

Use of silicone bracelet to signal risk of bronchoaspiration in a hospital setting

Uso de pulseira de identificação para risco de broncoaspiração em ambiente hospitalar

Gisele Chagas de Medeiros¹ , Fernanda Chiarion Sassi² , Claudia Regina Furquim de Andrade² 

ABSTRACT

Purpose: To present the Bronchoaspiration Prevention Protocol (PPB) for the management of patients at risk of bronchoaspiration. This protocol has a multidisciplinary approach and aims to standardize clinical practice in order to ensure patients' safety in Inpatient, Emergency and Intensive Care Units (ICUs). **Methods:** Upon admission or during patients' hospital stay, the multidisciplinary team must observe if the patient presents at least one of the inclusion criteria for the PPB. In case the patient is classified as at risk of bronchoaspiration, the nursing team will identify the patient with the silicone Bracelet for Risk of Bronchoaspiration (grey/silver color). **Results:** The PPB has already been approved by the Instituto Central do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo (ICHCFMUSP) ICU Commission and Hospital Infection Control Service (HICS). The PPB proved to fulfil its purpose in a viable, low-cost and effective manner. **Conclusion:** Applicability of the PPB in Inpatient, Emergency and Intensive Care Units (ICUs) is a pioneer initiative. The use of the protocol and bracelet is an achievement for the Speech-Language and Hearing Sciences and consolidates our existence in the inpatient hospital setting.

Keywords: Speech, language and hearing sciences; Swallowing disorders; Patient care team; Risk management; Hospital care

RESUMO

Objetivo: apresentar o Protocolo de Prevenção de Broncoaspiração (PPB), visando estabelecer um fluxo padronizado para o manejo do paciente com risco de broncoaspiração. Esse protocolo, de aplicabilidade multiprofissional, estabelece um padrão assistencial de práticas clínicas para garantir a segurança do paciente em unidades de terapia intensiva (UTI), unidades de internação (UI) e pronto-socorro (PS). **Métodos:** na admissão do paciente, ou durante sua permanência hospitalar, a equipe multiprofissional deverá observar se o paciente se encaixa em, pelo menos, UM dos critérios de inclusão do PPB. Caso o paciente seja identificado como em risco de broncoaspiração, a equipe de enfermagem deverá sinalizá-lo com a Pulseira do Risco de Broncoaspiração (cor cinza/prata). **Resultados:** o PPB já foi aprovado pela Comissão de UTI Cirúrgica e pelo Serviço de Controle de Infecção Hospitalar (SCCIH) do Instituto Central do Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo (ICHCFMUSP). Com isso, o PPB mostrou-se factível, de baixo custo e efetivo em sua proposta. **Conclusão:** a aplicabilidade do PPB nas Unidades de Terapia Intensiva, Unidades de Internação e Pronto-Socorro do ICHCFMUSP é uma iniciativa pioneira. O uso do protocolo e da pulseira é uma conquista para a Fonoaudiologia e a consolidação da sua existência nas unidades de internação hospitalar.

Palavras-chave: Fonoaudiologia; Transtornos da deglutição; Equipe de assistência ao paciente; Gestão de riscos; Assistência hospitalar

Study carried out at Divisão de Fonoaudiologia do Hospital das Clínicas, Faculdade de Medicina, Universidade de São Paulo – USP, São Paulo (SP), Brasil.

¹Divisão de Fonoaudiologia, Hospital das Clínicas, Faculdade de Medicina, Universidade de São Paulo – USP, São Paulo (SP), Brasil.

²Departamento de Fisioterapia, Fonoaudiologia e Terapia Ocupacional, Faculdade de Medicina, Universidade de São Paulo – USP – São Paulo (SP), Brasil.

Conflict of interest: No.

Authors' contributions: GCM bibliographic survey, study design, writing and review of the article; FCS bibliographic survey, study design, writing and review of the article; CRFA project orientation, writing and review of the article.

Funding: None.

Corresponding author: Claudia Regina Furquim de Andrade. E-mail: clauan@usp.br

Received: October 18, 2019. **Accepted:** October 31, 2019.

INTRODUCTION

Aspiration pneumonia often results from difficulties in swallowing^(1,2). Inefficiency of swallowing and lung protection mechanisms allows food to enter the lower airways⁽¹⁾. Dysphagia is present in patients with cancer, esophageal disorders, pulmonary diseases and neurological diseases⁽¹⁻⁴⁾. In cases of cardiopulmonary arrest, 65% of patients develop aspiration pneumonia, probably due to aspiration of gastric contents during resuscitation, bag-mask ventilation and orotracheal intubation⁽³⁾.

The Brazilian Ministry of Health [Ministério da Saúde – MS] has launched the Collaborative Project “Improving Large-Scale Patient Safety in Brazil”, which aims to implement guidelines for infection prevention and develop actions and practices to increase overall patient safety in all areas.

This proposal by the MS relies on Hospital Speech Pathology as an important area capable of identifying the non-functional aspects of swallowing and clinical indicators for risk of bronchoaspiration in patients in intensive care units. Since 2017, the HCFMUSP Speech Therapy Division has developed a protocol to increase the safety of patients at risk, or with identified signs, of bronchoaspiration. The Bronchoaspiration Prevention Protocol [Protocolo de Prevenção de Broncoaspiração – PPB] provides for THE USE OF A GRAY/SILVER BRACELET as a safety identifier for patients. The use of the gray/silver bracelet signals the preventive care measures to be adopted by the entire healthcare team.

The purpose of this brief paper is to present the PPB, aiming to establish a standardized flow for the management of patients at risk of bronchoaspiration. The multiprofessional protocol establishes a standard of care for clinical practice to ensure patient safety in intensive care, inpatient and emergency units.

METHODS

Upon patient admission, or during his or her hospital stay, the multiprofessional team should verify if they meet at least ONE of the following inclusion criteria⁽¹⁻⁶⁾:

1. Presence of nausea and/or vomiting;
2. Presence of mechanical ventilation;
3. Presence of enteral nutrition;
4. Altered mental status (Glasgow Scale ≤ 12);
5. Risk of oropharyngeal dysphagia:
 - a. Prolonged orotracheal intubation (≥ 48 hours);
 - b. Tracheostomized with or without mechanical ventilation;
 - c. Reduced level of consciousness (Glasgow Scale ≤ 12);
 - d. Neurological disorders at risk for dysphagia;
 - e. Respiratory disorders at risk for dysphagia (e.g., recurrent pneumonias, chronic obstructive pulmonary disease – COPD);
 - f. Head and neck disease or surgery;
 - g. Previous history of oropharyngeal dysphagia;

- h. Reduced or absent cough reflex.

If the patient is classified as at risk of bronchoaspiration, the nursing staff should identify them with the Bronchoaspiration Risk Bracelet (gray/silver color). After placement of the bracelet, the following preventive measures should be taken according to the inclusion criteria:

1. Presence of nausea or vomiting:
 - a. Evaluate discontinuation of enteral nutrition;
 - b. Oral fasting for patients allowed oral nutrition;
 - c. Symptom control (drug and non-drug treatment at medical discretion);
 - d. Elevate decubitus - if intubated, elevate headboard; in case of spontaneous ventilation, lateral and elevated decubitus;
 - e. Avoid non-invasive mechanical ventilation.
2. Presence of mechanical ventilation:
 - a. Monitor and adjust cuff pressure every period or as needed ($p = 20$ to 30 cm H₂O);
 - b. Elevate decubitus – minimum 30° inclination;
 - c. Perform upper airway aspiration whenever necessary;
 - d. In case of sialorrhea, evaluate the need for xerostomic measures;
 - e. Perform oral hygiene according to institutional protocol.
3. Presence of enteral nutrition
 - a. Observe enteral nutrition care guidelines.
4. Acutely altered mental status (Glasgow Scale ≤ 12);
 - a. Evaluation by the medical team;
 - b. Consider discontinuing oral nutrition;
 - c. Elevated decubitus – minimum 30° inclination.
5. Risk of oropharyngeal dysphagia:
 - a. Discontinuation of oral nutrition;
 - b. Referral for speech evaluation;
 - c. Speech evaluation within 24 hours following medical request;
 - d. Perform oral hygiene according to institutional protocol.

RESULTS

The PPB has already been approved by the ICHCFMUSP Surgical ICU Commission and the Hospital Infection Control Service (SCCIH). Therefore, it has proven to fulfil its purpose in a feasible, low-cost and effective manner. The PPB is in its global implementation phase and will be adopted as the institutional clinical protocol. In terms of research, as soon as its use is standardized in all hospitalization scenarios, sampling and validation studies will be formalized.

DISCUSSION

The applicability of PPB in the HCFMUSP Intensive Care, Inpatient and Emergency Units is a pioneering initiative that faces a number of difficulties—the need for resilient staff, as well as inconsistent patient care, negligent bracelet adoption and bureaucracy at all instances. The authors of this brief communication intended to make the proposal of this protocol available to all Speech-Language Pathology hospital services.

CONCLUSIONS

The use of the protocol and bracelet is an achievement for Speech-Language Therapy and the consolidation of its existence in inpatient hospital units.

REFERENCES

1. DiBardino DM, Wunderink RG. Aspiration pneumonia: a review of modern trends. *J Crit Care*. 2015 Feb;30(1):40-8. <http://dx.doi.org/10.1016/j.jcrc.2014.07.011>. PMID:25129577.
2. Hayashi M, Iwasaki T, Yamazaki Y, Takayasu H, Tatenno H, Tazawa S, et al. Clinical features and outcomes of aspiration pneumonia compared with non-aspiration pneumonia: a retrospective cohort study. *J Infect Chemother*. 2014;20(7):436-42. <http://dx.doi.org/10.1016/j.jiac.2014.04.002>. PMID:24834866.
3. Komiya K, Ishii H, Umeki K, Mizunoe S, Okada F, Johkoh T, et al. Impact of aspiration pneumonia in patients with community-acquired pneumonia and healthcare-associated pneumonia: a multicenter retrospective cohort study. *Respirology*. 2013;18(3):514-21. <http://dx.doi.org/10.1111/resp.12029>. PMID:23231701.
4. Langmore SE, Terpenning MS, Schork A, Chen Y, Murray JT, Lopatin D, et al. Predictors of aspiration pneumonia: how important is dysphagia? *Dysphagia*. 1998;13(2):69-81. <http://dx.doi.org/10.1007/PL00009559>. PMID:9513300.
5. Medeiros GC, Sassi FC, Mangilli LD, Zilberstein B, Andrade CR. Clinical dysphagia risk predictors after prolonged orotracheal intubation. *Clinics (São Paulo)*. 2014;69(1):8-14. [http://dx.doi.org/10.6061/clinics/2014\(01\)02](http://dx.doi.org/10.6061/clinics/2014(01)02). PMID:24473554.
6. Medeiros GC, Sassi FC, Zambom LS, Andrade CRF. Correlation between the severity of critically ill patients and clinical predictors of bronchial aspiration. *J Bras Pneumol*. 2016;42(2):114-20. <http://dx.doi.org/10.1590/S1806-37562015000000192>. PMID:27167432.