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| **Background information** | |
| **Sex** | **30years** |
| **Age** | **Male** |
| **Department** | **IT department** |
| **Current role** | **EMR system administrator** |
| **Unique ID** | **SysAdmin-001** |

a). Interview with EMR System Representatives

1. When did the EMR project start?

R: The EMR project at Y12HMC started in 2020, and we’ve been implementing it in phases. We’re currently in the third phase, which includes the dashboard and reporting integration.

1. How many staff members have been trained to manage the EMR system?

R:- We have over half of the staffs to manage the system, including healthcare providers, system administrators, and IT support personnel. Most of the training was carried out during the initial phases.

1. How do you evaluate the current state of the ICT infrastructure in the hospital?

R:- The ICT infrastructure is in decent shape. We’ve got a solid wired network and enough IT facilities for most departments. However, some departments still lack adequate computers and equipment for smooth operation."

1. What is the current status of the EMR system?

R-The system is operational and well-integrated into most departments, but a few functionalities, such as certificate and referral systems, are still not working fully. The system’s third phase is ongoing.

1. In which departments or areas is the EMR system primarily used in your hospital?

R:- The EMR is primarily used in outpatient, inpatient, pharmacy, and diagnostic departments. However, the usage is not fully uniform across the board, and some departments still rely on manual processes.

1. How would you describe the level of awareness among healthcare providers regarding the EMR system?

R:- Awareness among healthcare providers is mixed. While the senior medical staff are generally well-versed, many of the junior staff, especially those newly assigned to departments, have limited knowledge.

1. Have you encountered any resistance to the EMR system from healthcare providers or other users?

R:- Yes, resistance has been an issue, particularly from senior healthcare providers who are more accustomed to traditional record-keeping. There’s also resistance due to the steep learning curve for those who aren't familiar with technology.

1. What challenges have you faced in implementing the EMR system?

R:- One of the main challenges is the lack of consistent training and follow-up. Additionally, some departments still face connectivity issues, and the system sometimes slows down, which causes frustration among users.

1. What do you consider to be the key factors for the success or failure of the EMR implementation?

R:-Successful implementation hinges on the availability of proper training, technical support, and leadership involvement. If any of these elements are missing, the implementation tends to fail.

1. Do you find the EMR system to be user-friendly?

R:- The system is relatively user-friendly, but there are still some issues with the interface that need improvement. Some users struggle with navigation, particularly when it comes to less intuitive features.

1. Do you believe the EMR system is fully capable of capturing all required patient encounters?

R:- No, the system still has gaps. For example, patient referrals and certificates are not fully integrated into the system yet, and some encounter types are still manually recorded.

1. How would you evaluate the service turnaround time with the EMR system in place?

R:- Overall, the service turnaround time has improved, but system slowness during peak times can still cause delays. Once fully optimized, it should provide faster patient processing times.

1. What are the impacts of system downtime on both patients and healthcare providers?

R- System downtime is a major challenge. It leads to delays in patient care, and healthcare providers often have to resort to manual processes, which increases workload and risks errors.

1. Have you received any complaints from users or patients about the EMR system?

R- Yes, we’ve received complaints about system slowness, especially during peak hours, and some users are frustrated with the lack of certain features. Patients have also voiced concerns about the time it takes to access their medical records.

1. Do you think the EMR system is cost-effective for the hospital?

R- Initially, there were high upfront costs, but over time, the system has shown its cost-effectiveness by reducing paper storage needs and streamlining processes. However, ongoing maintenance costs and the need for regular system upgrades are concerns.

1. Do you have any suggestions for improving the EMR system?

R-We need more regular training for staff, particularly in terms of troubleshooting and navigating advanced features. Improving the system’s speed and integrating additional features like referral and certificate functions would also be beneficial.

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| **Background information** | |
| **Sex** | **35years** |
| **Age** | **Female** |
| **Department** | **HIT department** |
| **Current role** | **EMR system administrator** |
| **Unique ID** | **sysAdmin-002** |

**1. When did the EMR project start?**

**R-** The EMR project officially started in mid-2019. We began with a pilot phase that lasted for about six months, and the full implementation was launched in 2020. Initially, the focus was on outpatient departments, and we've been gradually expanding since then.

**2. How many staff members have been trained to manage the EMR system?**

**R-**Currently, we have trained about 60 staff members in managing the system. This includes IT staff, EMR administrators, and key healthcare providers who directly interact with the system. We plan to expand the training to include all department heads and their teams in the next phase.

**3. How do you evaluate the current state of the ICT infrastructure in the hospital?**

**R-**Our ICT infrastructure has improved considerably since the project began. The network is generally stable, but we do face challenges with internet connectivity in some areas, and certain departments lack modern computing equipment. There's a need for better integration between departments as well.

**4. What is the current status of the EMR system?**

**R-**The system is functional, and it's being used in most clinical departments, though not uniformly. We've implemented the patient record management feature, but we’re still working on full integration with lab results and pharmacy systems. There are also occasional performance issues when the system experiences heavy traffic."

**5. In which departments or areas is the EMR system primarily used in your hospital?**

**R-**The EMR system is used in outpatient clinics, inpatient wards, and the pharmacy. However, some departments like radiology are still manually managing records, and we are working on their integration into the system.

**6. How would you describe the level of awareness among healthcare providers regarding the EMR system?**

**R-** Awareness among healthcare providers varies. Senior staff members are familiar with the system, but junior doctors and nurses still face difficulties navigating the system. We are focusing on enhancing training and ensuring continuous support for them.

**7. Have you encountered any resistance to the EMR system from healthcare providers or other users?**

**R-** Yes, resistance from some senior medical staff was a significant challenge initially. Many of them were accustomed to paper records and felt that the system would slow them down. However, as they started using it more, they began seeing the benefits in terms of record accessibility and accuracy.

**8. What challenges have you faced in implementing the EMR system?**

**R-**The biggest challenge has been the lack of adequate training and technical support for the healthcare providers. There's also a gap in the infrastructure in certain departments, and we’ve faced some delays in integrating all the functions of the EMR. Lastly, the system occasionally experiences downtime, which disrupts workflows.

**9. What do you consider to be the key factors for the success or failure of the EMR implementation?**

**R-** Key factors for success include strong leadership commitment, continuous staff training, and a reliable IT infrastructure. On the other hand, lack of staff engagement, insufficient technical support, and slow system response times have been major barriers to success.

**10. Do you find the EMR system to be user-friendly?**

**R-** Generally, the system is user-friendly, but it does require a learning curve. Some features could be made more intuitive, especially for the less tech-savvy users. We’re working on improving user interfaces based on feedback from users."

**11. Do you believe the EMR system is fully capable of capturing all required patient encounters?**

**R-** Not fully yet. We have made progress, but there are still some areas where the system doesn’t capture all patient encounters comprehensively, especially in cases involving referrals and specialized treatments that are recorded manually.

**12. How would you evaluate the service turnaround time with the EMR system in place?**

**R-** Service turnaround time has improved in departments using the EMR. However, during periods of high patient volume or system slowdowns, there can be delays. The system has helped reduce paperwork and data retrieval time, though.

**13. What are the impacts of system downtime on both patients and healthcare providers?**

**R-** System downtime significantly disrupts patient care. Healthcare providers are forced to revert to paper-based records, which can lead to delays in treatment and increased risk of errors. This also puts extra pressure on administrative staff to manually enter data once the system is back online.

**14. Have you received any complaints from users or patients about the EMR system?**

**R-**Yes, we’ve received complaints regarding system slowness and occasional downtime. Some healthcare providers also mention the system’s complexity, especially when trying to navigate between different modules. Patients have expressed concerns about waiting longer for results due to the system issues.

**15. Do you think the EMR system is cost-effective for the hospital?**

**R-**Although the initial costs were high, the EMR system has been cost-effective in the long run. It has reduced the need for physical storage, streamlined processes, and improved documentation accuracy, which reduces the potential for errors. However, regular maintenance costs and the need for periodic updates are ongoing expenses.

**16. Do you have any suggestions for improving the EMR system?**

**R-** We need to address the system’s speed, particularly during peak usage. Regular updates to improve interface usability and training for staff are also essential. Additionally, better integration with other hospital systems such as lab results and imaging would enhance the overall utility of the EMR.

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| **Background information** | |
| **Sex** | **32years** |
| **Age** | **Male** |
| **Department** | **IT department** |
| **Current role** | **EMR system administrator** |
| **Unique ID** | **sysAdmin-003** |

**1. When did the EMR project start?**

**R:**-The EMR project was officially rolled out in early 2021 after a pilot phase that ran from late 2020. We've now entered the fourth phase, which focuses on expanding usage in specialized departments like radiology and pathology. We aim to make the system hospital-wide by mid-2025.

**2. How many staff members have been trained to manage the EMR system?**

**R:**-Currently, we’ve trained close to 75 staff members in various roles including IT support, administrators, and healthcare providers. While we’ve covered most essential personnel, we still need to include more staff from departments that are not yet fully integrated, like radiology and emergency services.

**3. How do you evaluate the current state of the ICT infrastructure in the hospital?**

**R:**- Our ICT infrastructure is functional, but it’s not without its flaws. The hospital's network works well in most departments, but we still experience spotty internet connectivity in older buildings. Furthermore, many departments lack adequate hardware, which slows down the EMR system’s performance, especially in high-demand areas like the emergency room.

**4. What is the current status of the EMR system?**

**R:**-The system is mostly operational with a few lingering issues. We've seen improvements in document management and patient scheduling, but challenges persist with the integration of lab results and medical imaging systems. While we've made strides, we’re still not quite where we want to be in terms of complete functionality.

**5. In which departments or areas is the EMR system primarily used in your hospital?**

**R:**- The system is currently operational in outpatient clinics, inpatient wards, and the pharmacy. However, areas like radiology, pathology, and the emergency department are still in the process of full integration. These departments are lagging behind mainly due to resistance from senior staff and technical integration challenges.

**6. How would you describe the level of awareness among healthcare providers regarding the EMR system?**

**R:**-Awareness levels vary significantly. Senior medical staff is usually well-versed with the system, but junior staff members tend to struggle, particularly those who’ve recently joined the hospital. We’ve tried to address this gap with refresher training sessions, but there’s still a considerable difference in knowledge across the board.

**7. Have you encountered any resistance to the EMR system from healthcare providers or other users?**

**R:**-Yes, resistance continues to be an issue, particularly among senior healthcare providers who are more comfortable with paper-based records. Some are hesitant to rely on the system due to concerns about data accuracy and system failures. There's also resistance among those who don't feel confident with technology, making them reluctant to engage fully with the system.

**8. What challenges have you faced in implementing the EMR system?**

**R:**- Challenges include a lack of consistent training across all departments, especially for the junior medical staff, and ongoing technical difficulties with certain modules. For example, the referral system still doesn’t work properly, and there are frequent connectivity problems in certain areas of the hospital. System slowness also continues to be an issue during peak hours, which frustrates both healthcare providers and patients.

**9. What do you consider to be the key factors for the success or failure of the EMR implementation?**

**R:**- Key factors for success are training, leadership commitment, and proper technical support. If any of these are lacking, as we’ve seen in some departments, implementation struggles. Consistent follow-up is crucial, and making sure the system is always running smoothly, without prolonged downtimes, is equally important.

**10. Do you find the EMR system to be user-friendly?**

**R:**-While the system is fairly user-friendly for those who are already somewhat tech-savvy, it still presents a steep learning curve for many healthcare providers, particularly those unfamiliar with digital records. The interface could be improved to be more intuitive, and simplifying certain workflows would make the system easier to navigate.

**11. Do you believe the EMR system is fully capable of capturing all required patient encounters?**

**R:**-No, the system still has gaps. For example, specialized patient encounters like those in radiology and pathology are not fully captured or integrated. We've also noticed that the system struggles with capturing information about referrals and certificates. There are still many manual processes that healthcare providers have to rely on.

**12. How would you evaluate the service turnaround time with the EMR system in place?**

**R:**-The overall service turnaround time has improved, particularly in the outpatient and inpatient wards. However, during peak periods, the system often lags, causing delays in processing and affecting patient care. If the system is further optimized, we expect even quicker turnaround times.

**13. What are the impacts of system downtime on both patients and healthcare providers?**

**R:**- System downtime is a major issue. When the system goes down, patients experience delays in receiving care, and healthcare providers are forced to revert to paper records, which leads to inefficiencies and the potential for errors. These disruptions place a strain on staff, especially when they have to manually enter data once the system is back online.

**14. Have you received any complaints from users or patients about the EMR system?**

**R:**- Yes, we’ve received numerous complaints regarding system performance, particularly during high traffic times. Healthcare providers have voiced concerns about the system’s complexity and slowness. Patients, too, have complained about longer waiting times to access their medical records or receive treatment due to system delays.

**15. Do you think the EMR system is cost-effective for the hospital?**

**R:**-While the upfront costs were significant, we’ve started seeing the benefits in terms of reduced physical storage needs and more accurate record-keeping. However, the system’s maintenance costs and the need for frequent updates are a concern. In the long term, the system is cost-effective, but we need to keep an eye on these ongoing expenses.

**16. Do you have any suggestions for improving the EMR system?**

**R:**-There’s a need to address the system's speed, particularly during peak hours. Regular updates to improve the user interface and ensure faster system performance are crucial. Further training is also essential to improve the ability of healthcare providers to troubleshoot minor issues and navigate advanced features. Finally, improving the integration with other hospital systems, especially lab results and medical imaging, would make the EMR far more useful.

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| **Background information** | |
| **Sex** | **29 years** |
| **Age** | **Male** |
| **Department** | **IT department** |
| **Current role** | **EMR system administrator** |
| **Unique ID** | **sysAdmin-004** |

**1. When did the EMR project start?**

**R:**-The EMR project began in 2019, initially with a pilot phase that lasted for about six months. The full implementation began in 2020. We are currently in the third phase, working on full integration of various departments, especially in patient management and diagnostics.

**2. How many staff members have been trained to manage the EMR system?**

**R:**-At present, we have trained about 70 staff members, which includes key IT support staff, system administrators, and healthcare providers who have direct interaction with the system. We are planning to expand the training sessions, especially for departments that are yet to be fully integrated into the system.

**3. How do you evaluate the current state of the ICT infrastructure in the hospital?**

**R:**-The infrastructure has made significant strides since the start of the project, with a more stable network and enough IT resources for the departments already using the system. However, there are still issues in some departments, especially those that are geographically distant or housed in older parts of the hospital where the network is not as reliable.

**4. What is the current status of the EMR system?**

**R:**-The system is fully operational in some areas but not entirely integrated across the hospital. While we have patient record management and appointment scheduling working well, features like referrals and certificate generation are still not functioning as intended, and we’re actively working on those issues.

**5. In which departments or areas is the EMR system primarily used in your hospital?**

**R:**-The system is used in outpatient clinics, inpatient wards, and pharmacy, though integration is still incomplete in the radiology and laboratory departments. We are working on integrating those systems into the EMR for more streamlined patient care."

**6. How would you describe the level of awareness among healthcare providers regarding the EMR system?**

**R:**- Healthcare providers' awareness is mixed. Senior medical staff are generally familiar with the system and its benefits, but junior staff—especially those in departments that haven't fully adopted the system yet—still struggle to use it effectively. We are actively working on enhancing their knowledge through ongoing training.

**7. Have you encountered any resistance to the EMR system from healthcare providers or other users?**

**R:**-Yes, there has been some resistance, particularly from senior healthcare providers who prefer the traditional paper-based system. There's also reluctance from staff who are not very comfortable with technology, and some find the system difficult to use because of its complexity.

**8. What challenges have you faced in implementing the EMR system?**

**R:**-The biggest challenge has been the lack of adequate training, especially for the junior staff and those in departments where the system is not fully integrated yet. System downtime and occasional slow performance are also persistent issues. Additionally, there’s been a lack of adequate infrastructure in some parts of the hospital, which hampers the full functionality of the system.

**9. What do you consider to be the key factors for the success or failure of the EMR implementation?**

**R:**-Key factors include consistent and comprehensive training, strong technical support, and commitment from hospital leadership. If these are not in place, the implementation will likely fail. Another challenge is ensuring the system can handle high volumes of data during peak times without significant slowdowns.

**10. Do you find the EMR system to be user-friendly?**

**R:**-The system is relatively user-friendly for those familiar with it, but it can be intimidating for new users. Many find it complex, especially when dealing with multiple features. Simplifying the interface and improving navigation for non-technical users would go a long way toward increasing adoption.

**11. Do you believe the EMR system is fully capable of capturing all required patient encounters?**

**R:**- Unfortunately, the EMR system is not yet fully capable of capturing all patient encounters. Some areas, like referrals and certain specialist visits, are not fully integrated. Additionally, while outpatient and inpatient encounters are well-captured, some procedures, particularly in radiology and pathology, still rely on manual record-keeping. We're actively working on addressing these gaps through future updates.

**12. How would you evaluate the service turnaround time with the EMR system in place?**

**R:**-Service turnaround time has improved since the system's implementation, especially in outpatient and inpatient care, where patient records are more easily accessible. However, during high-demand periods, the system experiences slowdowns, which impact the overall turnaround time. If these performance issues were resolved, we would likely see even faster service delivery.

**13. What are the impacts of system downtime on both patients and healthcare providers?**

**R:**- System downtime has a significant impact on both patients and healthcare providers. For patients, it leads to delays in receiving care, as healthcare providers revert to paper records, which can slow down the process and increase wait times. For providers, downtime results in frustration and inefficiencies, especially as they need to manually input data once the system is restored, leading to an increased risk of errors and double data entry.

**14. Have you received any complaints from users or patients about the EMR system?**

**R:**- Yes, we’ve received complaints primarily about system slowness, especially during peak hours, and the complexity of the system, particularly when navigating between different modules. Healthcare providers also mention issues related to incomplete features, such as the inability to generate certain reports or process referrals electronically. Patients have expressed concerns about longer waiting times for results, which they attribute to system issues.

**15. Do you think the EMR system is cost-effective for the hospital?**

**R:**- While the initial implementation cost was high, over time, the EMR system has proven to be cost-effective by reducing paper records and storage needs, improving documentation accuracy, and streamlining workflows. However, the system requires ongoing maintenance and regular updates, which add to the costs. Despite these expenses, the overall savings in time, reduced errors, and improved workflow make the system cost-effective in the long run.

**16. Do you have any suggestions for improving the EMR system?**

**R:**- To improve the EMR system, we need to focus on addressing the performance issues, particularly during high-traffic periods, by optimizing the infrastructure and server capacity. Additionally, more training should be provided to staff, particularly in troubleshooting and advanced features. Improving the user interface to make it more intuitive for less tech-savvy users would also help with adoption. Lastly, ensuring seamless integration with other hospital systems, such as labs and imaging, will significantly enhance the system’s utility and the overall patient care experience.

**b). Interview for managers**

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| **Background information** | |
| **Sex** | **37 years** |
| **Age** | **Male** |
| **Department** | **Hospital management** |
| **Current role** | **Top manager** |
| **Unique ID** | **Higher hospital management-001** |

**1. What were the primary objectives behind implementing the EMR system? Have these objectives been met so far?**

**R:**- The primary objectives behind implementing the EMR system were to improve patient care by ensuring accurate and timely medical records, to streamline hospital operations by automating manual processes, and to reduce healthcare costs through better resource management. We have met these objectives to a large extent. The system has improved the speed and accuracy of patient information access, and we've seen a reduction in paperwork and storage costs. However, we are still working on full integration across all departments, and there are some performance issues that need to be resolved to fully meet our goals.

**2. How would you assess the staff’s awareness and knowledge of the EMR system?**

**R:** Staff awareness and knowledge of the EMR system are varied. Senior management and those involved directly in the implementation phase have a strong understanding of the system. However, many of the junior staff, especially in clinical roles, have varying levels of awareness, and their knowledge is often limited to the basics of the system. While some training has been provided, there’s still a need for more comprehensive, continuous training to ensure that everyone, especially new staff, can use the system effectively. We've seen some resistance from staff who are more accustomed to traditional ways of working, and addressing this gap remains a priority.

**3. What is the general attitude and perception of staff towards the EMR system?**

**R:**- Overall, the attitude towards the EMR system is mixed. While a significant portion of the staff, especially younger or skilled employees, are excited about the system's potential to improve efficiency and patient care, there is still some resistance. Many of the senior healthcare providers who have been accustomed to paper-based systems view the transition as a disruption. Some perceive the system as complex and time-consuming, particularly when they encounter system downtimes or experience difficulties navigating through certain features. As a result, the perception is more positive among those who have been properly trained and less so among those who have not fully adapted to the system.

**4. Do you think the hospital has adequate ICT infrastructure to support the EMR system? If not, do you expect any improvements in the near future?**

**R:**- While our ICT infrastructure is relatively robust and has supported the EMR system so far, there are still gaps that need to be addressed. Some areas, particularly in the older wings of the hospital, experience connectivity issues, and we’re also facing hardware limitations in some departments. I do expect significant improvements in the near future as we continue to upgrade our network and replace outdated equipment. We’ve already begun working on enhancing bandwidth capacity and improving Wi-Fi coverage across the hospital.

**5. Do you consider the EMR system to be cost-effective for the hospital?**

**R:**-Yes, the EMR system is cost-effective in the long run. Initially, the costs were high, considering the software, training, and infrastructure required. However, we’ve seen significant savings by reducing paper usage and storage needs. The system also helps in streamlining patient workflows, which indirectly reduces labor costs. The ongoing costs related to maintenance and upgrades are still something we need to carefully manage, but overall, the system has contributed to more efficient operations and is expected to pay for itself in the long term.

**6. Do you think the EMR system is user-friendly and easy to navigate?**

**R:**-The system is user-friendly in theory, but in practice, it has a steep learning curve for many users, especially those who are not technologically inclined. Some staff members find it difficult to navigate through different modules, and there are certain features that are not intuitive. While the system is functional, there’s definitely room for improvement in the user interface to make it more intuitive and accessible to a wider range of users, particularly those with limited experience in using technology.

**7. Have you received any complaints from patients or users about the system?**

**R:**-Yes, we’ve received complaints primarily about system slowness, especially during peak hours when the system struggles to handle high volumes of data. Some patients have also voiced concerns about delays in accessing their medical records, particularly when there are issues with the network or system downtime. Healthcare providers have raised concerns about the difficulty in accessing patient information quickly when the system is lagging, which impacts the quality of care.

**8. What do you think contributed to the successes or challenges faced during the implementation of the EMR system?**

**R:**-The success of the implementation was driven by strong leadership and a clear vision for digital transformation. However, several challenges emerged, particularly around the lack of adequate training and the resistance from certain staff members. The system’s performance issues and occasional downtimes were also significant barriers. We did not anticipate how long the integration phase would take, and that delay impacted the overall implementation timeline. That said, the system has improved patient care and efficiency in departments where it’s fully functional.

**9. Do you have enough trained staff available to effectively run and manage the EMR system?**

**R:**-Currently, we have a team of trained staff, but there’s always a need for more, particularly as the system continues to expand across departments. Many of our clinical staff are still unfamiliar with advanced functionalities, and while the IT team is trained to support the system, they could use additional resources to handle the increasing demand. Continuous training and hiring more specialized personnel in both the IT and clinical areas will be necessary to ensure the system is well-maintained and runs smoothly.

**10. Do you have any suggestions for improving the current EMR system, or are there alternative systems that you believe would be more effective?**

**R:-**I believe we need to improve the system’s speed, especially during peak times, and enhance the user interface to make it more intuitive. Additionally, better integration with other hospital systems, like laboratory and pharmacy management, would streamline workflows further. There are certainly other EMR systems available, but switching systems at this stage would be costly and disruptive. My suggestion would be to continue refining our current system to address these gaps, rather than exploring alternatives, at least in the short term."

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| **Background information** | |
| **Sex** | **35 years** |
| **Age** | **Male** |
| **Department** | **Hospital management** |
| **Current role** | **Manager** |
| **Unique ID** | **Higher hospital management-002** |

**1. What were the primary objectives behind implementing the EMR system? Have these objectives been met so far?**

**R:**- The main objectives were to improve the accuracy and efficiency of patient records, reduce errors, ensure better coordination across departments, and enable better decision-making through real-time data access. We’ve seen substantial progress in these areas. There has been a clear reduction in paperwork and human error, and patient data is more accessible across departments. However, full integration, especially with lab results and pharmacy systems, is still pending, which affects the completeness of patient records in some cases.

**2. How would you assess the staff’s awareness and knowledge of the EMR system?**

**R:**-Staff awareness is improving, but it's still inconsistent across different levels. Many healthcare providers are aware of the system, but their depth of knowledge varies. Junior staff, particularly nurses, often face difficulties with more complex features, while senior clinicians are more familiar with the system, especially for routine tasks. We’ve conducted several training sessions, but there’s a need for continuous education and hands-on practice, particularly in troubleshooting common issues and making the most of advanced features.

**3. What is the general attitude and perception of staff towards the EMR system?**

**R:**- The general attitude towards the EMR system is somewhat polarized. On the one hand, a lot of staff members see the benefits, especially in terms of having patient records available at the touch of a button, which is less time-consuming than managing paper records. On the other hand, there are concerns related to system performance and the learning curve associated with adapting to the new system. Some staff members still express frustration, particularly during downtimes or when they encounter difficulties in navigating the system. We recognize this, and improving user experience and addressing technical issues are key priorities for us.

**4. Do you think the hospital has adequate ICT infrastructure to support the EMR system? If not, do you expect any improvements in the near future?**

**R:**- Our ICT infrastructure is improving, but it’s not yet fully where we need it to be. Some areas still experience network congestion, especially during high patient volume periods. Additionally, there are outdated systems in certain departments that need upgrading. Over the next year, we plan to make significant investments in improving our server capacity, network bandwidth, and overall hardware, ensuring that the infrastructure supports the growing demands of the EMR system.

**5. Do you consider the EMR system to be cost-effective for the hospital?**

**R:**- From a long-term perspective, yes, the EMR system is cost-effective. The initial investment was high, but the operational efficiencies it provides make it worthwhile. We’ve seen reductions in paper and storage costs, and workflows are faster, leading to more productive staff. However, the ongoing costs of software updates and maintenance can add up, so we need to continue monitoring those to avoid overspending.

**6. Do you think the EMR system is user-friendly and easy to navigate?**

**R:**- The system is generally user-friendly, but there are areas where improvements can be made. The basic features are easy to use, but more advanced functionalities can be confusing for those who aren’t as familiar with digital systems. Some staff members find themselves frustrated when trying to locate specific information or navigate between different modules. Streamlining the system’s interface and adding more help resources would make it easier for all staff to use efficiently."

**7. Have you received any complaints from patients or users about the system?**

**R:**- Yes, complaints mainly relate to the system’s speed and occasional downtime. Patients have expressed frustration over long wait times to access their medical records, and staff members have raised concerns about delays in updating patient information. These issues are particularly problematic during busy hours, and we are working on addressing these performance issues."

**8. What do you think contributed to the successes or challenges faced during the implementation of the EMR system?**

**R:**- Successful implementation was driven by strong leadership, clear communication, and a structured training program for key staff. However, some challenges arose from the lack of consistency in training across the board and the resistance from some senior medical staff who were hesitant to move away from paper records. The system’s downtime and occasional performance issues have also posed challenges. Going forward, addressing these issues will help ensure smoother operations.

**9. Do you have enough trained staff available to effectively run and manage the EMR system?**

**R:** While we have a solid team, the demand for trained staff is growing as the system expands. Some departments, particularly clinical, still have gaps in terms of fully understanding how to use all the system’s features. We need to continue to invest in training and ensure that our IT support staff is large enough to keep up with the increasing demands of the system.

**10. Do you have any suggestions for improving the current EMR system, or are there alternative systems that you believe would be more effective?**

**R:**- I think the current system can be improved by focusing on enhancing the user experience—especially simplifying some of the more complex features. Also, integration with other systems in the hospital is critical. If we can streamline this integration, it would reduce duplication and errors. As for alternative systems, I believe it’s better to stick with what we’ve invested in and improve upon it, rather than switching to a new system at this stage."

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| **Background information** | |
| **Sex** | **30 years** |
| **Age** | **Male** |
| **Department** | **Hospital management** |
| **Current role** | **Manager** |
| **Unique ID** | **Higher hospital management-003** |

**1. What were the primary objectives behind implementing the EMR system? Have these objectives been met so far?**

**R:**-The main objectives were to create an electronic system that centralizes patient information, reduces errors related to paper-based records, and enhances the overall efficiency of clinical workflows. We also aimed to improve communication across departments. These objectives have largely been met, especially in terms of reducing paper usage and increasing accessibility to patient information. However, the integration of more specialized departments such as radiology and pathology remains a challenge. We're also still dealing with performance issues, particularly around system speed and downtime, which sometimes affect the flow of work.

**2. How would you assess the staff’s awareness and knowledge of the EMR system?**

**R:**- Staff awareness is relatively high among those directly involved with the implementation and training phases. However, it’s been challenging to ensure that awareness extends across all levels. While most department heads and senior staff members understand the system, a significant portion of the clinical staff, especially junior doctors and nurses, struggle with advanced functionalities. The knowledge gap is partly due to insufficient ongoing training and the lack of familiarity with new updates and features that have been added over time.

**3. What is the general attitude and perception of staff towards the EMR system?**

**R:**- The general attitude towards the EMR system is cautiously optimistic, though there is still significant resistance from certain quarters. Senior staff, who have had to transition from paper records, are more skeptical about the system, viewing it as cumbersome and time-consuming. On the other hand, younger staff members tend to appreciate the speed and accessibility of the system. However, common complaints include system performance issues, a steep learning curve, and technical glitches. These concerns have led to some dissatisfaction, but overall, I believe the majority of staff members understand the long-term value of the system.

**4. Do you think the hospital has adequate ICT infrastructure to support the EMR system? If not, do you expect any improvements in the near future?**

**R:**- We have made significant progress with our ICT infrastructure, but there are still areas where we need improvement. Some departments are still struggling with internet connectivity, particularly during high traffic periods. Additionally, certain critical hardware, such as servers and workstations, need upgrades to support the system as it scales. Over the next few months, we plan to make these upgrades a priority, ensuring that the system runs efficiently.

**5. Do you consider the EMR system to be cost-effective for the hospital?**

**R:**- In the long term, yes, the EMR system has proven to be cost-effective. While the initial setup and training were costly, the efficiency it brings to patient record management, as well as the reduced need for paper storage, has led to cost savings. However, the ongoing maintenance and upgrades represent a financial commitment that needs to be managed carefully to avoid any unforeseen costs.

**6. Do you think the EMR system is user-friendly and easy to navigate?**

**R:**- The system is user-friendly for those who are familiar with basic computer operations, but for those without much technical knowledge, it can be a bit challenging. There are some sections of the system that could be simplified to make them more intuitive, particularly for the clinical staff who are less comfortable with technology. I think we need to invest in further development of the interface to ensure it’s easier for everyone to use."

**7. Have you received any complaints from patients or users about the system?**

**R:**- Yes, there have been complaints, mostly concerning system slowness during high traffic times and the occasional system downtime. Patients have also complained about not being able to quickly access their records due to these issues. Healthcare providers are frustrated with delays in updating or retrieving patient information, which impacts their ability to provide timely care.

**8. What do you think contributed to the successes or challenges faced during the implementation of the EMR system?**

**R:**- The success can largely be attributed to the leadership team’s commitment and the initial investment in training. However, challenges arose from the technical limitations, particularly during peak usage times when the system slowed down. Another challenge was overcoming resistance from staff who were used to traditional paper-based systems. I believe that continued focus on improving the system’s performance and increasing buy-in from the staff will be key to future success.

**9. Do you have enough trained staff available to effectively run and manage the EMR system?**

**R:**- Currently, we have a dedicated team, but as the system grows and more departments come online, the need for trained staff increases. Our IT support team is handling the bulk of the work, but they are stretched thin at times. We’ll need to bring in additional support staff, both in IT and clinical roles, to ensure the system continues to function optimally.

**10. Do you have any suggestions for improving the current EMR system, or are there alternative systems that you believe would be more effective?**

**R:**- Improving system speed during peak times is a priority. We also need to improve the integration with other systems in the hospital, such as lab and imaging systems. I think it’s too soon to consider switching systems we should focus on refining what we’ve already implemented. With continuous improvement and focus on user feedback, I’m confident that we can make the current system work better for all stakeholders.

c). Interview Guide for IT and HIT support staffs

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| **Background information** | |
| **Sex** | **33 years** |
| **Age** | **Male** |
| **Department** | **IT department** |
| **Current role** | **Senior IT staff** |
| **Unique ID** | **IT personnel-001** |

**1. What types of issues or problems have you encountered with the EMR system?**

**R:**-The primary issues we’ve faced with the EMR system are system slowness and downtimes, especially during peak usage times. There have also been occasional hardware malfunctions, particularly with servers and workstations that can’t keep up with the demands of the system. Another major issue is the lack of integration with other hospital systems, like laboratory and pharmacy, which makes data transfer between departments inefficient. Staff resistance and lack of proper training are also ongoing issues, as some clinicians continue to use the system incorrectly or bypass it altogether.

**2. What kind of support have you provided or received in relation to the EMR system?**

**R:**- As part of the IT support team, I have provided continuous technical support to staff, troubleshooting issues, and resolving minor system errors. We’ve been involved in regular maintenance and updates, but there’s a significant gap in user support—many healthcare providers require constant guidance to properly use the system. In terms of external support, we rely on the system vendor for major updates and issue resolutions, but their response time is often slow, which can delay the resolution of critical problems.

**3. Do you think the software is easy to adopt and manage within the hospital?**

**R:**- Adopting the software was challenging, especially at the beginning. The system requires a level of technical proficiency that not all staff members possess, which has led to incorrect data entries and improper use of features. While the system was designed with scalability in mind, managing it within the hospital requires continuous oversight, troubleshooting, and adjustments to keep everything running smoothly. Without enough dedicated support staff, it becomes harder to manage effectively.

**4. Have you experienced any hardware issues, such as problems with the server or other equipment?**

**R:**- Yes, we’ve had issues with server performance during high-demand periods. The servers are not always able to handle the volume of data being processed, which results in slowdowns or even system downtime. Additionally, some of the older equipment in certain departments is not compatible with the EMR system, leading to delays and inefficiencies. We’ve been working on upgrades, but it’s a process that needs to be carefully planned to avoid service interruptions.

**5. Are you aware of any alternative EMR systems that might be more suitable than the one currently in use?**

**R:**-While I’m aware of other EMR systems on the market, the current system is deeply integrated with our workflows, and transitioning to another platform would be disruptive. That being said, there are certainly systems out there that may offer better performance, especially in terms of integration with other hospital services. However, the main issue lies in the cost of switching and the potential downtime associated with a system overhaul.

**6. How would you rate the ICT infrastructure setup in your hospital?**

**R:**- The ICT infrastructure is a work in progress. We’ve made significant improvements in network capacity and server reliability, but we’re still facing some issues with older hardware and limited bandwidth in certain departments. The infrastructure supports the system, but it’s not without its limitations, particularly in departments that haven’t yet received the necessary upgrades. We’re continuing to work on addressing these gaps, but it’s an ongoing process.

**7. Do you have any suggestions for improving the EMR system or its integration with other hospital systems?**

**R:**- Improving the integration between the EMR system and other hospital systems, such as laboratory and pharmacy, is a priority. We need to make sure that data can flow seamlessly between departments without the need for manual data entry. Another suggestion is improving the system’s performance, particularly during peak usage times. Ensuring better training for staff is also crucial, as many are still not using the system as intended, which leads to data entry errors and inefficiencies. Lastly, I believe there should be more robust technical support for both end-users and IT staff to ensure smoother operation and faster issue resolution.

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| **Background information** | |
| **Sex** | **33 years** |
| **Age** | **Male** |
| **Department** | **HIT department** |
| **Current role** | **HIT staff** |
| **Unique ID** | **IT personnel-002** |

**1. What types of issues or problems have you encountered with the EMR system?**

**R:**- Some of the main issues I’ve encountered with the EMR system include poor system performance during high patient volume periods, which causes delays in accessing patient data. Additionally, there are ongoing issues with the integration of various modules, such as the laboratory and imaging systems, which means not all patient data is available in real time. Also, some users still struggle with the basic functionalities of the system, which creates confusion and leads to improper data entry.

**2. What kind of support have you provided or received in relation to the EMR system?**

**R:**- I’ve provided support primarily to end-users, troubleshooting errors, assisting with user training, and helping to resolve issues related to system navigation and integration. We’ve also had to deal with hardware problems on occasion, such as server crashes or network issues. As for support I’ve received, I’ve had ongoing training from the system vendor to stay updated on new features and troubleshooting protocols. However, there have been times when response times from the vendor have been longer than expected, which can delay resolutions.

**3. Do you think the software is easy to adopt and manage within the hospital?**

**R:**- The software was not easy to adopt, particularly in the early phases of implementation. Some of the challenges stemmed from the system's complexity and the lack of sufficient training for healthcare providers. The software requires a significant amount of attention to ensure it’s being used properly, and with limited IT and HIT staff, that responsibility can be overwhelming. Managing the software’s integration with other hospital systems has also proven to be a challenge, requiring additional time and resources.

**4. Have you experienced any hardware issues, such as problems with the server or other equipment?**

**R:**- Yes, I’ve encountered several hardware-related issues, particularly with the servers. During peak hours, we experience slow response times due to server overloads, which impacts the efficiency of the EMR system. We’ve also faced connectivity issues in remote areas of the hospital, which affects system access in those parts. We’ve been able to manage these issues by implementing some temporary fixes, but the long-term solution will require significant investment in infrastructure upgrades.

**5. Are you aware of any alternative EMR systems that might be more suitable than the one currently in use?**

**R:**- Yes, there are a few other EMR systems that are more modern and may have better performance capabilities, especially when it comes to handling high data volumes and offering better user interfaces. However, given the investment we’ve already made in the current system, switching would be expensive and disruptive. I think rather than switching systems, we should focus on improving our current system’s performance and ensuring better integration with other hospital services.

**6. How would you rate the ICT infrastructure setup in your hospital?**

**R:**- The ICT infrastructure is generally stable, but there are areas that need attention, particularly in older departments where infrastructure hasn’t been upgraded in years. Network bandwidth is an issue during peak hours, and some departments still use outdated computers that aren’t able to run the system efficiently. Overall, I would rate it as functional but still needing significant improvement to fully support the demands of the EMR system.

**7. Do you have any suggestions for improving the EMR system or its integration with other hospital systems?**

**R:**- Improving the integration between the EMR and other hospital systems, such as laboratory, pharmacy, and imaging, would make a huge difference in efficiency. I also suggest streamlining the system to make it easier for users to navigate and reduce the training time required for new users. Performance enhancements are crucial, especially for handling large volumes of data without slowdowns. We also need to ensure better coordination between the IT department and hospital staff to address any issues as they arise more quickly.

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| **Background information** | |
| **Sex** | **28 years** |
| **Age** | **Male** |
| **Department** | **HIT department** |
| **Current role** | **HIT staff** |
| **Unique ID** | **IT personnel-003** |

**1. What types of issues or problems have you encountered with the EMR system?**

**R:**- We’ve encountered several issues, mainly related to system performance and integration challenges. During high-traffic periods, the system slows down significantly, which affects user experience and efficiency. Additionally, the lack of seamless integration with other hospital systems, like laboratory and pharmacy, creates bottlenecks. There are also issues with inconsistent use of the system by clinical staff, which affects data accuracy and integrity.

**2. What kind of support have you provided or received in relation to the EMR system?**

**R:**- I’ve been responsible for providing technical support to users who encounter issues with the system, whether it’s troubleshooting system errors or helping with user queries. In terms of support received, I’ve had access to training from the system vendor and other IT resources, which have been useful in keeping up with updates and solving complex issues. However, the support from the vendor is often delayed, which can result in prolonged downtime.

**3. Do you think the software is easy to adopt and manage within the hospital?**

**R:**- The software isn’t exactly easy to adopt, particularly for staff who aren’t familiar with technology. The learning curve is steep, and while the system is functional, it requires a lot of ongoing management to ensure it’s being used correctly. The lack of training in certain areas has also contributed to its slow adoption and improper use. From an IT perspective, managing the system requires significant resources and attention to ensure everything runs smoothly.

**4. Have you experienced any hardware issues, such as problems with the server or other equipment?**

**R:**- Yes, hardware issues have been a recurring problem. The servers are often under strain, especially when handling large volumes of data, and this can lead to system crashes or slowness. Additionally, some of the hardware in certain areas of the hospital is outdated and doesn’t meet the demands of the EMR system, which results in inefficiencies.

**5. Are you aware of any alternative EMR systems that might be more suitable than the one currently in use?**

**R:**- I’m aware of other EMR systems, but given the current state of integration and the investment that has been made, switching systems would likely cause more issues than it would solve. That said, some other systems on the market offer better performance and integration features, but the transition would be disruptive and costly. I believe the focus should be on improving the current system.

**6. How would you rate the ICT infrastructure setup in your hospital?**

**R:**- The infrastructure is functional but not optimal. There are parts of the hospital with old equipment, and bandwidth is a consistent issue during peak hours. While we’ve made strides in upgrading, more investment in both hardware and network improvements is necessary to fully support the demands of the EMR system.

**7. Do you have any suggestions for improving the EMR system or its integration with other hospital systems?**

**R:**- Improving system performance, particularly during high-demand periods, is crucial. The integration with other systems like laboratory and pharmacy needs to be seamless to avoid delays in data transfer. Training staff better on how to use the system will also reduce errors and improve data accuracy. Lastly, a more robust support structure with faster response times from the vendor would significantly improve overall system performance.