

Gargling as a Strategy to Reduce Side Effects in Post-Nebulization Care

Ms. Anamika Dhanawade
Ms. Bertilla Martins

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Case Reports

Background

Bhatia hospital is a Mumbai-based private multi-specialty hospital for 93 years. In 2022, Bhatia hospital encountered numerous patients complaining about throat dryness, irritation, change in voice, and other symptoms after steroid nebulization among the patients with respiratory problems. Clinical Audit by the hospital was conducted to review the treatment protocol. After a comprehensive evidence review by the clinical team, the team reviewed the post-steroid nebulization care by implementing chlorhexidine as the gargling fluid. Unlike conventional practices that rely on plain water or saline, the use of chlorhexidine provides an added antimicrobial benefit, reducing the risk of oral infections and fungal overgrowth, which are common concerns after steroid use. This proactive measure minimizes complications such as oral thrush, and better

oral hygiene and enhances patient safety. Integrating the evidence-based strategy demonstrates the hospital's commitment to improve patient outcomes through simple yet effective intervention.

Distinctiveness of the Practice

The practice includes three pronged strategies:

- **Developing standardized procedure and protocol:** The hospital devised a standard clinical practice guideline for post nebulization care through a standardized checklist. This compliance checklist ensured adherence to the established protocol. Following the audit, chlorhexidine was identified as the preferred gargling solution due to its perceived palliative effects. The pharmacy indent review and daily rounds ensured that gargling is followed for nebulization patients and rightful technique is practiced.

GARGLING POST NEBULISATION AUDIT CHECK LIST					
SR NO	PARAMETER/IP NO				
1	NEB MEDICATION USED				
2	GARGLING IS DONE (Y/N)				
3	IS THE PATIENT EDUCATED ABOUT EFFECTS OF GARGLING(Y/N)				
4	IS PATIENT AWARE OF RIGHT TECHNIQUE OF GARGLING(Y/N)				
5	SOLUTION USED FOR GARGLING				
6	RETURN DEMONSTRATION TAKEN FROM PATIENT IS CORRECT (Y/N)				
7	IS ASSIGNED STAFF AWARE ABOUT GARGLING BENEFITS(Y/N)				
8	STAFF HAVE RECEIVED TRAINING ABOUT GARGLING BENEFITS (Y/N)				

Fig.1 Gargling post-nebulization re-audit checklist

- **Empowering nursing staff:** Educating nurses to conduct the gargling as per the laid protocol has created a sense of empowerment as they were able to train their peers and patients for

the same. The nurses were well-equipped to demonstrate the gargling technique to the patients in the presence of families so as everyone can be involved in the process in a safe, and supervised manner. Training was continuous, every two months, to ensure that nurses can refresh their learning and clarify their doubts. This approach also ensured maintaining a baseline standard of care. The training was structured to ensure that the new nurses underwent comprehensive training on the correct gargling technique and patient education; refresher sessions every two months reinforced correct practices; mentorship to nursing staff by the senior team; and orientation of the practice and checklist to hospital's pharmacy and infection control units to ensure safety and efficacy.

- **Implementation of the clinical practice:** Nurses were trained to implement this clinical practice with patients by training patients and their family members. The clinical included following steps:
 - Verbal Instruction: Patients were first educated about the purpose and correct method of gargling.
 - Demonstration Training: Nurses conducted live demonstrations, often in the presence of family members, to promote transparency and extend education beyond the patient.
 - Patient Practice: Patients were required to replicate the technique under supervision until they demonstrated competence.
 - Daily Monitoring: Nurses and staff conducted regular rounds to ensure compliance and provide additional support where needed.

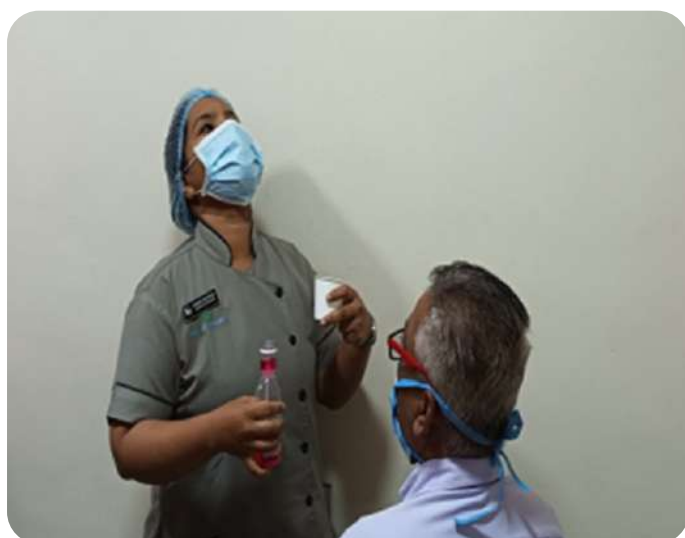


Fig. 2 Nurse at Bhatia Hospital conducting gargling demonstration training

Measuring Effects

All patients participating in the audit experienced a beneficial difference in gargling chlorhexidine. The re-audit revealed 100% compliance of informing patients about the importance of gargling and its techniques; and gargling by patients through chlorhexidine. The re-audit also showed 97% success of repeat demonstration of gargling by patients under the supervision of nurses. The complete compliance of training delivery was observed. The Figure 3 presents findings of the re-audit.

In addition, these effects had an indirect positive effect on overall image of the hospital:

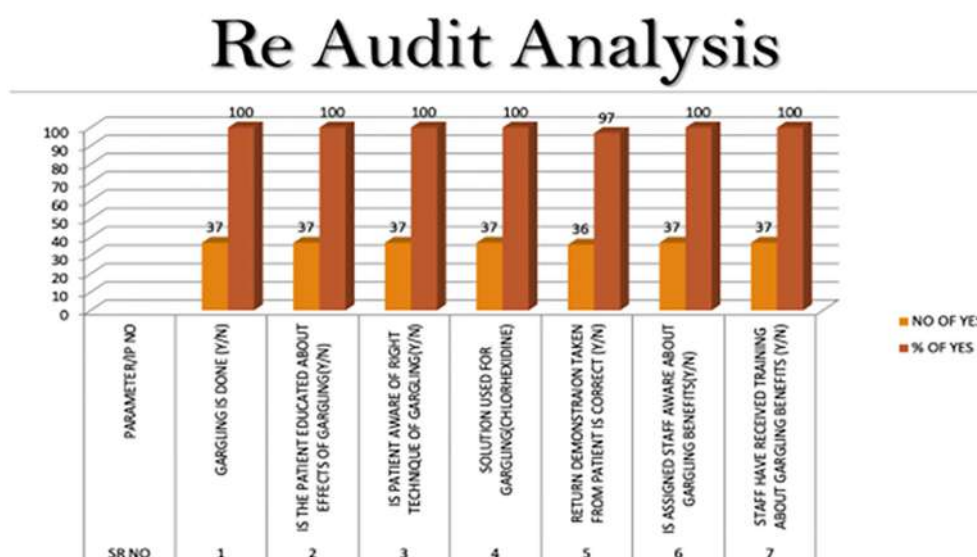


Fig. 3 Audit analysis results based on given parameters

- Patients initially see the commitment of the hospital to improve upon their complaints as the hospital is actively trying to improve the comfort of their patients through an evidence-based approach. Such positive patient experiences potentially enhance their satisfaction and trust.
- On a deeper level, the patient also ensures continuity of the care, through empowering patients for self-care as they no longer avoid steroid nebulization because of its adverse effects.
- Empowering nurses to train patients can create a sense of responsibility within the staff so that they are more involved with patients as well as committing to patient safety. Increased involvement with patients can build trust between the provider and patient which ultimately improves health outcomes and reputation for the hospital.
- By empowering nurses to independently administer and educate gargling procedures to patients, the hospital minimizes reliance on doctors for routine tasks, allowing them to focus on more complex cases. This structured approach not only streamlines workflow but also reduces operational expenses while ensuring standardized, and high-quality patient care.
- By preventing post-nebulization complications such as oral infections, the hospital lowers readmission rates and healthcare costs.
- Nurses experience greater job satisfaction and professional growth, leading to improved staff retention and overall morale.

Challenges

- **Difficulties in Training Patients:** One of the primary challenges encountered during the implementation of gargling as a post-nebulization practice was ensuring that patients could correctly perform the technique. Many patients struggled to achieve the proper gargling method, requiring multiple attempts—often two to three times—before they could do it correctly. This additional time and effort placed an extra burden on nursing staff, who had to repeatedly demonstrate and guide
- patients, leading to delays in workflow and potential frustration among both patients and healthcare providers.
- **Patient Resistance Due to Taste Issues:** Another significant challenge was the taste of the gargle solution, particularly when chlorhexidine was used. Many patients found the taste unpleasant, which led to some refusal to continue the process or spitting it out after the first attempt. This resistance posed a barrier to adherence, making it difficult to ensure that all patients followed the protocol effectively.
- **Time-Intensive Training for New Staff:** Given the frequent turnover of healthcare workers, ongoing training efforts were required to maintain consistency in technique and compliance with the protocol. Ensuring that all nurses adhered to standard procedures necessitated constant reminders and reinforcement, adding to the administrative and training workload.

These challenges highlighted the need for innovative strategies, such as patient education materials, and structured staff training programs, to improve adherence and efficiency in implementing post-nebulization gargling as a routine practice.

Lessons Learned

The integration of gargling as a post-nebulization practice provided valuable insights for reinforcing the significance of patient-centered care and staff empowerment. Through clinical audits, patient feedback, and staff engagement, the hospital identified key lessons that can enhance future healthcare practices.

- **Importance of Addressing Patient Complaints and Comfort:** One of the most significant takeaways from this initiative was the realization that even simple interventions can have a profound impact on patient comfort and satisfaction. By actively listening to patient feedback and testing practical solutions, the hospital was able to implement a strategy that directly alleviated these issues. This reinforces the idea that small, evidence-backed modifications to treatment protocols can improve patient healthcare experiences.

- **Empowering Staff to Take on Essential Roles Enhances Efficiency:** The initiative also highlighted the value of empowering nurses and other healthcare staff to take on more responsibility in patient care. By training nurses to administer and teach gargling techniques, the hospital reduced dependency on consultants for routine procedures. This not only optimized workflow efficiency but also instilled a sense of ownership and professional growth among nursing staff. It demonstrates that a well-trained nursing team can effectively manage patient education, ultimately improving healthcare delivery.
- **Role of Compliance and Continuous Monitoring:** Another key lesson was the necessity of continuous monitoring and compliance adherence. While the initial clinical audit confirmed the effectiveness of gargling, the re-audit played a crucial role in ensuring that the practice was correctly implemented across all patients. Regular rounds by nursing staff, refresher training, and compliance checklists helped standardize the process, ensuring consistent quality of care. This reinforces the understanding that introducing a new practice is not enough—sustained monitoring and training are essential for ensuring high-quality care and patient outcomes.
- **Patient Education and Engagement Foster Better Health Outcomes:** Educating patients about proper self-care techniques had a noticeable impact on adherence and recovery. By actively involving patients and their families in the learning process, the practice was extended beyond the hospital setting. Patients who understood the benefits and techniques of gargling were more likely to continue the practice at home, reducing the risk of post-nebulization complications. This experience reinforces the importance of patient engagement in achieving better health outcomes.
- **Standardization and Multidisciplinary Collaboration Improve Implementation:** For any new practice to be successful, it must be integrated into existing protocols with multidisciplinary collaboration. By involving

pulmonologists, pharmacy teams, and infection control units in the approval process, the hospital ensured that the practice met safety standards and gained institutional support. This reinforces that multidisciplinary approach helps streamline the implementation and improve acceptance among healthcare professionals.

Sustainability of Practice

The hospital ensures the sustainability of its gargling practice through systematic monitoring and staff accountability. The practice was institutionalized through gaining consensus about the practice, engaging multidisciplinary team, continuous checks on rounding and pharmacy indents verifying correct gargling protocols for post-nebulization patients, minimizing errors. Daily rounds by in-charge nurses reinforce adherence, while integrating the practice into nurse SOPs ensures consistency.

To enhance safety, further research is planned on the prolonged use of chlorhexidine, screening patients for allergies, and exploring alternative gargling solutions. It should be tested to see if prolonged exposure has any implications or side-effects to the health of patients. Further studies require to see the differences between hot water gargle and chlorhexidine, as there is limited literature on that topic.

Conclusion

The successful implementation of gargling as a post-nebulization practice underscores a strong commitment to patient-centered care, staff empowerment, and clinical excellence. By addressing patient discomfort and standardizing protocols through structured training, compliance checklists, and audits, the hospital significantly improved patient satisfaction and adherence. Empowering nurses to train patients and families enhanced efficiency, fostered professional growth, and ensured sustained compliance. High adherence rates and positive patient feedback validate the intervention's effectiveness, while ongoing research into chlorhexidine's long-term effects and alternative solutions further strengthen its safety.

Gargling as a Strategy to Reduce Side Effects in Post-Nebulization Care

1

Target Population

Patients undergoing steroid nebulization, along with nursing staff responsible for post-nebulization care.

2

Phenomenon of Interest

Implementation of chlorhexidine gargling as a standardized post-nebulization practice to reduce throat irritation, oral infections, and improve patient comfort and adherence.

3

Context

Bhatia Hospital, a Mumbai-based multi-specialty hospital, introduced a structured post-nebulization care protocol with standardized training, compliance monitoring, and audits, leading to improved patient satisfaction and adherence.

Conclusion



By addressing patient discomfort and standardizing protocols through structured training for nurses, the successful implementation of gargling as a post-nebulization practice underscores a strong commitment to patient-centered care, staff empowerment, and clinical excellence.

Key Findings

1

Enhanced Patient Satisfaction and Trust

The initiative reduced post-nebulization discomfort, improved patient adherence, and strengthened trust in the hospital's commitment to evidence-based care.

2

100% Compliance in Patient Education and Gargling Practice

The re-audit showed full compliance in informing patients about the importance of gargling and its correct technique, with 97% of patients successfully demonstrating the practice under nurse supervision.

3

Empowered Nursing Staff and Optimized Workflow

Training nurses to lead gargling education enhanced their professional confidence, reduced dependency on doctors and streamlined hospital operations.