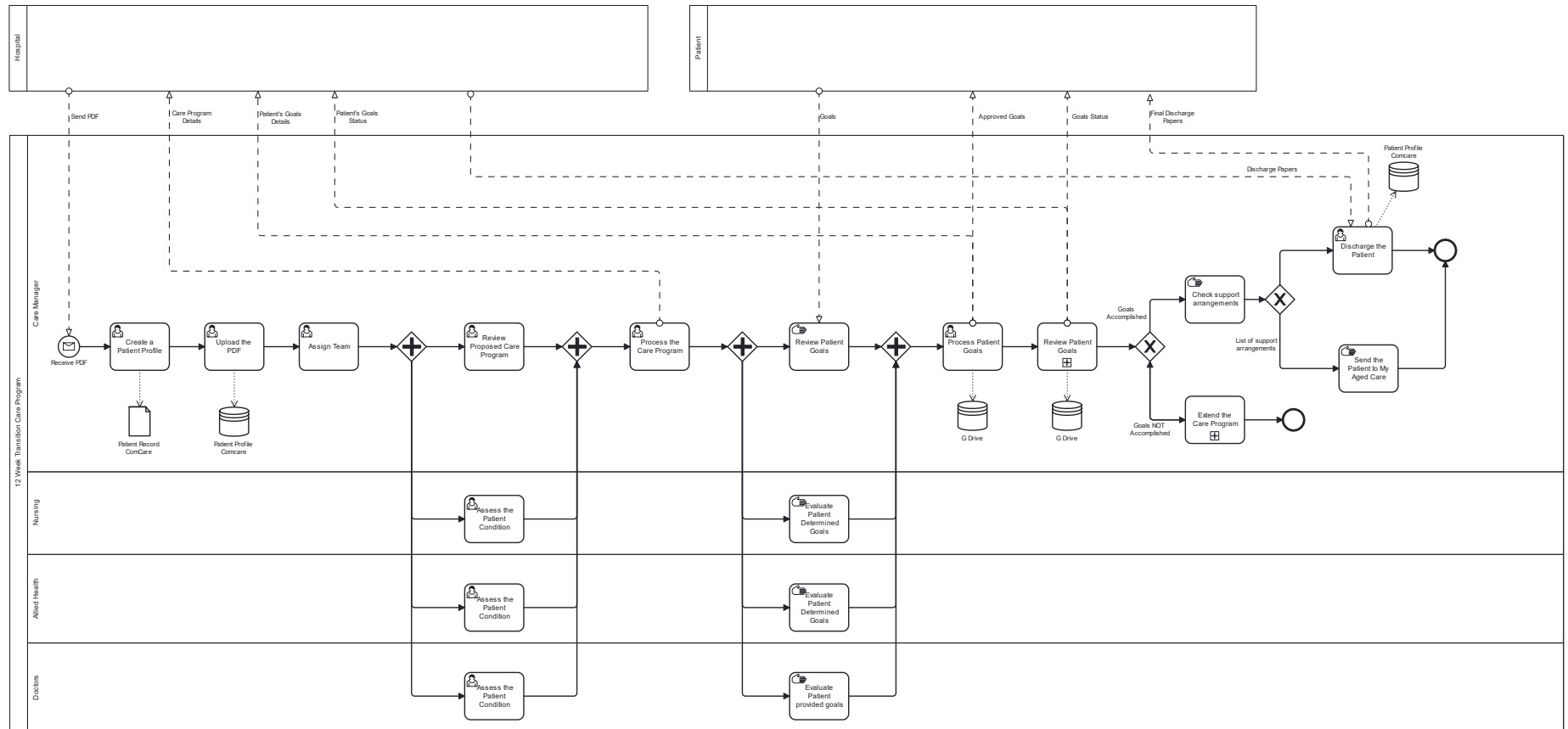


*Note*. Source: (created by the author).

**To-be Business Process 2**

The redesigned To-be process for the 12 Week Transition Care Program strategically addresses key challenges identified in the "As-is" process through the implementation of a CMS. This system eliminates manual data entry errors by automating patient profile creation and data input, thus enhancing data accuracy. It improves resource allocation by using intelligent algorithms for staff assignments, ensuring optimal workload distribution and staff utilization. The CMS facilitates effective coordination and communication through real-time updates and integrated workflows, streamlining the review of care programs and patient goals. Additionally, it ensures rigorous documentation and compliance, while also improving patient involvement by enabling digital consent and interactive goal setting.

After receiving a signed patient form, the CMS replaces the old manual process of handling PDF files by automatically creating patient profiles. Based on master data, which we configure with details like the patient's name, date of birth, address, contact number, and condition, the CMS reads the information from the last online form received from the hospital and the approval form from the Care Manager. The patient profile is automatically saved in the CMS. Then, the CMS uses intelligent algorithms to assign staff based on the schedules they have registered in the system, and notifies the relevant team, including available nurses, Allied Health professionals, and relevant doctors. Once all the relevant staff receive notifications from the CMS, they assess the patient's condition within the CMS. The manager reviews the proposed care program in the CMS, after which the process moves to the next step—processing the care program in the CMS. This replaces the manual process; all reports from the last step (assessments of patient condition) are automatically generated by the CMS and sent to the hospital. After receiving the assessments of patient conditions, doctors evaluate the patient-provided goals in the CMS. Nurses and Allied Health professionals evaluate the patient-determined goals in the CMS, and the Care Manager reviews the patient goals in the CMS. Once all have confirmed the patient's goals, the Manager can set and adjust the program goals in the CMS, and the CMS will notify the hospital of the approved goals and updated status in real time. In this process, all operations are processed in the CMS, replacing the use of G-Drive. The program goals can be reviewed by patients, hospitals,

care managers, nurses, doctors, and Allied Health professionals in real time. The CMS will monitor whether the goals are accomplished. If the goals are met, the CMS will remind the manager to check support arrangements in the CMS. If it is time to discharge the patient, the manager will generate and send the final discharge papers via the CMS. All updated reports will be stored in the CMS. Another option involves listing support arrangements, and the CMS sends the patient's data to My Aged Care.

**Table 2**

*Estimate of the cost and benefits for this improvement*

| Cost | Initial Cost (AUD) | | Licensing (Annually) | | Total | |
|---|---|---|---|---|---|---|
| | $100,000 – $150,000 | | $20,000 | | $120,000 - $170,000 | |
| Benefits | Staffs (Feasible Program Reviewer) | Average wage (AUD/Hour) | Saving Time (Staff / Week) | Saving Time (Staff Per Year) | Saving (All Staffs Per Year) | |
| | 20 | $28.75 | Up to 20 Hours | $29,900 | Up to $598,000 | |

*Note. Source: (created by the author).*

*The use of the new CMS allows for a reduction of up to 50% in processing and operating time. The healthcare staff earns an average compensation of $1,150 per week (Health Care and Social Assistance | Labour Market Insights, n.d.), which translates to an average hourly income of $28.75 ($1,150 divided by 40 hours). The healthcare reviewing team consists of twenty members, resulting in a total savings of $329,900 multiplied by 20, which amounts to $598,000 (Salesforce Small Business Pricing: Affordable Solutions, n.d.)*

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**Figure 4**

*12 Week Transition Care Program | To-be Diagram*
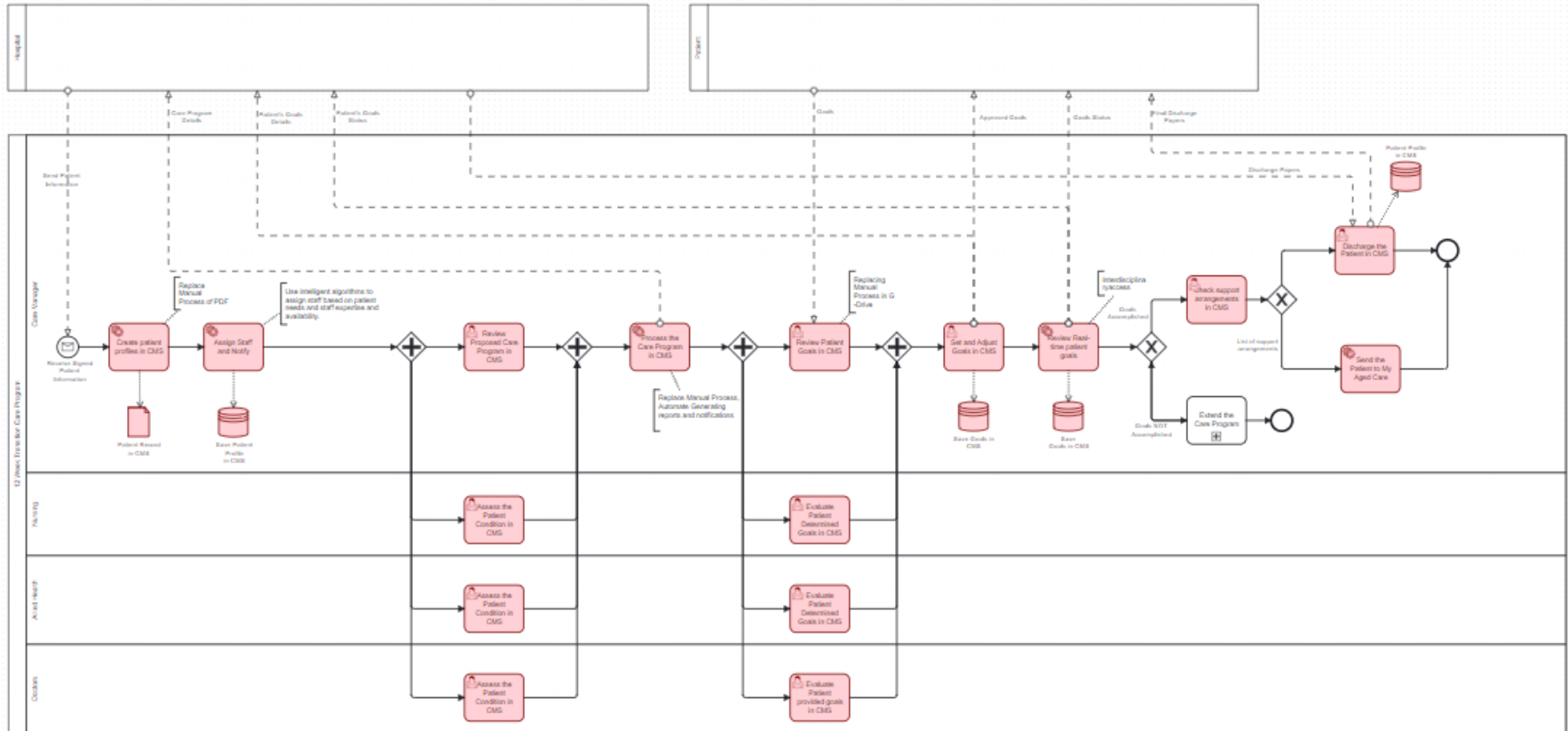


*Note*. Source: (created by the author).

## CONCLUSION

In today's rapidly evolving healthcare landscape, ACH Group has recognised the necessity of an integrated and efficient care management system to improve patient care and organisational efficiency. By implementing an advanced CMS, ACH will enhance its document management, automate program feasibility analysis, and strengthen internal communication and collaboration. The integration of automated tools will significantly minimise redundant manual tasks, increase data accessibility, and accelerate decision-making. Moreover, the centralised and automated reporting system will provide greater clarity in decision-making, facilitate follow-ups, and build stronger relationships with both hospitals and patients.

The proposed CMS platform will revolutionise the management of the ACH Homecare Program and the 12 Week Transition Care Program by eliminating the complicated email-based request submission process. By streamlining the feasibility assessment, the new CMS will automatically analyse the compatibility of healthcare staff schedules and availability before requiring manual confirmation by care managers. This will not only shorten turnaround times but also eliminate costly errors arising from human oversight. Furthermore, this platform will automatically store all patient data in a secure cloud service, ensuring seamless collaboration across the entire healthcare team and providing real-time access to up-to-date patient information.

With the automated reporting tool, hospitals and patients will receive comprehensive explanations for program approvals or denials, simplifying follow-ups and allowing stakeholders to understand the basis for these decisions. By improving workflow optimisation and automating routine tasks, ACH Group will be able to save up to $598,000 annually through reduced human error and more efficient collaboration, while simultaneously allowing for the expansion of services to accommodate a broader client base. Ultimately, by addressing the current process challenges and leveraging automation to streamline workflows, ACH Group is well-positioned to achieve greater operational efficiency, deliver superior patient care, and maintain a competitive edge in the healthcare industry.

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