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## INTEGRATIVE REVIEW ARTICLE

### “SAFE SURGERY SAVES LIVES” PROGRAM CONTRIBUTIONS IN SURGICAL PATIENT CARE: INTEGRATIVE REVIEW

#### CONTRIBUIÇÕES DO PROGRAMA “CIRURGIAS SEGURAS SALVAM VIDAS” NA ASSISTÊNCIA AO PACIENTE CIRÚRGICO: REVISÃO INTEGRATIVA

#### CONTRIBUCIONES DEL PROGRAMA “CIRUGÍAS SEGURAS SALVAN VIDAS” EM LA ASISTENCIA AL PACIENTE QUIRÚRGICO: REVISIÓN INTEGRADORA

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#### ABSTRACT

**Objective:** to verify in the literature contributions of the program “safe surgery saves lives” in patient’s care. **Method:** integrative review from the following question << *Did the program “safe surgery saves lives” bring contributions in patient’s care?* >> There were searches in Medline, Scopus, Science Direct and Capes Portal databases of articles published between 2008 and 2014. **Results:** There were 26 articles identified, 38% showed a relationship between the use of the checklist and reducing complications/surgical mortality; in two articles (8%) an improvement was observed in antibiotic infusion time. In 12 articles (46%) an improvement in surgical safety was suggested. **Conclusion:** the benefits associated with the adoption of the program have been well established, even challenges related to its implementation. However, it is necessary that professionals really intend to use it, understanding the importance, necessity of using, adapting it to their reality and, above all incorporating it to daily practice in order to mitigate damage to surgical patients. **Descriptors:** Surgery; Checklist; Patient Safety.

#### RESUMO

**Objetivo:** verificar na literatura as contribuições do programa “Cirurgias seguras salvam vidas” na assistência ao paciente cirúrgico. **Método:** revisão integrativa realizada a partir da seguinte questão << *O programa “Cirurgias seguras salvam vidas” trouxe contribuições na assistência ao paciente cirúrgico?* Realizou-se busca nas Bases de dados Medline, Scopus, Science Direct e Portal Capes de artigos publicados entre 2008 a 2014. **Resultados:** foram identificados 26 artigos, 38% apontaram relação entre uso do *checklist* e redução de complicações/mortalidade cirúrgica; em dois artigos (8%) foi observada melhora no tempo de infusão de antibióticos; e em 12 artigos (46%) sugeriu-se melhora na segurança cirúrgica. **Conclusão:** os benefícios associados à adoção do programa têm sido bem estabelecidos, mesmo que desafios estejam relacionados à sua implantação. Porém, torna-se necessário que os profissionais se proponham de fato a utilizá-lo compreendendo a importância, necessidade do uso, adequando-o à sua realidade e, sobretudo, incorporando-o à prática diária, visando à mitigação de danos ao paciente cirúrgico. **Descritores:** Cirurgia; Lista de Verificação; Segurança do Paciente.

#### RESUMEN

**Objetivo:** verificar en la literatura las contribuciones del programa “Cirugías seguras salvan vidas” en la asistencia al paciente quirúrgico. **Método:** revisión integradora a partir de la siguiente pregunta << *¿El programa “Cirugías seguras salvan vidas” trajo contribuciones en la asistencia al paciente quirúrgico?* Se realizó una búsqueda en las Bases de datos Medline, Scopus, Science Direct y Portal Capes de artículos publicados entre 2008 a 2014. **Resultados:** Se identificaron 26 artículos, 38% mostraron relación entre uso del *checklist* y reducción de complicaciones/mortalidad quirúrgica; en dos artículos (8%) fue observada una mejora en el tiempo de infusión de antibióticos. En 12 artículos (46%) se sugirió una mejora en la seguridad quirúrgica. **Conclusión:** los beneficios asociados a la adopción del programa han sido bien establecidos, mismo que desafíos estén relacionados a su implantación. Sin embargo, es necesario que los profesionales se propongan realmente utilizarlo comprendiendo la importancia, necesidad del uso, adecuándolo a su realidad y, sobretudo incorporándolo a la práctica diaria, visando la mitigación de daños al paciente quirúrgico. **Palabras clave:** Cirugía; Lista de Verificación; Seguridad del Paciente.

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## INTRODUCTION

The surgical care, benefit with medical advances and together with increased longevity of the population and the incidence of traumatic injuries, cancers and cardiovascular disease, it has been indispensable in health care.<sup>1</sup> It is estimated that the annual amount of bigger surgeries in the world occurred in 2008 are 234 million surgeries, about a surgery for every 25 human beings.<sup>2</sup>

However, failures in surgical procedures can cause considerable damage to patients. The complications of surgical procedures in industrialized countries are reported in 3-16% of the procedures and the mortality rate of approximately 0.4-0.8% and 5-10% in more complex surgeries in developing countries.<sup>2</sup> The Center for Disease Control and Prevention (CDC) estimates that 14-16% of infections related to health care due to surgical infections (ISC) being considered one of the most important causes of post-operative complications.<sup>2</sup> In Brazil, the surgical infection ranks third among health care associated infections (IRAS), and similar to American data comprising 14 % to 16% of hospital infections.<sup>1</sup>

In this context, in October 2008 the second Global Challenge, entitled "Safe Surgery Saves Lives" was proposed by the World Alliance for Patient Safety of the World Health Organization (WHO), which aims to raise quality standards in care services to surgical patients. Therefore, the challenge includes the prevention of surgical infection, safe anesthesiology, efficient surgical teams and measurement of complications of surgical care. Ten key objectives have to be achieved by all surgical teams, which were summarized in a checklist, using the division of surgical procedure in three phases, the period before to anesthesia, the period after the anesthesia and before surgical incision and the period during or immediately after closing the incision.<sup>2</sup>

The application of the program "safe surgery saves lives" from WHO has been reported in studies about the experience of its implementation in different situations and with different perspectives of action. The result of a pilot assessment in institutions located in eight different places in the world (Canada, India, Jordan, Philippines, New Zealand, Tanzania, England and USA), shows that the use of the checklist has nearly doubled the chance of patients receiving surgical treatment with adequate standards of care<sup>5</sup>. Thus, all countries can improve surgical

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care through security checklists that can be performed in all environments, regardless of social, political or economic diversity.<sup>2</sup>

Given the above, and considering WHO recommendation to the member countries for the socialization of knowledge derived from implementation of the proposed programs, and specifically regarding the application of surgical safety checklist of the program "Safe Surgery saves lives", this study aims to:

- Check in the literature the contributions of the program "Safe surgery saves lives" in patient's care.

## METHOD

Para o levantamento dos artigos foi realizada busca nas seguintes bases de dados: Medline, Scopus, Science Direct e Portal Capes, utilizando-se como descritores Cirurgia/surgery e lista de verificação/checklist.

To guide the search the following question was then proposed: *Did the program "Safe surgery saves lives" bring contributions in patient's care?*

To find the articles, a search in the following databases was held: Medline, Scopus, Science Direct and Portal Capes, using as descriptors Surgery and checklist.

Original and primary articles, in English, Portuguese and Spanish published from 2008 to 2014 were included in the study. The year 2008 was considered for the beginning because of the launching by WHO of that challenge, focus of this study. After identification of the articles from their titles, there was a full reading of the abstract in order to define whether they met the predefined inclusion criteria in this study, as: studies evaluating the implementation process of the checklist of surgical safety in hospitals and its effect on morbidity, mortality, prevention of surgical infection, safe anesthesiology and efficient surgical teams.

For data collection an instrument was elaborated: identification of the original article, methodological characteristics of the study, measured interventions and results found.

For the analysis and subsequent synthesis of the articles that met the inclusion criteria, summary tables contemplating the following aspects considered relevant were used: author/year, design/level of evidence/objectives, key results, recommendations/conclusions. The articles were divided in those tables according to the themes of the four priority areas of the program "safe surgery saves lives": prevention

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of surgical infection, safe anesthesiology, efficient surgical teams and measurement of complications of surgical care.

The level of evidence of the studies were assigned based on the classification proposed by Stetler et al (1998)<sup>4</sup>: “Level I - evidence obtained from the results of meta-analysis of controlled clinical trials and randomization; Level II - evidence obtained in experimental design study; Level III - evidence obtained of almost-experimental research; Level IV - evidence from descriptive studies or qualitative methodological approach; Level V - evidence from case reports or reports of experiences; Level VI - evidence based on expert opinion or based on standards or legislation.”

The presentation of results and data discussion was done descriptively, allowing the evaluation of the applicability of the developed integrative review in order to

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subsidize decision-making and improve the quality of clinical practice.

RESULTS

Respecting the inclusion criteria of the study, there were 26 articles identified in the databases.

Regarding the number of publication of articles per year, there was an increase in the quantity of publications from 2009 to 2014, which demonstrates the growing importance of the theme from the launching of the program “safe surgery saves lives”. Among the 26 original articles included in the study, according to the level of evidence 25 articles were classified with the level of evidence IV that although they are original research, they are descriptive studies or have qualitative methodological approach, and only one had level III evidence obtained in almost-experimental research (Figure 1).

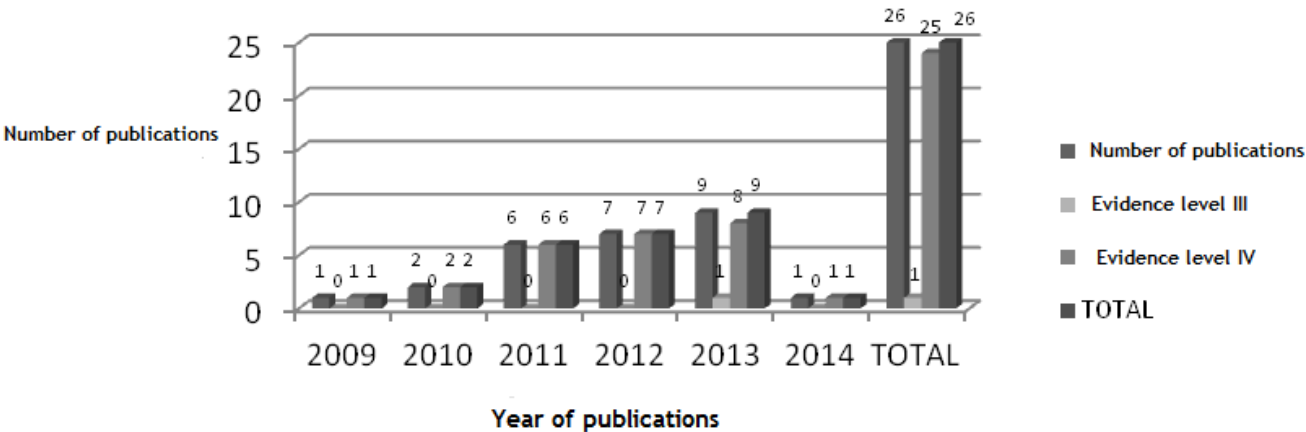


Figure 1. Publication synthesis according to year and level of evidence.

Regarding the use of the type of surgery checklist, the 26 studies demonstrate variety of surgical specialties, 18 (69%) being studies in general surgery.

Regarding to the country of origin of the 26 studies, a range of publications was observed in several countries with different social and economic realities, most of them from the United States (16%), UK (17%) and Germany (12%). It is noteworthy the fact of only one Brazilian study identified on this theme that addressed the efficacy of the use of the checklist in surgical safety.

The articles included in the review were summarized in Tables 1, 2 and 3 according to author/year, design/level of

evidence/objectives, key results and recommendations/conclusions.

♦ Reduction of surgical complications

The contribution of the use of the checklist on surgical complications in 38% of the 26 selected articles suggest that the implementation of the surgical checklist was associated with decrease in surgical complications and mortality rates. In only 4%, the use of the list was not associated with a significant reduction in surgical complications and early mortality<sup>5</sup> (Figure 1).

| Author/Year                              | Design/ Level of evidence/Objectives                                                                                                                                     | Results                                                                                                                                                                 | Recomendations/ conclusions                                                                                                                         |
|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Berrisford RG et al., 2012. <sup>6</sup> | Prospective / IV.<br>To audit errors identified by a checklist during long surgery.                                                                                      | The biggest audited error was missing the prophylaxis of deep vein thrombosis (53.6%).                                                                                  | The checklist can improve thrombosis prophylaxis.                                                                                                   |
| Bliss LA et al., 2012. <sup>7</sup>      | Cohort / IV.<br>To evaluate whether the use of the surgical checklist reduces morbidity in 30 days postoperatively.                                                      | Morbidity reduction from 23.6% to 15.9%.                                                                                                                                | The structured implementation of the checklist can reduce morbidity in the first 30 postoperative days.                                             |
| Constanza C et al., 2013. <sup>8</sup>   | Prospective longitudinal / IV.<br>To describe the application of the surgical checklist and the occurrence of adverse events.                                            | Drop in the number of adverse events related to the surgical procedure from 7.2% to 3.3%.                                                                               | The incidence of adverse events related to the surgical procedure reduced with the implementation of the checklist.                                 |
| Haynes AB et al., 2009. <sup>3</sup>     | Prospective longitudinal / IV<br>To evaluate the effectiveness of the checklist on surgical morbidity and mortality.                                                     | Complications reduction from 11% to 7% and the number of deaths from 1.5% to 0.8%                                                                                       | Reductions in mortality and surgical complications rates.                                                                                           |
| Klei WAV et al., 2012. <sup>9</sup>      | Retrospective cohort / IV.<br>To evaluate the effect of surgical checklist on mortality.                                                                                 | Reduction of the gross mortality of 3.1% to 2.8%                                                                                                                        | Reduction of mortality in the first 30 postoperative days.                                                                                          |
| Kwok AC et al., 2013. <sup>10</sup>      | Prospective longitudinal / IV.<br>To enter the surgical checklist and measure their impact on risks and complications.                                                   | Reducing the overall complications rate of 21.5% to 8.8%. Infectious and non-infectious complications decreased from 17.7% to 6.7% and from 2.6% to 1.5%, respectively. | The implementation of the checklist reduces risk and surgical complications.                                                                        |
| Panesar SS et al., 2011. <sup>11</sup>   | Retrospective / IV.<br>To estimate how many surgeries in the wrong place could have been prevented by the use of the checklist.                                          | The list could have prevented 28/133 (21.1%) of the incidents.                                                                                                          | The surgical checklist can improve the security of the surgical patient.                                                                            |
| Rosenberg NM et al., 2012. <sup>12</sup> | Prospective longitudinal / IV.<br>To implement checklist in plastic surgery in order to reduce surgical complications.                                                   | Reduction of the total number of complications from 15.1% to 2.7%; the proportion of patients with one or more complications has decreased from 11.9% to 2.72%.         | Reduction of infectious and non-infectious surgical complications.                                                                                  |
| Sewell M et al., 2011. <sup>5</sup>      | Prospective longitudinal / IV.<br>To evaluate the correlation between the list of use with the reduction of early complications, mortality, and perceptions of the team. | The rates of complications and mortality decreased from 8.5% and 1.9%, respectively, to 7.6% and 1.6%.                                                                  | The use of the checklist was not associated with a significant reduction of complications and mortality. Education programs can increase their use. |
| Truran P et al., 2011. <sup>13</sup>     | Prospective longitudinal / IV.<br>To evaluate whether surgical checklist improved compliance with the prevention of venous thrombosis.                                   | Failure of DVT prophylaxis was reduced from 6.9% to 2.1%.                                                                                                               | The checklist can improve compliance with prophylaxis of deep vein thrombosis.                                                                      |
| de Vries EN et al., 2010. <sup>14</sup>  | Retrospective / IV.<br>To evaluate the effect of surgical checklist.                                                                                                     | Reducing the proportion of patients with one or more complications from 15.4% to 10.6% reduction in hospital mortality from 1.5% to 0.8%.                               | Reduction of surgical complications and mortality.                                                                                                  |

**Figure 1.** Synthesis of articles related to the application of the checklist and reduction of infectious and not infectious surgical complications and mortality rates.

◆ **Prevention of surgical infection**

Regarding the prevention of surgical infection related to the use of the surgical checklist, in 8% of studies there was a significant improvement at the time of

antibiotics administration after the implementation of the checklist as well as a decrease in reoperation rates due to surgical infection in 4% of the articles<sup>15</sup> (Figure 2).



| Author/Year                             | Design/ Level of evidence/ Objectives                                                                                                                                                                                                                         | Results                                                                                                                                                                                                                                   | Recomendations/ conclusions                                                                                                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Lubbeke A et al., 2013. <sup>15</sup>   | Almost-Experimental / III.<br>To evaluate the effectiveness of the checklist in unplanned reduction return for the operating room, the reoperation rates for surgical infection, unplanned hospitalization to the intensive care unit and hospital mortality. | The return of patients to the operating room reduced from 7.4% to 6.0%; the reoperations for surgical infection decreased from 3.0% to 1.7%, unplanned ICU hospitalization reduced from 2.8% to 2.6% and the death rate was 4.3% to 5 9%. | Reduction of reoperation rates due to surgical infection after implementation of the checklist.                                             |
| Tillman M et al., 2013. <sup>16</sup>   | Prospective longitudinal / IV.<br>To determine whether integration measures with the use of the surgical checklist would improve performance and patient outcomes for surgical infection.                                                                     | Significant improvement at the time of infusion of antibiotics and their selection. Reduction in surgical site infection rates from 3.13% to 2.96%.                                                                                       | Implementation of the checklist can reduce the ISC.                                                                                         |
| de Vries EN et al., 2010. <sup>17</sup> | Retrospective cohort / IV.<br>To determine the effect of implementing the checklist when surgical antibiotic prophylaxis.                                                                                                                                     | The interval between administration of antibiotic prophylaxis and the incision was higher after applying the checklist.                                                                                                                   | The use of the checklist improves antibiotic prophylaxis time of increasing the interval between the prophylaxis and the surgical incision. |

Figure 2. Synthesis of articles related to application of the checklist and prevention of surgical infections.

♦ Anestesiologia segura e eficiência das equipes cirúrgicas

As for safety culture associated with the use of the surgical checklist, 46% of studies showed that after the implementation of the checklist there was an improvement in the frequency of reported events and errors, teamwork, sense of team function and improvement in communication with positive change in behavior, increase consistency of patient care and positive safety culture in the operating room. In addition, the checklist showed results in improving understanding of the patient identification, medical history,

medication and allergies, the finding that the patient signed the consent for surgery, the indication of antibiotics before surgical incision and the quality of inter-professional cooperation and communication on intraoperative complications. There are still records that show improvement in preoperative workup and the focus of the entire team was drawn to the procedure for expected difficulties surgery and special needs in the treatment of the patient, resulting in the safety and efficacy of surgical procedures<sup>18</sup> ( Figure 3).

| Author/Year                           | Design/ Level of evidence /Objectives                                                                                                                       | Results                                                                                                                                         | Recomendations/ conclusions                                                                                   |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Böhmer AB et al., 2012. <sup>19</sup> | Retrospective cross sectional / IV.<br>To demonstrate the implementation of the checklist and examine its effect, viability and the occurrence of errors.   | Improved knowledge of the names and responsibilities of team members, check the patient’s consent, indication of antibiotics and communication. | Staff attitude and security can improve through the implementation of the surgical checklist.                 |
| Böhmer AB et al., 2013. <sup>20</sup> | Retrospective cross sectional / IV.<br>To evaluate safety after the checklist.                                                                              | Best authorization check of the patient for the surgery and schedule of the surgical place.                                                     | Positive effects on the organization and perioperative management.                                            |
| Haugen AS et al. 2013. <sup>21</sup>  | Prospective longitudinal / IV.<br>To study the effects of the checklist on the perception of safety culture.                                                | Improvement in the frequency of reported events, teamwork and communication about errors.                                                       | Improvement about the safety culture.                                                                         |
| Haynes AB et al., 2011. <sup>22</sup> | Retrospective / IV.<br>To evaluate the relationship between changes in attitude of the staff and changes in postoperative results after surgical checklist. | Better perception of the team function and the security climate.                                                                                | Improvements in postoperative results were associated with better sense of teamwork and the security climate. |
| Helmio P et                           | Cross sectional/ IV.                                                                                                                                        | Best verification patient’s                                                                                                                     | The surgical checklist improves the                                                                           |

|                                          |                                                                                                                                                           |                                                                                                                                                                                                               |                                                                                                                                  |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| al., 2011. <sup>23</sup>                 | To evaluate whether the checklist would have an impact about safety.                                                                                      | identity, medical history, names and responsibilities of the team members, discussion of critical events and post-operative instructions.                                                                     | sharing of information in the surgical team.                                                                                     |
| Kasatpibal N et al., 2012. <sup>24</sup> | Prospective longitudinal / IV.<br>To evaluate the possible impact of the list on the safety and team communication.                                       | Higher compliance rate (91.4%) with the confirmation of the patient's identity, the surgical place, procedure and consent. Antibiotic prophylaxis was taken in a longer time before incision in 71% of cases. | Additional education is needed to improve compliance checklist.                                                                  |
| Nugent E et al., 2013. <sup>25</sup>     | Cross sectional / IV.<br>To determine whether the checklist promotes safer operation and identify the problems associated with its implementation.        | Improved team communication (72%), positive change in the behavior of staff (63%).                                                                                                                            | Positive change in safety culture.                                                                                               |
| Osvald Á et al., 2012. <sup>18</sup>     | Retrospective / IV.<br>To analyze the effect, feasibility, safety and medical errors with surgical checklist.                                             | It synchronizes team members and improves patient's safety.                                                                                                                                                   | The focus of the team is on to the procedure, difficulty of surgery and patient's treatment.                                     |
| Pancieri AP et al., 2013. <sup>26</sup>  | Prospective / IV.<br>To apply the safe surgery checklist and the influence on the safety of the surgical process and team communication.                  | Changes in the communication on the clinical condition of the patient.                                                                                                                                        | Use the checklist provided more safety to the procedure.                                                                         |
| Rydenfalt C et al., 2013. <sup>27</sup>  | Prospective longitudinal / IV.<br>To evaluate the perioperative safety and inter-professional cooperation before and after the checklist.                 | Improved compliance with the identification of the patient, procedure and antibiotics, and lower accordance with the incision place, team reviews and exposure tests.                                         | To improve compliance and involve the whole team; the concept of risk and the importance of checklist items should be addressed. |
| Takala RSK et al., 2011. <sup>28</sup>   | Cross sectional / IV.<br>To assess the possible impact of the list on the safety and team communication.                                                  | Increased patient matters of conscience, the procedure and the expected risks, and enhance team communication.                                                                                                | Staff awareness for patient's issues, the procedure and the expected risks and communication team.                               |
| Cullati S, et al., 2014. <sup>29</sup>   | Cross / IV.<br>To review the implementation of the Surgical Checklist between surgeons and anesthetists working in Swiss hospitals and their perceptions. | Checklist as a valuable tool to improve patient safety in the intraoperative and communication among health professionals.                                                                                    | More research are needed to confirm these results.                                                                               |

Figure 3. Synthesis of articles related to application of the checklist and safe anesthesia and effectiveness in surgical team.

DISCUSSION

Among the 26 articles included in the review, there is a predominance in studies of evidence IV, that is descriptive or qualitative methodological approach, pointing to the need of developing research that produce stronger evidence of results to support clinical practice for use in surgical checklist. In this sense, it is clear that production is still diverse in their focus and not as comprehensive in all countries, predominantly American and European productions, with the Latin American scientific literature below expectations.

Articles related to the reduction of surgical complications after implementation of the checklist, important records between the use of the checklist and reduction of surgical mortality and morbidity rates were found. This was possibly sustained by preventing errors related to the surgical procedure, such as preventive surgery in the wrong place<sup>10</sup>, the performance of deep vein thrombosis prophylaxis protocol<sup>5,12</sup> and also the prevention of adverse events related to the surgical procedure.<sup>7</sup>

The prevention of surgical infection with the use of the surgical checklist was mainly described in studies that showed increasing

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investment at the time of antibiotic administration, before surgical incision.<sup>15-16</sup>

Evidence on the promotion of safe anesthesia and the efficiency of surgical teams were seen in studies by the use of the checklist for the improvement of general communication of the surgical team<sup>18,25</sup>, the check items related to allergies and discussion of the risks and recovery of the patient<sup>23</sup>, and between the surgical teams, orthopedic surgeons showed to be better informed about patients, planning the surgery, and assignment of tasks during surgery<sup>19</sup>, possibly related to the bigger concern in this specialty because of the occurrence of surgery that imply laterality, where the possibility of errors have been identified as more often.

Surgical checklist contribution was directly associated with implementation and execution. In this sense, it should be considered that well-founded strategies are essential such as continuous and comprehensive education and recruitment of professionals committed to the checklist and aware of their importance for the surgical safety, not only as an institutional requirement. The implementation of this process is complex and requires careful assessment and understanding of potential barriers, and support, teamwork and communication, which will be required to optimize the potential benefits associated with this instrument.<sup>24</sup>

The World Health Organization suggests that the checklist should be reformatted, reordered or revised to accommodate local practice, ensuring the completion of critical steps of efficiently security and therefore be able to adjust to the reality of each center/institution.<sup>2</sup>

It is noteworthy that the deviations of good clinical practice in surgical procedures occur greatly before and after surgery, and thus only one intraoperative checklist can be very restricted, and then suggested that aspects related to pre and post-operative also be accompanied.<sup>13</sup> Despite the importance of the assembly process of the operating room, it has been highlighted, at which time should be valued by professionals as one of the moments that can interfere with the safety of the surgical patient<sup>28</sup>, regarding the functionality of the equipment, the quality of sterile equipment among other aspects, and highlights the importance of pre-operative preparation<sup>30</sup>, pointing the place of surgery, medication checks using the surgical checklist and conducting postoperative instructions has been identified as able to influence in

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reducing the incidence of surgical complications and mortality.<sup>16</sup>

There are suggestions in the studies to join the surgical checklist as an improvement tool in surgical safety. However, it is only a strategy that is appropriate for the different realities and above all to be implemented with the involvement of all the team, conducting continuous training and supervision of processes. Obtaining indicators that allow the review of the practices adopted and contributions obtained from the use of the surgical checklist are essential, as well as allowing the analysis of the quality of care provided to patients with effective reduction of surgical complications.

Despite the important contributions obtained with surgical checklist, there are challenges to its implementation, its completeness fulfillment and acceptance of professionals, that despite not being the focus of this study, they should be considered, since the search for best practices and reduction in surgical complications require additional efforts to disseminate the safety culture in the institutions and professionals involved in the daily searching for adoption of good practices in health services.

## CONCLUSION

The articles reported positive experiences in clinical practice with the use of the surgical checklist and the results showed its use in all surgical procedures, as WHO recommendation. The checklist was considered a useful tool to ensure that teams follow the critical steps of the surgical procedure and was associated with fewer complications and surgical mortality, prevention of surgical infection, improved staff efficiency and safe anesthesia, as is faithfully fulfilled and completed by the surgical team. However, the list should not be just the only one strategies of intervention and the standardization of surgical safety processes, since it is only one important element, improvement in patient safety.

The checklist implementation viability was observed in studies in many countries in different economic contexts, but still are perceived difficulties especially with regard to acceptance and compliance to the list by the surgical team. It is essential to achieve the contributions of the surgical checklist that professionals actually intend to use it, understanding the importance, necessity of using, adapting it to their reality and, above all incorporating it to daily practice in order to mitigate the harm to patients through safer surgical care.

## REFERENCES

1. Anvisa. Agência Nacional de Vigilância Sanitária. Assistência Segura: uma reflexão teórica aplicada à prática/Ministério da Saúde, Agência Nacional de Vigilância Sanitária- Brasília: Ministério da Saúde; 2013. p.113-128.
2. Oms. Organização Mundial da Saúde. Segundo desafio global para a segurança do paciente: cirurgias seguras salvam vidas. Geneva; 2009. 216p.
3. Haynes AB, Weiser TG, Berry WR, Lipsitz SR, Breizat AH, Dellinger EP. A surgical safety checklist reduce morbidity and mortality in a global population. N Engl J Med [Internet]. 2009 [cited 2014 12 Mar];9:360-491. Available from: <http://www.nejm.org/doi/full/10.1056/NEJMSa0810119>
4. Stetler CB, Morsi D, Rucki S, Broughton S, Corrigan B, Fitzgerald J. Utilization-focused integrative reviews in a nursing service. Appl Nurs Res [Internet]. 1998 [cited 2014 12 Mar];11(4):195-206. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/9852663>
5. Sewell M, Adebibe M, Jayakumar P, Jowett C, Kong K, Vemulapalli K, et al. Use of the WHO surgical safety checklist in trauma and orthopaedic patients. Int Orthop [Internet]. 2011 [cited 2014 12 Mar];35:897-901. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/20730425>
6. Berrisford RG, Wilson IH, Davidge M, Sanders D. Surgical time out checklist with debriefing and multidisciplinary feedback improves venous thromboembolism prophylaxis in thoracic surgery: a prospective audit. Eur J Cardiothorac Surg [Internet]. 2012 [cited 2014 12 Mar];41:1326-1329. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/22219459>
7. Bliss LA, Richardson CB, Sanzari LJ, Shapiro DS, Lukianoff AE, Bernstein BA, et al. Thirty-Day outcomes support implementation of a surgical safety checklist. J Am Col Surg [Internet]. 2012 [cited 2014 12 Mar];215(6):766-776. Available from: <http://www.sciencedirect.com/.../pii/S1072751512009659>
8. Constanza C, Bermudez L, Quintero A, Quintero LE, Marcela M. Checklist verification for surgery safety from the patient's perspective. Rev colomb anestesiología [Internet]. 2013 [cited 2014 12 Mar];41(2):109-113. Available from: <http://www.revcolanest.com.co/en/checklist-verification-for-surgery-safety/articulo/90199565/>
9. Klei WAV, Hoff RG, Aarnhem EEHLV, Simmermacher RKJ, Regli LPE, Kappen TH, et al. Effects of the introduction of the WHO “Surgical Safety Checklist” on in hospital mortality. Ann Surg [Internet]. 2012 [cited 2014 12 Mar];255:44-49. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/22123159>
10. Kwok AC, Funk LM, Baltaga R, Lipsitz SR, Merry AF, Dziekan FG, et al. Implementation of the World Health Organization surgical safety checklist, including introduction of pulse oximetry, in a resource-limited setting. Ann Surg [Internet]. 2013 [cited 2014 12 Mar] [Internet];257(4):633-639. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/23207242>
11. Panesar SS, Noble DJ, Mirza SB, Patel B, Mann B, Emerton M, et al. Can the surgical checklist reduce the risk of wrong site surgery in orthopedics? Can the checklist help? Supporting evidence from analysis of a national patient incident reporting system. J Orthop Surg Res [Internet]. 2011 [cited 2014 12 Mar];6:18. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/21501466>
12. Rosenberg NM, Urman RD, Gallagher S, Stenglein J, Liu X, Shapiro FE. Effect of an office-based surgical safety system on patient outcomes. Eplasty [Internet]. 2012 [cited 2014 12 Mar];12:e59. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/23308306>
13. Truran P, Critchley RJ, Gilliam A. Does using the WHO surgical checklist improve compliance to venous thromboembolism prophylaxis guidelines? Surgeon [Internet]. 2011 [cited 2014 12 Mar];9:309-311. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/22041642>
14. Vries EN, Prins HA, Crolla RM, Outer AJ, Andel GV, Helden SH, et al. Effect of a comprehensive surgical safety system on patient outcomes. New Engl J Med [Internet]. 2010 [cited 2014 12 Mar];363:420. Available from: <http://www.nejm.org/doi/pdf/10.1056/NEJMSa0911535>
15. Lubbeke A, Hovaguimian F, Wickboldt N, Barea C, Clergue F, Hoffmeyer P, et al. Effectiveness of the surgical safety checklist in a high standard care environment. Med Care [Internet]. 2013 [cited 2014 12 Mar];51(5):425-429. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/23579353>
16. Tillman M, Wehbe-Janek H, Hodges B, Smythe WR, Papaconstantinou HT. Surgical



Oliveira AC de, Araújo MPS.

care improvement project and surgical site infections: can integration in the surgical safety checklist improve quality performance and clinical outcomes? *J Surg Res* [Internet]. 2013 [cited 2014 12 Mar];184(1):150-156. Available from:

<http://www.ncbi.nlm.nih.gov/pubmed/23582762>

17. Vries EN, Dijkstra L, Smorenburg SM, Meijer RP, Boermeester MA. The Surgical Patient Safety System (SURPASS) checklist optimizes timing of antibiotic prophylaxis. *Patient Saf Surg* [Internet]. 2010 [cited 2014 12 Mar];4:6. Available from:

<http://www.ncbi.nlm.nih.gov/pubmed/20388204>

18. Osvald Á, Vatter H, Byhahn C, Seifert VGE. "Team time-out" and surgical safety - experiences in 12.390 neurosurgical patients. *Neurosurg Focus* [Internet]. 2012 [cited 2014 12 Mar];33(5):e6. Available from:

<http://thejns.org/doi/pdf/10.3171/2012.8.FOCUS12261>

19. Böhmer AB, Wappler F, Tinschmann T, Kindermann P, Rixen D, Bellendir M, et al. The implementation of a perioperative checklist increases patients' perioperative safety and staff satisfaction. *Acta Anaesthesiol Scand* [Internet]. 2012 [cited 2014 12 Mar];56:332-338. Available from:

<http://www.ncbi.nlm.nih.gov/pubmed/22188135>

20. Böhmer AB, Kindermann P, Schwanke U, Bellendir M, Tinschmann T, Schmidt C, et al. Long-term effects of a perioperative safety checklist from the viewpoint of personnel. *Acta Anaesthesiol Scand* [Internet]. 2013 [cited 2014 12 Mar];57:150-157. Available from:

<http://www.ncbi.nlm.nih.gov/pubmed/23186375>

21. Haugen AS, Softeland E, Eide GE, Sevdalis N, Vincent CA, Nortvedt MW, et al. Impact of the World Health Organization's surgical safety checklist on safety culture in the operating theatre: a controlled intervention study. *Brit J Anaesth* [Internet]. 2013 [cited 2014 12 Mar];110(5):807-815. Available from:

<http://www.ncbi.nlm.nih.gov/pubmed/23404986>

22. Haynes AB, Weiser TG, Berry WR, Lipsitz SR, Breizat Abdel-Hadi S, Dellinger EP, et al. Changes in safety attitude and relationship to decreased post operative morbidity and mortality following implementation of a checklist-based surgical safety intervention. *BMJ Qual Saf* [Internet]. 2011 [cited 2014 12 Mar];20:102-107. Available from:

<http://psnet.ahrq.gov/resource.aspx?resourceID=20366>

"Safe surgery saves lives" program contributions in...

23. Helmio P, Blomgren K, Takala A, Pauniah SL, Takala RSK, Ikonen TS. Towards better patient safety: WHO surgical safety checklist in otorhinolaryngology. *Clin Otolaryngol* [Internet]. 2011 [cited 2014 12 Mar];36:242-247. Available from:

<http://www.ncbi.nlm.nih.gov/pubmed/21481197>

24. Kasatpibal N, Senaratana W, Chitreecheur J, Chotirosniramit N, Pakvipas P, Junthasopeepun P. Implementation of the World Health Organization surgical safety checklist at a University Hospital in Thailand. *Surg Infections* [Internet]. 2012 [cited 2014 12 Mar];13(1):50-56. Available from:

<http://www.ncbi.nlm.nih.gov/pubmed/22390354>

25. Nugent E, Hseino H, Ryan K, Traynor O, Neary P, Keane FBV. The surgical safety checklist survey: a national perspective on patient safety. *Ir J Med Sci* [Internet]. 2013 [cited 2014 12 Mar];182:171-176. Available from:

<http://www.ncbi.nlm.nih.gov/pubmed/22968898>

26. Pancieri AP, Santos BP, Avila MAG, Braga EM. Checklist de cirurgia segura: análise da segurança e comunicação das equipes de um hospital escola. *Rev Gaúcha Enferm* [Internet]. 2013 [cited 2014 12 Mar];34(1):71-78. Available from:

<http://www.seer.ufrgs.br/RevistaGauchadeEnfermagem/article/view/33863>

27. Rydenfalt C, Johansson G, Odenrick PER, Åkerman K, Larsson PA. Compliance with the WHO surgical safety checklist: deviations and possible improvements. *Int J Qual Health C* [Internet]. 2013 [cited 2014 12 Mar];25(2):182-187. Available from:

<http://www.ncbi.nlm.nih.gov/pubmed/23335056>

28. Takala RSK, Pauniah SL, Kotkansalo A, Helmiö P, Blomgren K, Helminen M, et al. A pilot study of the implementation of WHO surgical checklist in Finland: improvements in activities and communication. *Acta Anaesthesiol Scand* [Internet]. 2011 [cited 2014 12 Mar];55:1206-1214. Available from:

<http://www.ncbi.nlm.nih.gov/pubmed/22092125>

29. Cullati S, Licker M-J, Francis P, Degiorgi A, Bezzola P, Courvoisier DS, et al. Implementation of the Surgical Safety Checklist in Switzerland and Perceptions of Its Benefits: Cross-Sectional Survey. *PLoS ONE* [Internet]. 2014 [cited 2014 12 Mar];18;9(7):e101915. Available from:

<http://www.ncbi.nlm.nih.gov/pubmed/25036453>

Oliveira AC de, Araújo MPS.

“Safe surgery saves lives” program contributions in...

30. Lima AM, Sousa CS, Cunha ALSMS. Patient safety and preparation of the operating room: reflection study. J Nurs UFPE on line [Internet]. 2013 Jan [cited 2014 Apr 22]; 7(1):289-94. Available from: <http://www.ufpe.br/revistaenfermagem/index.php/revista/article/view/2203>

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