Nurses Performance at Operating Room at El-Miniya University Hospitals

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Abstract

Background: Operating room is a very critical area, and the number of patients undergoing surgical operation keeps growing, and maybe exposed to numerous risks. So the nurses working in operating room unit must be responsible and highly competent to meet the demands of their profession.

Aim: To assess the performance of the operating room nurses at EL-Miniya University Hospitals.

Subject and Methods: Data were collected by using Egyptian M.O.H observation 2 checklists.

Sample: The current study was including three samples:
- The sample was including all the circulating staff nurses caring for patients in preoperative, intraoperative, and post-operative phase. They were 30 nurses working at the mentioned three areas, including (13) staff nurses in general surgery, (10) staff nurses in gynecology & obstetric, and (7) staff nurses in orthopedic surgery.
- The sample was including all the scrub staff nurses caring for patients’ intraoperative phase. They were 30 staff nurses working at the mentioned three areas, including (9) staff nurses in general surgery, (11) staff nurses in gynecology and obstetric, and (10) staff nurses in orthopedic surgery.
- 150 patients constituting which admitted to the hospitals during the period from (March 2013, to December 2013).

Nurses were observed while they worked in OR. Each of them was observed 5 times. Nurses with a working experience less than one year was excluded from the study. The patients arriving the waiting area at 8:00Am to receive the preoperative care the work in the OR begging at 8:30Am until the cases end.

Results: The current study show that the majority of the study nurses among the study were diploma nurses, (46.6%) of them have years of experience between 10-15 years working in the OR, the majority percentage of them didn’t gain training courses (65%) and (36.6%) of them working on general surgery, the circulating nurses have poor performance in pre, during, and post-operative phase and good performance for the scrub nurses.

Conclusion: Circulating nurses performance was significantly relevant attainment of training courses ($p=0.001$), years of experience ($p=0.013$). The poorest circulating nurse performance was showed in post-operative phase, rather than other phases.

Recommendations: The hospital should plan to teach nurses the job description for them until they know all the duties that must be carried out to patients, performance feedback about circulating and scrub nurses is critical to improve performance among OR nurses, Strict observation of nurses during work and continuous evaluation of their performance and correction of poor performance is essential, Reminder for nurses should be placed as wall chart and handout, The Infection Control committee should develop and update all relevant protocols annually so the new information becomes available for the best performance and Training of OR nurses should be conducted pre and during service about nurse’s role in the OR through regular scientific meetings and training courses.

Key Words: Nursing performance – Operating room – Operating room nurses.

Introduction

THE operating room is a high-risk environment, yet the factors contributing to medical errors within this context remain poorly understood, the beginning practitioner usually conceives the Operating Room (OR) as a mysterious or forbidden area of the hospital, with sign on its doors stating “Restricted Area. Authorized personnel only”. The operating room is divided into three areas, or zones, the unrestricted area provides an entrance and exit from the surgical suite for personnel, equipment and patient. The semi restricted area provides access to the procedure rooms and peripheral support areas within the operating room. The restricted area includes the procedure room where surgery is performed and adjacent sub sterile areas where the Scrub sinks and autoclaves are located. The operating department environment is ever changing
because of new advances in technology, instrumentation or procedures. This changing technological environment again places additional educational requirements on practicing professionals. In addition, it makes it more difficult to ensure an ergonomically correct environment for nurses, which heightens their risk of occupational injury. The practice of operating room nursing requires thorough theoretical knowledge as well as practical skills and the ability to prioritize interventions. The work of the operating room nurse is based on knowledge; the ability to employ the best available knowledge, clinical experience and the patient’s preferences is essential. All kinds of knowledge must be used in order to ensure professionally safe practice of the discipline. Therefore, new theoretical knowledge concerning scientific and operating room nursing subjects must be closely integrated into knowledge already being applied in clinical practice. The sterilization of the surgical room is the responsibility of operating room nurses. During surgery, they may play a variety of roles. Patients are highly exposed to harmful bacteria when they are opened up, so all materials must be absolutely sterile. Effective infection control is a vital aspect of the operating room. Operating room nursing has been recognized as a specialty in the hospitals since 1901. As early as 1860, Florence Nightingale described it as the cornerstone of basic nursing care (1859/1946). Operative nursing is the practice of nursing directed toward patients undergoing operative and other invasive procedures. Recognizes the “operative nurse” as one who provides, manages, teaches, and/or studies the care of patients undergoing operative or other invasive procedures, in the preoperative, intra-operative and postoperative phases of the patient’s surgical experience. Pre-operative nurses work on the surgical front lines, so no one is better qualified or has the capacity to advocate for and ensure patient safety in the surgical setting. Operating room nurses are known as operating nurses’, assist surgeons during operations, and prepare patients for surgery and care for them afterwards. These nurses are responsible for a large amount of the communication and education of surgical patients and their families and make sure that the patient receives optimal care during and after their operation. Based on the standards and recommended practices for operating nurse, the operating room nurse provides a continuity of care throughout the operating period, using scientific and behavioral practices with the eventual goal of meeting the individual needs of the patient undergoing surgical intervention. This process is dynamic and continuous, and requires constant reevaluation of individual nursing practice in the operating room. The nurses in the operating room are divided into two types: The circulating nurses and the scrub nurses. The circulating nurses take charge of the general nursing care and make sure the environment stays secure and relaxed, and scrub nurses select and handle the surgical tools used during the operation. Registered nurse first assistants have to be experienced in control bleeding, suture incisions under the surgeon’s supervision and how to maintain wound disinfection.

Subjects and Methods

A descriptive, exploratory design was used to achieve the aim of the present study and answer the research questions. The study was conducted at three OR. Units in El-Minya University Hospitals which is a governmental hospital affiliated to Minya University; first for general surgery, second for the orthopedic surgery and third for gynecology & obstetrics surgery. The current study was including three samples: (1) The sample was including all the circulating staff nurses caring for patients in preoperative, intraoperative, and post-operative phase. They were 30 nurses working at the mentioned three areas, (2) The sample was including all the scrub staff nurses caring for patients’ intra-operative phase and (3) 150 patients constituting which admitted to the hospitals during the period from (March 2013, to December 2013). Nurses were observed while they worked in OR. Each of them was observed 5 times. Nurses with a working experience less than one year was excluded from the study. The patients arriving the waiting area at 8:00Am to receive the preoperative care the work in the OR begging at 8:30Am until the cases end. Upon completion of data collection, the data were coded, analyzed and tabulated, by computer using the “Statistical Package for Social Sciences” (SPSS) 20 versions. Descriptive statistics such as frequency, percentage, mean, and standard deviation were utilized to analyze data pertinent to the study variables.

Results

The result of present study clarified that 46.6% of the nurses had experience between 10-> 15 years, while 11.6% had experience between 1->5 year. The diploma nurses represented 90% of the staff, and 10% only for bachelor nurses, while 65% of them didn't had training courses related to operation room, also 36.6% of them working in general surgery while 35% of them working in gynecology and obstetrics surgeries and 28.3% of them working in orthopedic surgery.
Fig. (1): Quality of care provided by the circulating nurses in the operating room.

Fig. (1) shows that in 57.3% of the patients received poor nursing care provided by circulating nurses, while 32.7% received fair nursing care, and only 10% receive good care M±SD=7.79±4.04.

Fig. (2): Quality of the circulating nurses performance in OR.

Fig. (2) shows that in 73.4% of the nurses their performance was poor, while 23.3% have fair performance, and only 3.3% have good performance M±SD 28.94±5.36.

Fig. (3): Quality of care provided by the scrub nurses in OR.

Fig. (3) shows that 10% of the patients received poor nursing care provided by scrub nurses, while 35.3% received fair nursing care, and 54.7% received good care M±SD=25.49±2.96.

Table (1): Comparison between circulating nurse performance in relation to (training course, place of work, qualification, and year of experience).

<table>
<thead>
<tr>
<th>Training course</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No (n=51)</td>
<td>Yes (n=9)</td>
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<tr>
<td>Performance</td>
<td>27.01±4.07</td>
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<tr>
<td>Surgery (n=13)</td>
<td>Gynecology (n=10)</td>
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<td>Performance</td>
<td>29.73±5.79</td>
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<td>Diploma (N=29)</td>
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<td>Performance</td>
<td>28.7±5.29</td>
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<td>5-&gt;10 (n=2)</td>
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<tr>
<td>Performance</td>
<td>35.8±0.28</td>
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</table>

*Significant <0.05.

Table (1) shows that there was statistically significant difference between circulating nurse performance and their training courses with the following significant p=0.001 *, while there was statistically significant difference between circulating nurse performance and their place of work with the following significant p=0.787, also there was statistically significant difference between circulating nurse performance and their qualification with the following significant p=0.203, and there was statistically significant difference between circulating nurse performance and their years of experience with the following significant p=0.013*. 
Fig. (4): Quality of the scrub nurses performance.

Fig. (4) shows that 0% of the nurses their performance was poor, while 46.7% have fair performance, and 53.3% have good performance $M \pm SD 25.49 \pm 0.84$.

Table (2): Comparison between scrub nurse performance in relation to (training course, place of work, qualification, and year of experience).

<table>
<thead>
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<th>Surgery (n=9)</th>
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<td>Performance</td>
<td>25.31±0.7</td>
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<th>Bachelor (N=5)</th>
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<tr>
<td>Performance</td>
<td>25.48±0.89</td>
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<td>0.925</td>
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<table>
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<th>$p$-value</th>
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<tr>
<td>Performance</td>
<td>25±0.76</td>
<td>25.57±0.92</td>
<td>25.64±0.38</td>
<td></td>
<td>0.373</td>
</tr>
</tbody>
</table>

*Significant <0.05.

Table (2) shows that there was statistically significant difference between scrub nurse performance and their training courses with the following significant $p=0.194$, while there was statistically significant difference between scrub nurse performance and their place of work with the following significant $p=0.156$, also there was statistically significant difference between scrub nurse performance and their qualification with the following significant $p=0.925$, and there was statistically significant difference between scrub nurse performance and their years of experience with the following significant $p=0.373$.

Discussion

The aim of the present study was to assess nurse's performance at operating room at El-Minya University Hospitals.

The operating room is a high-risk environment, yet the factors contributing to medical errors within this context remain poorly understood, the beginning practitioner usually conceives the Operating Room (OR) as a mysterious or forbidden area of the hospital, with sign on its doors stating "Restricted Area. Authorized personnel only" (Sandra, Hunter Sword 2006).

The practice of operating room nursing requires thorough theoretical knowledge as well as practical skills and the ability to prioritize interventions. The work of the operating room nurse is based on knowledge; the ability to employ the best available knowledge, clinical experience and the patient’s preferences is essentials. All kinds of knowledge must be used in order to ensure professionally safe practice of the discipline. Therefore, new theoretical knowledge concerning scientific and operating room nursing subjects must be closely integrated into knowledge already being applied in clinical practice.

Regarding to the demographic data, the result of the present study clarified that 90% of the nurses among the study sample working in the operating room were diploma nurses. While the bachelor nurses only 10%. Also the majority of the study nurses had working experience more than 10 years in nursing, this could be because working in the OR need nurses who have the ability to work under stress and to take quick decisions which are acquired by experience. About two-thirds of OR nurses in the current study didn't attend training courses related to OR as infection control and patient safety. The findings of this study showed that most of the preoperative care aspects were carried out. The study proved that the level of circulating nurse' performance was poor in the preoperative phase and, 56% of the patients received poor care by the circulating nurses.

The present study shows that more than one-thirds of the patients have not been checked their identity by the circulating nurse, it could be because the large number of cases, and the adoption of the nurses that the doctor will check the identity of the patients. And by this way may be they will bring the wrong patient. about half of the observed operations, the circulating nurse didn't review operative permission (patient surgical consent,
anesthesiologist permission) completed & signed in about half of the observed operation, this could be because of the nurses depended on the surgeon after explain the procedure to the patient and its risk will ask the patient to signed the surgical consent. In addition one-thirds of the patients their site and side of the procedure didn’t reviewed by the circulating nurse, may be because of the assigned circulating nurse didn't make full assessment to the patient before interring OR, or she didn't check doctor's order and instruction before surgery.

The study results revealed that more than half of the observed operations the circulating nurse didn't complete preoperative care plan that includes assessment, plan implementation, and evaluation may be because of no clear policy for the importance of nursing role in the hospitals.

Also the present study show that about half of the observed operations the circulating nurse didn't remove all patients’ aids (eye glass, hearing aids, dentures, contact lenses, and jewelry) this finding may cause injury and complications for the patients as if didn't remove the dentures the patient may expose to the risk of aspiration, eye glass & hearing aids may be broke, and the jewelry may be lost. The present study show that more than half of the observed operations the circulating nurse didn’t ask the patients to change their clothes, to wear OR gown may be because of limited number of operating room clothes and this action may that will lead to contamination of the patient’s wound.

Also the present study show that about half of the observed operations the circulating nurse didn’t give to the patient the preoperative medications (antibiotic, prophylaxis, or blood components) May be because she depends on the assigned nurses in the inpatient unit they are given the drugs to the patient. On the other hand, the study results revealed that in more than half of the observed operations the circulating nurse didn’t placement of patient’s grounding pad to prevent electric burn, may be because of she depended on the OR’s workers to put patient’s grounding pad in most of observed operations but in sometimes the worker didn’t put grounding pad in right way or according to the needed surgical position and this may expose the patient to electrical burn. The study result revealed a large number of nurses among the sample under this study didn't help in the process of transferring the patient from the Trolley to the operations table and vice which may expose the patient to the risk of falling on the ground, may be because of the circulating nurses were depended on the OR worker in patient’s transfer process she has a lack of knowledge about job description.

Result of the present study revealed that the circulating nurses did not report patient’s information to the recovery nurse in most of the observed operation, as the identity and physical status of the patient, irregularities or incidents that occur during surgery, the identity and physical status of the patient to the recovery room's nurse, the type and site of operative procedure, any impairment resulting from the operative procedure, the significant change in the patient's condition, the type and site of drains, catheters, and tubes, necessary equipment needed based on the physical assessment of the patient as (oxygen, suction, blood transfusion bomb, etc .... ), and the surgical notes, ignorance of the nurses about importance of contact with each other and communicate information and data of the patient, so the recovery nurse didn't prepared for the care of the patient during the recovery period.

The present study showed that in one third of observed operation the scrub nurses didn't arrange the surgical instruments on the table, fixing the blades on knife, preparing sutures in sequence according to Precedence of use and by this way may cause injury for herself or other scrubbed team members.

Also the present study showed that the scrub nurses were not counting instruments, needles, and gauze with the circulating nurse before use in surgery in one third of the observed operations. that may be because the circulating nurse didn't remain all the time during the surgical operation that is explain why the needs of the scrubbed surgical team were not fulfilled immediately in more than half of the observed operations. Also the study result revealed that in one-third of the observed operations the scrub nurses were not kept the sharp used tools in the sharp box may be because most of the time they were kept full and needles come out of it and no one replace it. The study result showed that more than half of the scrub nurse didn’t place the sensitive instruments in a separate basin as (surgical instruments, endoscopic tools, lensed instruments and suction tubes) and let this duty to the OR worker, and may be exposed the tools to destroy or break down.

All the above-mentioned results, related to the performance of nurses as possible that is interpreted to be due to the absence of clear regulations or
guide lines and common procedures as well as the absence of training and educational programs for the operating room nurses and workers.

**Conclusion:**

The present study concluded that the (90%) of the nurses among the study were diploma nurses, (46.6%) of them have years of experience between 10-15 years working in the OR, the majority percentage of them didn’t gain training courses (65%) and (36.6%) of them working on general surgery, the circulating nurses have poor performance in pre, during, and post-operative phase and good performance for the scrub nurses. Circulating nurses performance was significantly relevant attainment of training courses \((p=0.001)\), years of experience \((p=0.013)\). The poorest circulating nurse performance was showed in post-operative phase, rather than other phases.

**Recommendations:**

Based on the findings of the present study the following recommendations were deduced:

- The hospital should plan to teach nurses the job description for them until they know all the duties that must be carried out to patients.

- Performance feedback about circulating and scrub nurses is critical to improve performance among OR nurses.

- Strict observation of nurses during work and continuous evaluation of their performance and correction of poor performance is essential.

- Reminder for nurses should be placed as wall chart and handout.

- The Infection Control committee should develop and update all relevant protocols annually so the new information becomes available for the best performance.

- Training of OR nurses should be conducted pre and during service about nurse's role in the OR through References.

**References**


الملخص العربي

غرفة العمليات هي منطقة حرجية للغاية، وعند المرضى الذين يخضعون للعمليات الجراحية في أزمات مهنية، وربما يتعرضوا لمخاطر عديدة، حتى المرضى المصابين في وحدة غرفة العمليات يجب أن تكون مسؤولة وعلي درجة عالية من الكفاءة لتلبية احتياجاتهم.

ممارسة التمريض داخل غرفة العمليات تتطلب الوعي الضروري وفهم وفهم المهمات العملية والقدرة على تحديد أمور الانتقادات، ويستدعي عمل ممرضة غرفة العمليات على توظيف أفضل العناصر المتاحة وخبرة اليكليكية، جميع أنواع المعرفة يجب أن تستخدم من أجل ضمان الممارسة الآمنة منها من الانضباط.

ومن المعروف أن المرضى داخل غرفة العمليات تعمل كمساعدة الجراح أثناء العملية، وإعداد المرضى للجراحة وتقييم الرعاية والعناية للمرضى بعد العملية.

استنادًا إلى المعايير والمعايير الدوامية في العمل داخل غرفة العمليات فإن ممرضة غرفة العمليات توفر استشارية الرعاية طوال فترة العملية وتلبية الاحتياجات الفورية للمريض الذين يخضعون للتداخل الجراحي. هذه العملية في ديناميكية ومستمرة، وتلتقي إعادة تقييم المستمر لممارسة التمريض في غرفة العمليات.

وتتضمن الممارسات داخل غرفة العمليات إلى نواعين: ممرضة متخصصة وممرضة معقولة. الممرضة المتخصصة تكون مسؤولة عن تقديم الرعاية التراثية العامة والتقييد بالخدمة وأمان المريض داخل غرفة العمليات، والممرضة المعقولة تكون مسؤولة عن مساعدولة جراح أثناء العملية الجراحية.

ضمن الأداء وإدارة الرعاية التراثية قد يسبب العديد من المشاكل المرضي الذين يخضعون لعملية جراحية، مثل العدوى، أو الربو، أو الحروق، أو السقوط من طولية غرفة العمليات، لذلك بناءً على تقييم اداء التمريض، من أجل معرفة نقاط ضعف الدواء، وكيفية تحسينها في المستقبل من خلال توفير التعليم الشامل والتدريب للممرضين والممرضات وذلك لتحسين نوعية الرعاية المقدمة للمريض.

هدف البحث: هدف البحث هو تقييم اداء التمريض في غرفة العمليات بم مستشفيات المهندس الجامعي، وتحقيق هدف الرسالة تم إعداد السؤال التالي:

ما هو اداء التمريض داخل غرفة العمليات في مستشفى المهندس الجامعي؟

عينة البحث: تكنت عينة البحث من 200 ممرض وممرضة واحدة بالإضافة إلى ممرض وممرضة معقولة.

ممكن تقييم البحث: قد تم إجراء الدراسة في ثلاثة من غرف العمليات في مستشفى المهندس الجامعي وهو مستشفى حكومي تابع لجامعة المهندس.

الغرض من غرف الالمراض خاصة للجراحة العامة والأغذية غرف العيادات المخصصة لجراحة العظام والثانية غرف العيادات المخصصة لجراحة النساء وولادة.

1. أولاً غرف العيادات المخصصة للجراحة العامة تتكون من ست غرف تبلغ مساحة يفعلا في ثلاثة دورات.

2. ثانياً غرف العيادات المخصصة لجراحة العظام وتحتوي من ثلاث غرف تبلغ مساحة يلفت دوريات.

3. ثالثاً غرف العيادات المخصصة لجراحة النساء والولادة وتحتوي من خمس غرف تبلغ مساحة يلفت دوريات.

الانتهاكات في مستشفى: وقد تم جمع البيانات باستخدام أثاث من قوائم المراقبة التي وضعتها وزارة الصحة المصرية في عام 2012.

1. قائمة مرجعية لتقييم أداء الممرضات المعقولة.

2. قائمة مرجعية لتقييم أداء الممرضات المحاولة.

أولا: قائمة مرجعية الخاصة لتقييم أداء الممرضات المحاولة وتقسيم إلى قسمين.

أولا: يتضمن بيانات المشاركين مثل المعرفة، وسنوات الخبرة، ومكان العمل، وكورسات التدريب السابقة.
ثانيا: يتضمن أنشطة الرعاية التمريضية المرشح الذين يضعونون لعملية جراحية والتي تشمل أربعة أبعاد:

1- رعاية تعليمية مرحلة ما قبل التنفيذ والتي تشمل 11 بند.
2- الرعاية التمريضية لوصول المرشح داخل جناح الجراحة التي تشمل 6 بند.
3- الرعاية التمريضية خلال المرحلة البيانية المنطق التي يتضمن 17 بندًا.
4- الرعاية التمريضية في مرحلة ما بعد الجراحة التي تشمل 19 بندًا.

ثالثا: القائمة المرجعيّة الخاصة تقييم أداء المرشح المعمّقة وتنقسم إلى قسمين:

1- يتضمن بيانات المشاركين مثل المؤهلات، سنوات الخبرة، مكان العمل، وكورسات التدريب السابقة.
2- ويشمل أنشطة الرعاية التمريضية المرشح خلال العملية الجراحية والتي تشمل 30 بندًا.

النتائج الرئيسيّة للبحث: وخلصت الدراسة إلى أن (40%) من المرشحات تربّين في دورات تدريبية (6.2 أرم) ومنهم لديهم سنوات من الخبرة ما بين 10 – 15 سنة (36.2%) ومنهم لم يحصلوا على دورات تدريبية (36.2%). ومنهم يعملون بالجراحة العامة. مستوى أداء الممرضات المنافذة في مرحلة ما قبل وأثناء وبعد العمليات الجراحية كان أداءهم ضعيف، ومستوى أداء الممرضات المعتبة جيداً.

وتنتهي الدراسة وثبت أن ضعف الأداء في مرحلة ما قبل وأثناء وبعد العمليات الجراحية المماثلة، وقد لوحظ انخفاض أداء مع الممرضات المنافذة في مرحلة ما بعد الجراحة (70%) بمتوسط (7.87) ووحظ أداء جيد مع الممرضات المعتبة (76.2%).

النتائج ذات الصلة للدراسة المرشحات في غرفة العمليات تبين أنهم بحاجة إلى التدريب المستمر والمتابعة المستمرة وقيمة الأداء على أساس ملاحظات واضحة في حقيقة العمل.

الاتباعات: وبناءً على نتائج هذه الدراسة تم استنتاجات التوصيات التالية:

• يجب أن يخطط المستشفى لتعليم الممرضات لتطبيق التدريب الوظيفي لهم حتى يفهمون كل الواجبات التي يجب القيام بها المرضى.
• تقييم ملاحظات حول أداء الممرضة المنافذة والمعقاة مهم تحسين أداء الممرضات.
• مراقبة صارمة من الممرضات أثناء العمل والتحقيق المستمر لأنشطته وتصحيح الأداء الضعيف أمر ضروري.
• ينبغي أن توضع تذكير للممرضات والممرضين مثل الصور الحافظ.
• يجب على لجنة مكافحة العمليات تطوير وتحديث كافة البروتوكولات ذات الصلة سنوياً بحيث تصبح المعلومات الجديدة متاحة للحصول على أفضل أداء.
• ينبغي إجراء دورات تدريبية منتظمة للمرضى قبل وأثناء الخدمة.