UW MEDICAL CENTER

OPPE & FPPE System:
Final Evaluation and Solution

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OVERVIEW

Client: University of Washington Medical Center (UWMC)
Point of Contact: Madeline Sanabria, UWMC Medical Staff Credentialing Specialist

Our client is the University of Washington Medical Center (UWMC). UWMC uses evaluations to monitor their level of patient care and comply with the patient safety and health guidelines of four regulating entities. They must ensure these evaluations are completed, follow up on if necessary, and available for the regulating agencies.

The goals of UWMC, specifically our UWMC contact Madeline Sanabria, is to reduce the burden of tracking the evaluations of the UWMC medical office staff, while also increasing the speed and accuracy of evaluation administering, reporting and tracking these evaluations. This will allow staff to devote their time and energies to other tasks other than those relating to evaluations.

Project: The proposed system would replace the current paper-based evaluation system. The requirements of the system include administering two types of provider evaluations:

- Ongoing Professional Practice Evaluation (OPPE). OPPEs are required to be filled out every six months for new providers and have department-specific guidelines.
- Focused Professional Practice Evaluation (FPPE). FPPEs are administered to all providers when they begin work with additional follow-up evaluations, as well as for provider reappointments that occur every two years.

The purpose of these evaluations are to ensure all UWMC providers are compliant with the patient safety and health guidelines of four regulating entities. According to UWMC medical office staff, the current system handles 72-300 incoming and outgoing provider evaluations at a time. The proposed system must exceed this capacity to allow room for future expansion. Given

that this system will increase the collection and use of data, there must be increased attention and allocation of resources.

The purpose of our project is to take the burden and additional responsibility of evaluations off UWMC medical director office staff, increase the speed and accuracy of evaluation administering, reporting, and tracking, reduce overall time spent on evaluations to provide more time for higher priority tasks, and increase UWMC's ability to better remediate issues that arise in provider evaluations.

Areas of improvement for the proposed system include the complete automation of the evaluation process for all users involved, increased attention to storing and tracking evaluation data, create automated and simple process to generate reports from evaluation data. In addition to the regulations of this evaluation process, UWMC has certain security concerns regarding patient and employee privacy that have to be accounted for.

Project Requirements:

In order to complete this project, we request the money that we have budgeted. The money is essential to getting the resources we need to complete the project. We also request time with the client because communication with the client is essential for the success of the project. We also need access to parts of current system, like forms and OMSA information so the new system can be implemented as smoothly as possible. The last piece of assistance we need is the time we estimated is needed to complete the project.

Project Expectations:

We estimate that the project will take roughly 13 weeks to complete.

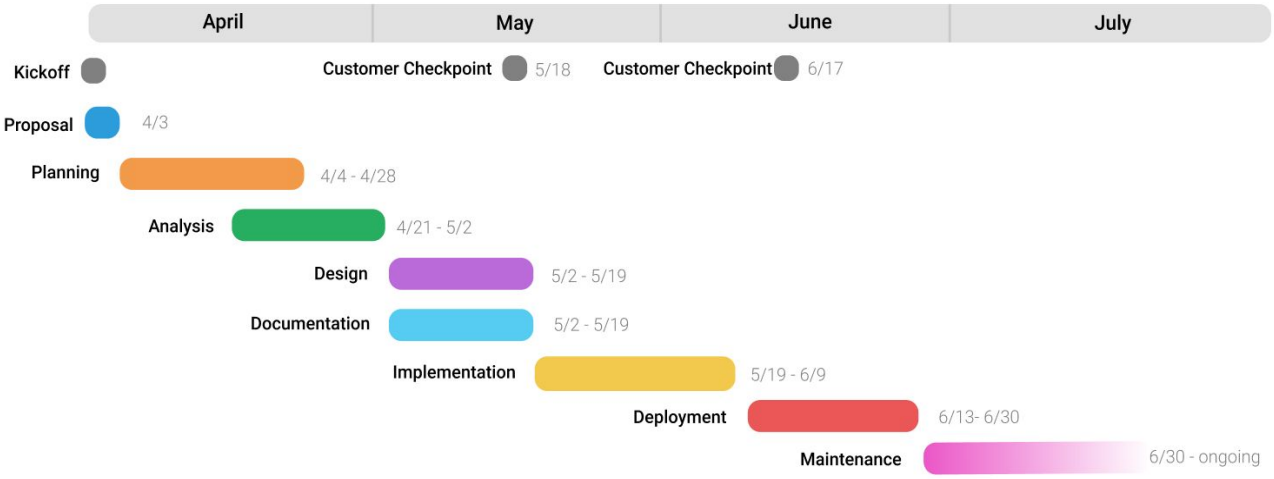
- Six of these weeks will involve the creation of the system. The last two weeks include training UWMC medical professionals and the implementation of the system.
- We estimate that the monetary cost of the system to be $28,048 one-time cost and a $3,030 annual cost.
- We also expect to have some time with the client it talk about the project. We expect that the project will require approximately 3 hours of her time a week plus two longer meetings throughout the project. We

have estimated those longer meetings to take place on May 18th and June 19th.

System Cost Breakdown:

Cost Type	Amount	Description
Personnel	$16,568	We estimate the monetary costs for the hired professional help to be around $16,568 (average annual salary for a web developer is $65,000. Our project will take about 13 weeks. 13 weeks / 51 weeks * $65,000 = $16,568).
Maintenance	$2,550	We are also prepared for some recurring maintenance costs, which we estimate will be approximately $2,550 per year. (2 weeks / 51 weeks * $65,000 = $2,550).
Docusign	$480	The cost of Docusign according to the Docusign's website is $480 annually for the business version.
Training	$6,480	We also estimate the cost of training the 36 department heads be $6,480. ($187,200 is the median salary for a doctor. $187,200 / 52 weeks / 40 hours = $90 per hour. 36 department heads * 2 hours of training * $90 per hour = $6,480).
Unexpected	$5,000	There will also be some unexpected costs for which we have budgeted an additional one-time $5,000.

Project timeline:



BUSINESS CASE

Justification:

We need to create a system for the evaluation of providers at UWMC. This system will distribute, collect, and manage the evaluations of providers automatically rather than the current manual system. This system will reduce the amount of time and money exerted towards evaluations and reduce the number of mistakes made by human error by automating many of the tasks currently handled. The system will also be a reliable method to track and remediate concerns that come up from provider evaluations. It will also collect data, manage data, extract information from data more efficiently. This will save UWMC time and money by making the process of getting evaluations cheaper. The availability of this data in an organized fashion will also allow the medical director's' office to generate reports and share information faster and more accurately. This mean the information needed to make decision will be more readily available. Overall, these efficiency-increasing measures to evaluate providers will help ensure patient safety and help make

Mission & Value:

Our mission is to reduce the workload done by human labor, and automate the evaluation process. Automated process will enable UWMC to allocate more of their time to other work. Also, it will reduce getting the amount of human error when manually analyzing the evaluation reports. Our end goal is to not only automated and minimize error, we are also building the foundations for a future system that is scalable and maintainable.

Feasibility:

- Cost of running utilities (ie. web server, file server, database etc.)
- Stakeholders' access to system-required technology
- Start-up costs and overhead for development/equipment
- Security of transmitting important documents over email
- Reliability of medical professionals replying to emails
- Technical proficiency of medical professionals and department heads
- Ability of the new system to fit in with existing systems and business practices
- Constraints from governmental & medical regulatory bodies
- Necessary skills for employees who will maintain the system
- Gathering contacts and managing which heads/medical professionals are in charge of which reports

Potential Risk:

- Developing an automated system may have to be done by outsourcing. When outsourcing, communication between multiple parties may bring a lot of time commitment and efforts
- Implementing the system maybe be more costly than what was projected
- Implementing the system may take longer than what was expected
- Doctors will prefer paper over email and refuse/be reluctant to use the new system

Mitigating Risk:

- A way to mitigating the cost of time and efforts is to implement each of the steps one why one and see how doctors and employees may react to the change.
- In order to minimize the risk of the system taking longer to implement and costing more than expected, we need to fully understand the scope of the project before we start and understand the limitations of your team. By considering and understanding all the variable involved in project, we will be better able to stay on schedule and on budget.
- Set realistic goals, try not to strive for something that is achievable by your team.

Opposing Statements:

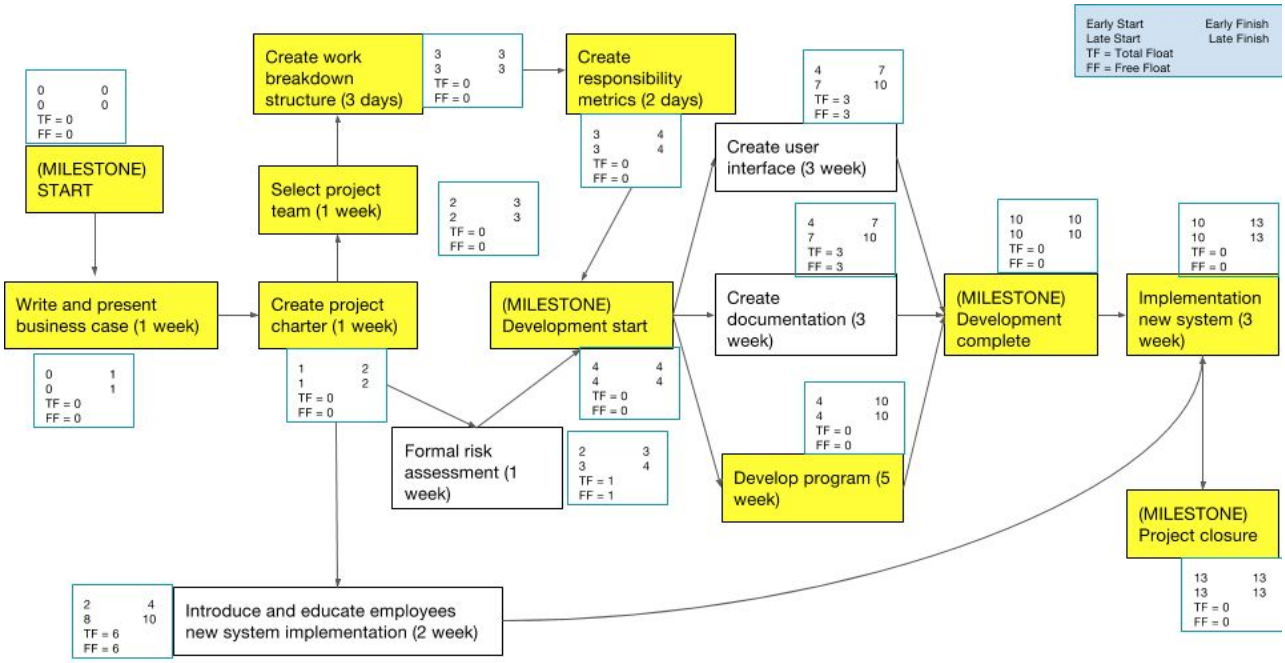
Some may argue that the current system is working and doesn't need to be changed and the cost of implementing the system comes with too much cost and risk. But one thing that everyone might not be considering is the massive benefits in the future. No only are you creating a database to save all the information for future use, but the amount of time we could be saving from day to day because the new system will add up. Another point that we mention above is also the scalability of current system and the new system. The limits the the new system are computers and technology whereas the limits of current system is the man power of humans.

Assumptions and Potential Problems:

We are assuming we have the money to afford the resources needed to host all backend software that is necessary, keep both copies of current data and potential backups, and provide ongoing maintenance for the services being offered. We are also relying on our software to work seamlessly throughout all points in the workflow while also being able to work with services that are possibly separate from our company such as web mail services. Although our workflow bears heavier on software design, maintenance, and management, it allows for less work from doctors and medical heads making the need to learn new systems unnecessary. Because of this integration however we are relying much more on the ability of currently working software to reliably interact with our new software. This means that we may run into potential problems where an in-use software is not compatible with code that we are writing, APIs for a necessary software are unavailable etc. These situations are possible to work around however they may cost us extra time, labor, and therefore money in the long run.

PROJECT PLAN

Critical path:



(Critical path diagram. Yellow boxes indicate tasks that are required to complete on time to achieve the project scope and not get delayed)

Work Breakdown Structure:

Gantt Chart

Task	% complete	start date	end date	Weeks 1	2	3	4	5	6	7	8	9	10	11	12	13
Write and present business case	100%	4/4	4/7													
Create project charter	100%	4/11	4/14													
Select project team	100%	4/18	4/21													
Create work breakdown structure	100%	4/25	4/28													
Create responsibility metrics	100%	4/25	4/28													
Formal risk assessment	100%	4/25	4/28													
Introduce and educate employees new system implementation	0%	6/20	6/30													
Create user interface	0%	5/2	5/19													
Create documentation	0%	5/2	5/19													
Develop program	0%	5/9	6/9													
Implement new system	0%	6/13	6/30													

Key Assumptions and Approach:

The main assumptions that we are making in our project are the technical limitations, cost and approach. For our system, we are assuming that they the client doesn't have any restrictions and limitations of the possible technology and cost. For example, we don't know know the exact budget of the client. Are they able to afford the training required to implement that system, afford the cost of software or have space to install a local database? We are also assuming that the specified steps to implement this system is going to be flawless. Inevitably, there are going to be road blocks in the implementation that we didn't not calculate or consider.

Possible Alternative:

Since it's still very early in the development process, it's difficult to determine the possible alternatives to our current system. But the reason why we might want one for this project is if one of the technologies in our system doesn't fit this their requirements and limitations. For example, if it's not possible to have a database server or buy license for software, we might have to resort to just storing all the data on a smaller local server. And if implementing new software if too expensive and complicated we can just stick with email.

CURRENT STATE ANALYSIS

Executive Summary:

The current state of the UWMC reporting process dictates the use of paper forms, transportation of information by mail, and manual recording of submitted data. This process results in a costly time expense both for the bodies involved with collecting report data and the bodies requesting it. On top of this, the current process requires the use of physical data recording and electronic data recording which can be resource wasting and creates unnecessary duplication of data. The current process is mostly maintained by Madeline as a middleman between the Office of Medical Staff Appointments and the medical directors filling out evaluation reports.

Client Overview:

Our client, the UW Medical Center (UWMC), requires a systematic evaluation of all providers to ensure patient health and safety. UWMC must comply with four regulatory entities, and administer and collect provider evaluations on a deadline. The goals of this system include timeliness, accuracy, and in-depth tracking of data. Each of these goals are crucial to UWMC to provide quality reports that comply with patient health and safety laws and procedures.

Project Overview:

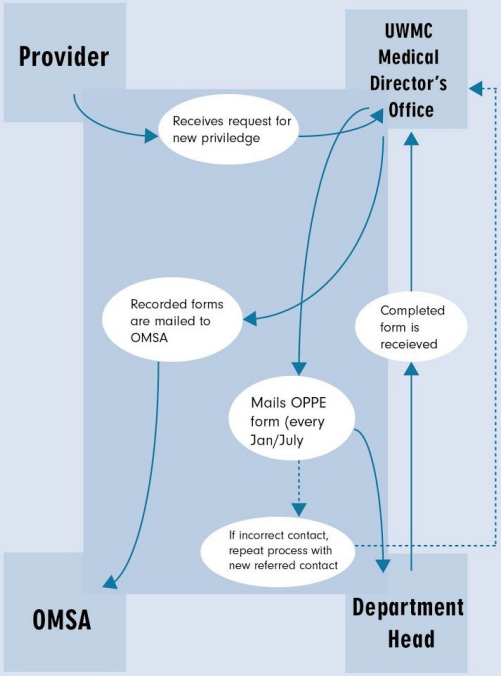
The proposed changes to the system would replace the current paper-based communications for the administration and collection of OPPEs and FPPEs. As outlined in the Project Overview of the Overview section, the purpose of OPPEs and FPPEs are to ensure all UWMC providers are compliant with the specified guidelines. If the evaluations uncover issues or concerns regarding provider practices, action for remediation will be taken. It is important for the evaluations to be accurate and timely in order for such remediations to be successful.

Current system overview:

The current system used is mainly paper-based and is maintained through our UWMC contact. Data about practitioners is given to our client from OMSA. Our client processes this information in her Excel spreadsheets, sends out the proper evaluations forms to the right department heads at the right time using the postal service. The department heads evaluate their practitioners and send the evaluations forms back in the mail. Our client processes these evaluations- marking them as received, discussing evaluations with issues with the medical director and sending the evaluations onto OMSA. Most of the system is contained on paper and Excel spreadsheets.

As-Is Use Cases:

OPPE USE CASE



Title
Complete OPPE Process

Primary Actors
Providers, UWMC Medical Director's Office, OMSA, Department Heads

Level
Summary

Stakeholders
Patients, providers, regulatory entities, Medical Director's office, OMSA

Preconditions
Providers are currently employed by UWMC, department head contact information is accessible,

Minimal Guarantee
Violations to governmental and independent regulatory standards, risk to patient health and safety

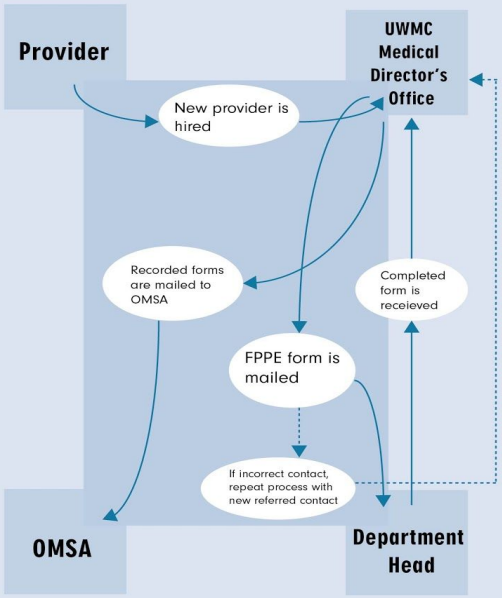
Guarantees
Completed evaluation form that can be tracked, is sent to OMSA for digital storage, can be used for future auditing

Trigger
Provider requests a priviledge, January or July OPPE deadline

Main Success Scenario
1) A new priviledge request is received
2) OPPE is mailed to Department head
3) Completed form is recieved and tracked
4) Form is sent to OMSA

Extensions
2.A) If contact is incorrect, process is repeated with new contact referral

FPPE USE CASE



Title
Complete FPPE Process

Primary Actors
Providers, UWMC Medical Director's Office, OMSA, Department Heads

Level
Summary

Stakeholders
Patients, providers, regulatory entities, Medical Director's office, OMSA

Preconditions
Providers are newly employed by UWMC, department head contact information is accessible

Minimal Guarantee
Violations to governmental and independent regulatory standards, risk to patient health and safety

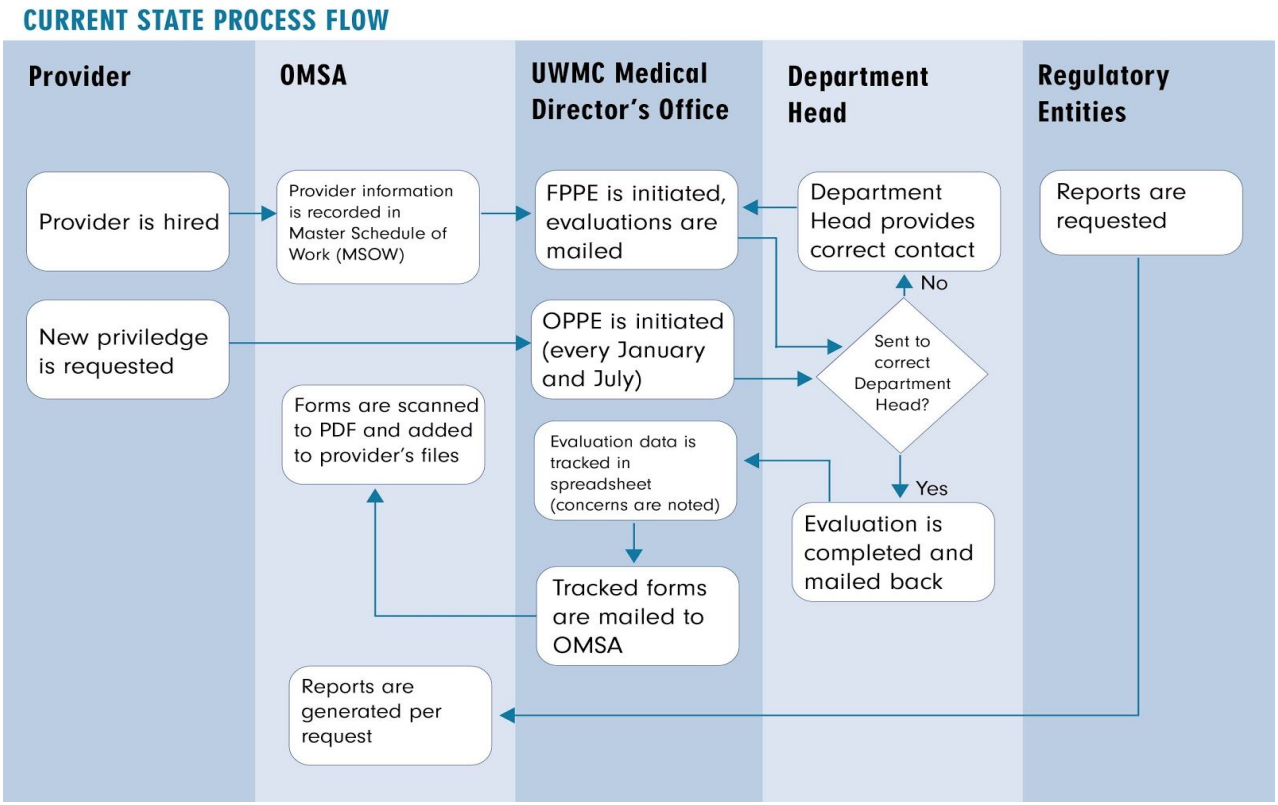
Guarantees
Completed evaluation form that can be tracked, is sent to OMSA for digital storage, can be used for future auditing

Trigger
A new provider is hired, 6 month review deadline

Main Success Scenario
1) A new provider is hired
2) FPPE is mailed to Department head
3) Completed form is recieved and tracked
4) Form is sent to OMSA

Extensions
2.A) If contact is incorrect, process is repeated with new contact referral

As-Is Process Flow:



Concerns with Current IT:

- **Excel:** Excel is easily customizable and easy to learn, but it does not have data type checks and the business rules are not necessarily enforced by Excel which makes it easy for typos and other mistakes to be introduced to the system.
- **Paper:** While paper is a dependable technology due to its simplicity, it is also easy to lose and it is not easy to make back-ups in the case of an emergency. Paper introduces a lot of risk into this system.

Concerns with Current Personnel:

- **UWMC Medical Director Office Staff:** While most of the paper processing is done by one person (Madeline) which reduces the chance of error and miscommunication, the fact that a person is doing the processing inherently introduces the chance for human error and takes much more time than a system doing the work.
- **OMSA:** OMSA gives Madeline all the information she needs to do that paper processing. The system has to assume that OMSA is giving her accurate information, or else the system will fail to work.
- **Department Heads**: The system depends on the department head giving accurate information in the evaluations. If the evaluations are not accurate, then this system fails to do its job.
- **Regulation Agencies:** The regulatory agencies check that the system works and does it job to get accurate evaluations from department heads and that these evaluations are being taken seriously. If the system does not do its job, then the regulatory agencies will enforce some sort of disciplinary action.

Concerns with Current Process:

- **Mail:** While mail is easy to use and learn, it isn't perfect and it is very possible that evaluations forms get lost or delayed, which means it took take some time before poor practitioners are recognized and placed on some sort of plan.
- **Word of Mouth:** Madeline often has to track down supervisors or department heads using 'word of mouth.' While often there is no other way to find people, this process takes an unnecessary amount of time which prevents the system from performing quickly.

Current State Risk Assessment:

High Risk

- The results of poor evaluations will be missed or looked over in the midst of all the paperwork and poor practitioners will continue to practice.
- The cost of the manpower needed to maintain this system will be unsustainable, resulting in serious financial problems for UWMC.

Intermediate Risk

- Evaluation forms will get lost in the paper shuffle and poor practitioners will continue to practice until the lost form is found or a new evaluation is filled out.
- Failure of physical systems and data backups could lose data.

Low Risk

- Failure to compile and provide the data necessary to the compliance organizations within the allotted time will result in some sort of disciplinary action.
- Typos in the evaluations and excel spreadsheet cause some confusion and practitioners are evaluated at the wrong time or evaluated using the incorrect form.

Recommended Next Steps:

The next steps for this system includes the complete automation of the evaluation process for all users involved, as well as the increased attention to storing and tracking evaluation data. This means that information taken from OMSA will automatically be added into our system. Evaluations will automatically be sent out to department heads. Completed evaluations will automatically be sent to OMSA. Evaluations with issues noted will automatically be flagged and sent to Madeline, in addition to OMSA.

Summary:

It is the mission of UWMC to provide quality healthcare for its patients and in order to do that, it must make sure that its practitioners have proper oversight. This system must function appropriately in order for that to happen. While the current system is easy to learn and implement, it also has a lot of risk involved and is slow. We hope that by implementing a new system, we can complete the evaluation process more quickly, ensure the data is more accurate, complete the evaluation process more securely and save UWMC a lot of time and money.

FUTURE STATE ANALYSIS

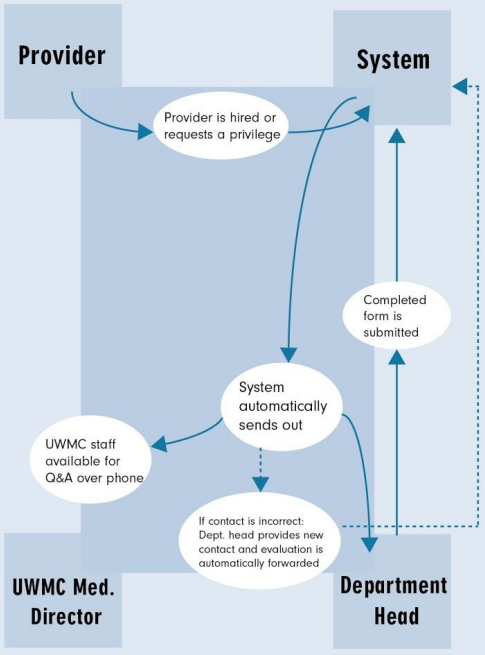
Executive Summary and Overview:

The current state process of starting OPPE and FPPE are all managed through a manager and a paper file system. Which is rather inefficient in today's age of technology. The system we are devising for the the OPPE and FPPE process is a paperless and fully automated system. A system where mail would no longer be manually sent to each department head/supervisor individually on by one. Everything will be sent automatically, even the feedback from the evaluations will automatically be stored a database for future convenience.

The future state of the OPPE and FPPE process will be a fully automated process what will eliminate the need for paper files systems and manually sending out evaluations periodically.

To-Be Use Cases:

USE CASE: Evaluation Distribution



Title
Evaluation Distribution

Primary Actors
Providers, UWMC Medical Director's Office, Department Heads

Level
Summary

Stakeholders
Patients, providers, regulatory entities, Medical Director's office, OMSA

Preconditions
Providers are newly employed by UWMC, department head contact information is accessible

Minimal Guarantee
Violations to governmental and independent regulatory standards, risk to patient health and safety

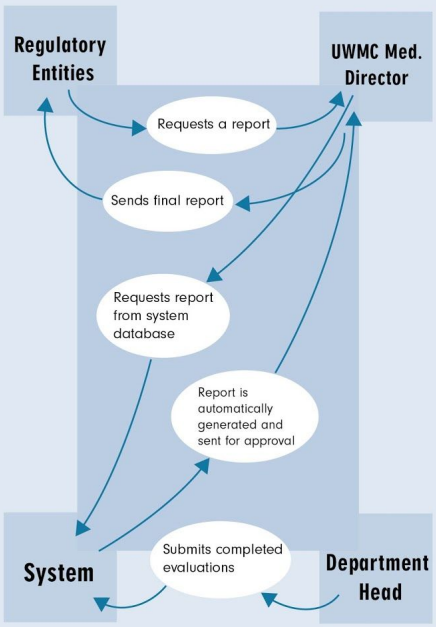
Guarantees
Evaluations are automatically sent out at specified times. System will track form completion and evaluation data.

Trigger
New provider is hired, or a provider requests a priviledge (for both OPPE and FPPE)

Main Success Scenario
1) A new provider is hired/provider requests a new priviledge
2) System automatically sends out evaluations
3) Department heads complete evaluations and submit back to system

Extensions
2.A) If contact is incorrect, department head provides a new contact and system automatically forwards evaluation

USE CASE: Reports



Title
Reports

Primary Actors
UWMC Medical Director's Office, OMSA, Regulatory Entities

Level
Summary

Stakeholders
Patients, providers, regulatory entities, Medical Director's office, OMSA, department heads

Preconditions
Evaluations have been completed and submited, requested data is available

Minimal Guarantee
Violations to governmental and independent regulatory standards, risk to patient health and safety

Guarantees
System is capable of automatically generating reports based off stored evaluation data, reports are sent for approval

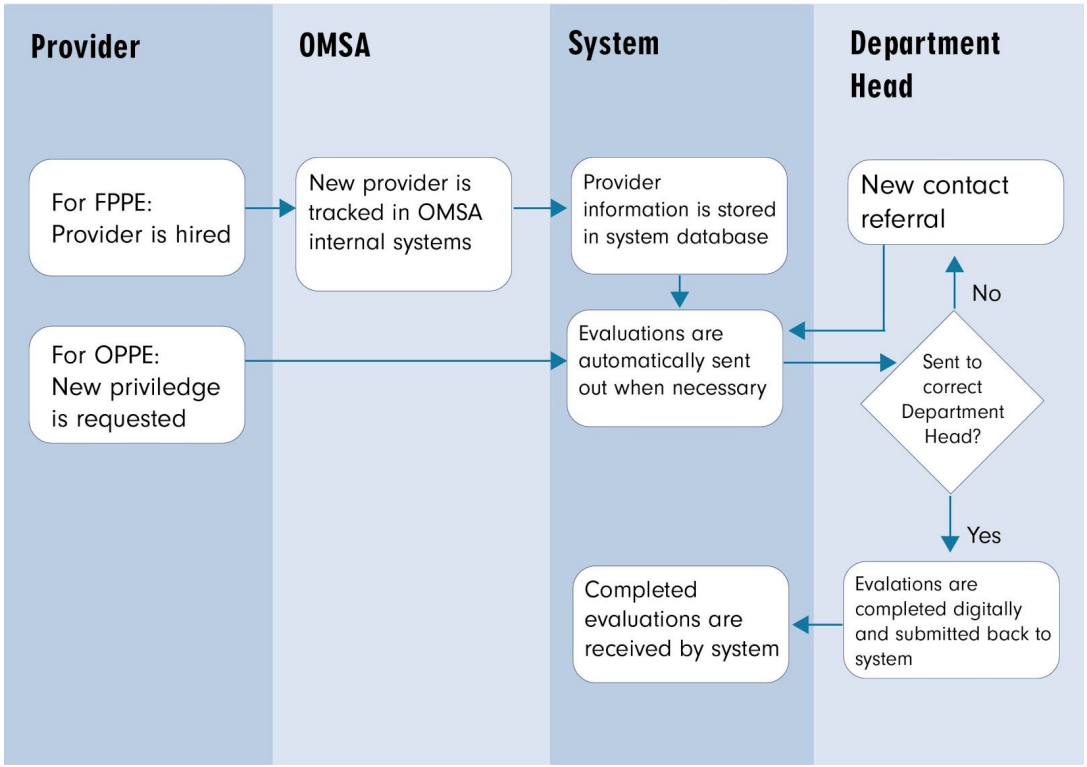
Trigger
Regulatory entity requests a report

Main Success Scenario
1) A regulatory entity request a report
2) UWMC submits request for automatically generated report fom system
3) System generates report based off UWMC requirements and sends for approval
4) UWMC approves and sends to regulatory entity

Extensions
3.A) If UWMC does not approve of generated report, UWMC repeats process with updated request requirements

To-Be Process Flows:

FUTURE STATE PROCESS FLOW: FPPE/OPPE Automated Administration



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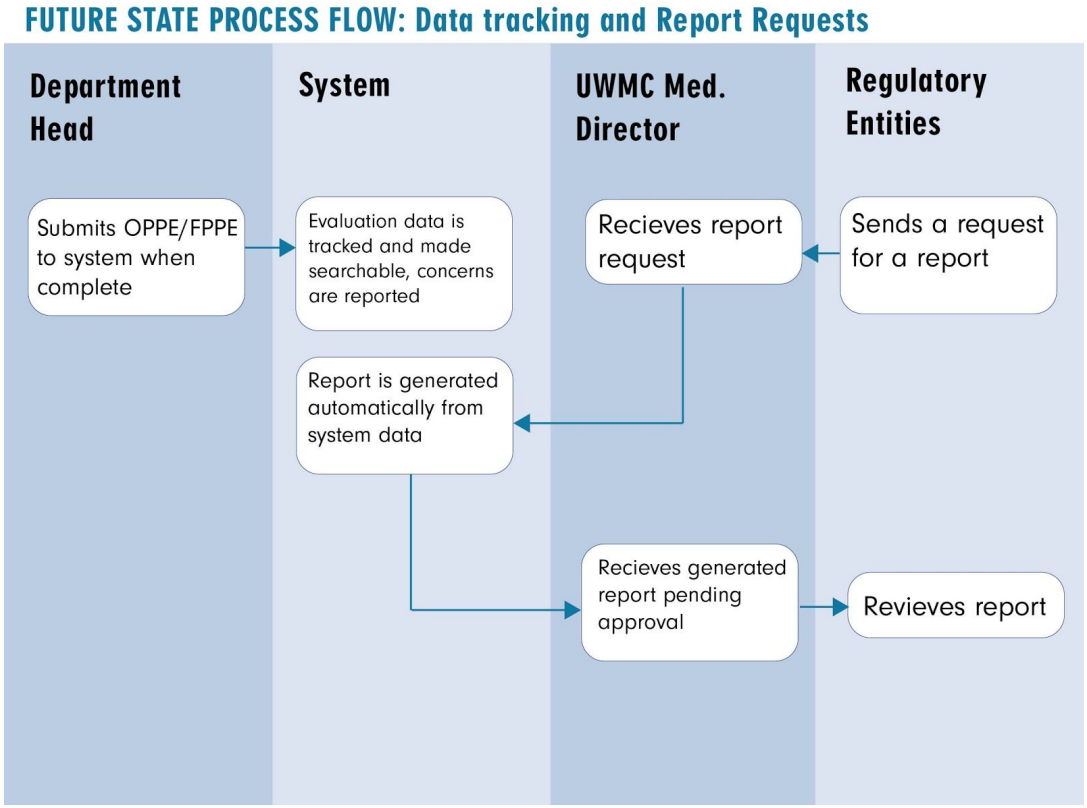

Recommendations and Alternatives:

- Web form based evaluations
- Database for storing client, department, supervisor information
- Automated mailing system for sending out evaluations

We recommend a new system that digitizes and automates the evaluation process. We recommend that forms be sent and fill out online, and the data extracted from the forms be stored online. The digitalization of the forms will also enable the system to automate the distribution of forms to physicians, which reduces time and effort exerted on the evaluation process. This will reduce the time it takes to collect and organize data needed for regulatory agencies, time needed to send the evaluations to the physicians and OMSA, and makes it easier to look up and track evaluation with problems. We also recommend automatically forwarding all evaluations straight to OMSA, and only give evaluations with issues to client. This will reduce turnaround time on evaluations because our client will not have to filter through evaluations looking for those with problems

Future State Risk Assessment:

Some potential risks with the recommended future state include the reception of the system by physicians and OMSA. Even if the system itself works perfectly, if it is rejected by some of the people who interact with it, then it will fail to do its job. Another risk is that the project will cost more than we budgeted, and will not get finished. Additionally, the cost of long term licenses and backup costs could outweigh costs of the paper and time spent handling physical reports, thereby making the system more expensive than the system currently in place. A future loss of funding could cut recurring maintenance on the system, which will lead to an outdated or broken system. The system could also not fit all of Madeline's needs or will not meet the needs of other users which will reduce its usefulness.

Summary:

In summary, we recommend the creation of a new system that digitizes and automates much of the evaluation process. The new system will be more flexible and easier to manage. This new system will be more accurate, faster, and contain less risk than the current system, which will all UWMC to exert the saved resources towards other endeavors.

IMPLEMENTATION

Implementation Strategy:

In order to implement our system, we will first train UWMC staff in the medical director's office to use the system. If they have any last minute feedback that we determine is essential to the success of the system, we will take the feedback and change the system as necessary. Then we will train practitioners to input their evaluations into the system. If they have any last minute feedback that we determine is essential to success of the system, we will take the feedback and change the system as necessary. If there is feedback that is not essential to the success of the system but will make the system easier to use or more useful to UWMC, then we will make the appropriate changes during an update to the system at later time.

Risk Management:

In order to reduce risk during the implementation phase of our project, we have several client checkpoints throughout our timeline. These customer checkpoints will allow us to get feedback from the client throughout the project which will help ensure that our team and the client are on the same page with the project and the system is optimized for the client's needs. We have also planned for last minute feedback during the trainings in order to help ensure the success of the project. We also have planned for some unexpected costs in our budget which will help reduce the risk that we will go over the budget during the implementation process. We have generously estimated the time it will take to complete the project to minimize the chances that the project will be completed late. This steps have been taken to reduce the chances that the project be completed late, over budget, and or without the features desired by the client.

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Valacich, Joseph S., and Joey F. George. Modern Systems Analysis and Design. 8th ed., Boston, Pearson, 2017, pp. 1-503.