Survey of **Italian intensive care unit** nurses' knowledge about **endotracheal suctioning guidelines**

意大利ICU护士关于气道内吸痰指南知识的研究

温江院区ICU

卢小丽

18628055908

选题理由

1、SCI文章

2、文章简单（研究设计、内容、语言）

3、给我很多启发（关于 guideline知识掌握的研究该怎么做？我们手边有很多guideline，在这篇文章的limitation的基础上我们可以做的有很多）

4、文章没写好不要紧，在limitation部分阐明非常重要！这篇文章的limitation部分非常长。

LIST OF THE PAPER

Summary | **Introduction** | **Aim** | **Materials and methods**

Result and Discussion

Background: Endotracheal suctioning is a common procedure performed by intensive care nurses in order to establish and maintain gas exchange, adequate oxygenation and alveolar ventilation in critically ill patients under mechanical ventilation. As this procedure is associated with several complications and risks ,nurses should have an adequate knowledge on how to perform the procedure according to the evidence-based practice. Previously only a few studies have analysed nurses' knowledge of the guidelines on endotracheal suctioning.

气道内吸痰是ICU护士经常执行的操作，目的是为危重病人建立和维持气体交换、充足的氧气，肺泡通气。但是这操作伴随着很多并发症和风险，护士应该具备建立在循证依据上的正确执行该操作的知识。以前只有很少的研究分析护士关于吸痰指南的知识。

Aim: To evaluate the knowledge of the American Association of Respiratory Care (AARC, 2010)evidence-based guidelines on the endotracheal suctioning technique by Italian intensive care nurses in different hospitals.

评价意大利不同医院ICU护士关于AARC吸痰指南的知识

Materials and methods: An anonymous 匿名的questionnaire based on previous studies was sent to a selected sample composed of the ICU nurses of 16 ICUs in 11 Italian hospitals

建立在以前研究基础上的匿名问卷被发放给由意大利11家医院的16个ICU的护士组成的研究对象

Results: The questionnaire was sent to 379 nurses, with 65% of questionnaires returned completed. The total percentage of correct answers was 58%, and nobody completed the questionnaire without mistakes. Moreover, only 2.5% (n = 6) of the nurses gave 9/10 correct answers.Correct answers were more common amongst the more experienced ICU nurse

问卷被发给379名护士，其中65%的问卷有效回收，总的正确率58%，而且没有人完全正确回答着问卷，而且，只有2.5%的护士给到了9或10个正确答案。经验丰富的ICU护士更加能给出正确答案

Introduction

The purpose of endotracheal suctioning
Endotracheal suctioning is one of the most common procedures performed by intensive critical care nurses in order to establish and maintain gas exchange, adequate oxygenation and alveolar ventilation in critically ill mechanically ventilated patients

气道内吸痰是ICU护士的一个常规操作，目地是为危重病人建立和维持气体交换，充足氧气，肺泡通气

Introduction

This procedure is associated with compli-cations and risks: bleeding, lesions of the tracheal mucosa（粘膜）, infections, atelec-tasis(肺不张), hypoxaemia（低氧血症）, cardiovascular instability and elevated intracranial pressure（颅内压）. Moreover it is considered one of the most painful experiences among ICU patients

这个操作伴随着很多并发症和风险：出血、气道粘膜损伤、肺不张低氧血症、颅内压改变、另外，它还被认为是ICU病人最痛苦的经历之一。

Introduction

The present research（in UK）

They showed that nurses are often not aware of the existence of guidelines and studies on this issue; there is a considerable相当大的discrepancy 不符between guidelines and nurses' practice.

护士没有意识到有这个指南的存在，和这方面问题的研究，护士的实际操作和指南存在很大的不符合

No study evaluated the knowledge of Italian ICU nurses about endotracheal suctioning guidelines.

Aim

To evaluate the knowledge of the evidence-based AARC guidelines on the endotracheal suctioning technique by ICU nurses in different Italian hospitals

评价意大利不同医院ICU护士的关于建立在循证基础上的AARC吸痰指南的知识

Materials and methods

- **Design**

  Cross-sectional survey 横断面调查

- **Research questions**

  What is the knowledge of Italian ICU nurses about best practices regarding endotracheal suctioning? Does knowledge vary among experienced vs. inexperienced ICU nurses?

  意大利ICU护士掌握的关于起到内吸痰的知识是什么？
  有经验和没经验的ICU护士是否存在差异？

- Setting

Eleven hospitals situated in five Regions in the North-centre of Italy were recruited（招募） to participate by convenience sampling

任意抽样：调查者本着随意性原则去选择样本的方式。

采用任意抽样的方法，意大利北部5个区的11个医院被招募参加研究

Materials and methods

- Instrument development

A panel of <u>experts</u> in the field of critical care nursing techniques <u>developed</u> a multiple-choice <u>questionnaire.</u>ICU护理专家制定了这个有多个选项的问卷

The questionnaire was subjected to a brief test phase, conducted with a small subset of resp-ondents.问卷经历了一个简单的测试阶段。

Materials and methods

Table 1 AARC recommendations (2010).

16.1 It is recommended that endotracheal suctioning should be performed only when secretions are present, and not routinely. (1C)

16.2 It is suggested that pre-oxygenation be considered if the patient has a clinically important reduction in oxygen saturation with suctioning. (2B)

16.3 Performing suctioning without disconnecting the patient from the ventilator is suggested. (2B)

16.4 Use of shallow suction is suggested instead of deep suction, based on evidence from infant and paediatric studies. (2B)

16.5 It is suggested that routine use of normal saline instillation prior to endotracheal suction should *not* be performed. (2C)

16.6 The use of closed suction is suggested for adults with high FIO2, or PEEP, or at risk for lung derecruitment (2B) and for neonates. (2C)

16.7 Endotracheal suctioning without disconnection (closed system) is suggested in neonates. (2B)

16.8 Avoidance of disconnection and use of lung – recruitment manoeuvres are suggested if suctioning – induced lung derecruitment occurs in patients with *acute lung injury.* (2B)

16.9 It is suggested that a suction catheter is used that occludes less than 50% of the lumen of the ETT in children and adults, and less than 70% in infants. (2C)

16.10 It is suggested that the duration of the suctioning event be limited to less than 15 seconds. (2C)
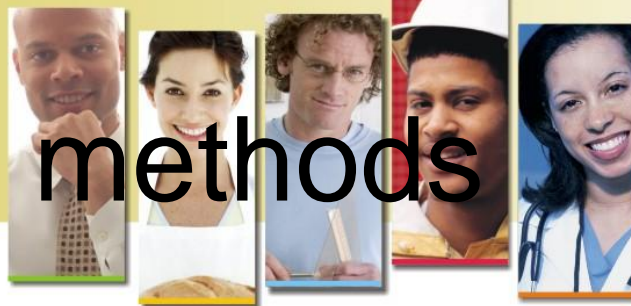
AARC recommendations (2010)

Materials and methods

Procedures实施

After obtaining the required authorisation for the distribution of the questionnaire from the nursing and health departments of the various hospitals。

获得授权

Materials and methods

Procedures实施

Primarily they were distributed and collected, in paper form,either by correspondence（通信）by e-mail.发放和回收有纸质版和邮件两组形式

The questionnaire was accompanied（伴随） by a presentation letter（介绍信）, instructions for the correct compilation of the document and information regarding data protection.

问卷、介绍信、正确填写说明书、有关数据保护的信息

Materials and methods

Data analysis

using the GraphPad Prism 5 program, performing a Fisher's Exact Test two-tailed，and a Chi-square test 卡方检验 to examine all the answers together,given the great abundance of data

Materials and methods

The sample

Inclusion criteria: Italian ICU nurses, car-ing for adult patients.

Exclusion criteria: Paediatric and neonatal Italian ICU nurses

纳入标准：成人ICU护士

排除标准：小儿和新生儿ICU护士

Materials and methods

E'thical issues伦理问题

- The study was approved （被认可） by the Internal Review Hospital Board 研究被**IRHB**组织的认可

- Each participant was asked for their consent(同意).征求了每一位参与研究者的同意

All participants remained involved voluntarily in the study until its completion Anonymity匿名 and confidentiality自愿

所有的参与者自始自终保持匿名和自愿

Results

问卷发放、回收以及在各种ICU的分布

The questionnaire was administered to 379 nurses; 247 (65%)questionnaires were compiled and returned. Among the 247nurses who returned the questionnaire, 57% (n = 142) worked in a general ICU, 23% (n = 57) in a Cardiovascular ICU, 16%(n = 38) in a Neurosurgical ICU and 4% (n = 9) in a Coronary care unit (Tables 3 and 4).

问卷发给379名护士，247例有效回收，在这247例护士中，57%来自综合ICU，23%来自心血管ICU，16%来自神经ICU，4%来之CCU

Results

Table 3 Distribution of years of work in ICU.

Years of work	Number of nurses	%
<1	5	2
1—5	72	29
6—10	59	24
>10	111	45

Table 4 Distribution of years of work of nurses.

Years of work in ICU	No. of nurses	%
<1	22	9
From 1 to 5	103	42
From 6 to 10	65	26
>10	57	23

ICU工作年限的分布　　　　工作年限的分布

Results

Table 5 Correct/incorrect answers and years of work.

Years of work	Correct answers	Wrong answers
<1	21	29
From 1 to 5	362	358
From 6 to 10	350	240
>10	683	426

正确/错误答案与工作年限

Table 6 Correct/incorrect answers and years of work in ICU.

Years of work in ICU	Correct answers	Incorrect answers
<1	103	117
From 1 to 5	566	464
From 6 to 10	381	269
>10	354	216

对/错答案与ICU工作年限

Results

Nurses working for more than five years answered the questions *about the diameter of the suction catheter, volume of saline to be injected, the depth of insertion of the suction catheter into the endotracheal tube and the negative pressure to be applied* better than the less experienced colleagues.

工作五年以上的护士比经验较少的护士回答（吸痰管直径、生理盐水注射容积、吸痰深度，负压）得更好

Results

Regarding the length of working experience in ICU, nurses working in an ICU for more than five years answered the questionnaire better than less experienced colleagues (cor-rect answers: 735/1220 vs. 669/1250, p = 0.0009 Chi-squaretest).
在ICU工作时间大于五年的护士回答问题比经验较少的同时回答得好。

Results

Nurses from General ICU performed better than others(855/1420 correct answers vs. 311/570 correct answers for Cardiosurgical ICU, p = 0.0235, vs. 201/390 correct answers for the Neurosurgical ICU, p = 0.0025, vs. 42/90 correct answers for the Coronary care unit CCU, p = 0.0145 Fisher's Exact Test).
来自综合ICU的护士回答得更好

Discussion

➢ Nurses who worked less than one year in an ICU have little knowledge about the duration of the suction, the negative pressure and the disconnection of the patient from the ventilator. （结果陈述）

➢ This result probably explains that the nurses do not have enough experience to know each feature of the procedure. （推理）

➢ These results suggest that work experience could improve the knowledge of the nurses in these wards （提示）

Discussion

Several nurses in the study were unaware of recomm-
ended practices and a number demonstrated potentially
unsafe practices. In agreement with previous research,
there is a lack of relevant knowledge regarding the tracheal

suctioning procedure, **although** *there can be no real comparison*
between the two studies, due to The differences in the research

methodology.

很多护士没有注意到推荐的标准操作，而且很多护士执行
着有潜在不安全的操作。这一结论与以前的研究相符合。

Discussion

In Italy, this data（ lack of knowledge of guidelines） could be explained by

1、 the understanding of the English language by many nurses

2、course programmes in our country do not reach this level of specialisation and are reserved for postgraduate courses .

3、most staff members do not base their practice on published report（Sole等人的研究结论）
护士缺乏指南相关知识的原因：语言、课程、员工自身操作没有按照已发布的报告

Discussion

The question about the closed suction circuit obtained few correct answers: this could suggest that

1、 nurses are not up to 更新 date regarding the new guidelines.

2、it may be a misunderstanding caused by the misint-erpretation误解 on the known indications（closed circuit suction only for patients who need a high FiO2 and PEEP balabalabala）

护士没有及时更新关于新指南的知识
对于已知指针的错误理解

Discussion

The increase in the answers "I do not know" for question number 9 about the negative pressure, may be due to

the pressure of the 'aspirator 吸引器 on the wall is usually preset at the same level，consequently 因此 the nurses do not pay attention to checking it prior to suction.

第9题关于负压的题，选择我不知道的人很多的原因可能是吸引器的负压都是提前设定好的。

Discussion

nurses who work in General ICU have more knowledge about endotracheal suctioning compared to nurses of other wards. In particular General ICU nurses who have been working for more than five years have accurate information about the diameter of the suction catheter, the saline instillation and the pressure. This outcome might suggest that

it is only with experience that nurses can understand and become confident with these technical and specific procedures.

综合ICU，尤其是在综合ICU工作时间大于5年的护士知识掌握更好
原因可能是经验可以使护士更加理解和自信这项技术和专业化操作

Discussion

One limitation of this investigation is that it did not analyse how nurses perform the procedure during daily practice.

Findings of Day et al. indicate that there was no significant relationship between nurses' theoretical knowledge and observed practice, so it would be interesting to understand if there is a discrepancy 矛盾 between theory and practice and to understand the nurses' motivation for their actions

本研究的一个局限就是没有分析护士的日常操作表现。Day的一项研究指示：护士的理论和实际操作没有很大的联系，因此了解理论和操作之间的矛盾以及护士（某些）操作的动机很有意义

Limitations

The questionnaire we used was not validated验证; however, [it was deve-loped by experts in the field of nurs-ing in critical care, it underwent a br-ief test phase before the final version]
问卷没有经过验证，虽然是专家设计的，并且在最终版本前经历过一个简单的测试。

Limitations

Years of experience were grouped and treated as a categorical variable分类变量; this stratification of a continuous variable 连续变量may have introduced more bias. 把工作经验的时间作为分类变量，这种把连续变量分层可能存在偏见

Limitations

The sample could not be representative 有代表性的of the Italian ICU nurses, due to the convenience sampling method used.

方便/任意取样的方法可能使样本不具有意大利护士的代表性

Limitations

It would be important to know potential reasons for nurses' refusal to participate. There may be a selection bias,in that nurses with limited knowledge may have declined to participate in the study. 不愿意参加的护士可能是因为这方面知识欠缺

Conclusion

Endotracheal suction is an invasive procedure 侵入性操作 that can cause significant problems; the lack of up to date knowledge （revealed 揭示by our survey ） could increase the risk of complications.

1、A better training and education programme about updated guidelines among nurses is warranted.

2、A better basic training and continuing education (on critical care procedures and guidelines) among Italian nurses is also needed.

新指南的培训和教育项目被批准

一个更好的基础教育和重症操作和指南的继续教育也很必要

Conflict of interest statement

The authors have no conflict of interest to declare声明

作者们没有利益冲突要在此声明

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