



Sigma Theta Tau International
Honor Society of Nursing



43RD BIENNIAL CONVENTION

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THE LITERACY IN PROFESSIONAL NURSING IN PERIPHERAL VENOUS CATHETERIZATION

PROCEDURES:

A SYSTEMATIC REVIEW



HEALTH SCIENCES
RESEARCH UNIT
NURSING
UNIDADE DE INVESTIGAÇÃO
EM CIÊNCIAS DA SAÚDE
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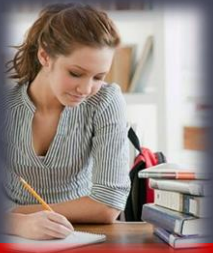
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THE LITERACY IN PROFESSIONAL NURSING IN PERIPHERAL VENOUS CATHETERIZATION

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MAIN GOAL

To know the scientific evidence on the **literacy** of **nursing professionals** in the peripheral venous catheterization procedure.

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INTRODUCTION

...‘seeks to identify studies already completed that address this issue and evaluate their results to draw conclusions about a body of knowledge’.
(Hulley, 2008, p.231).

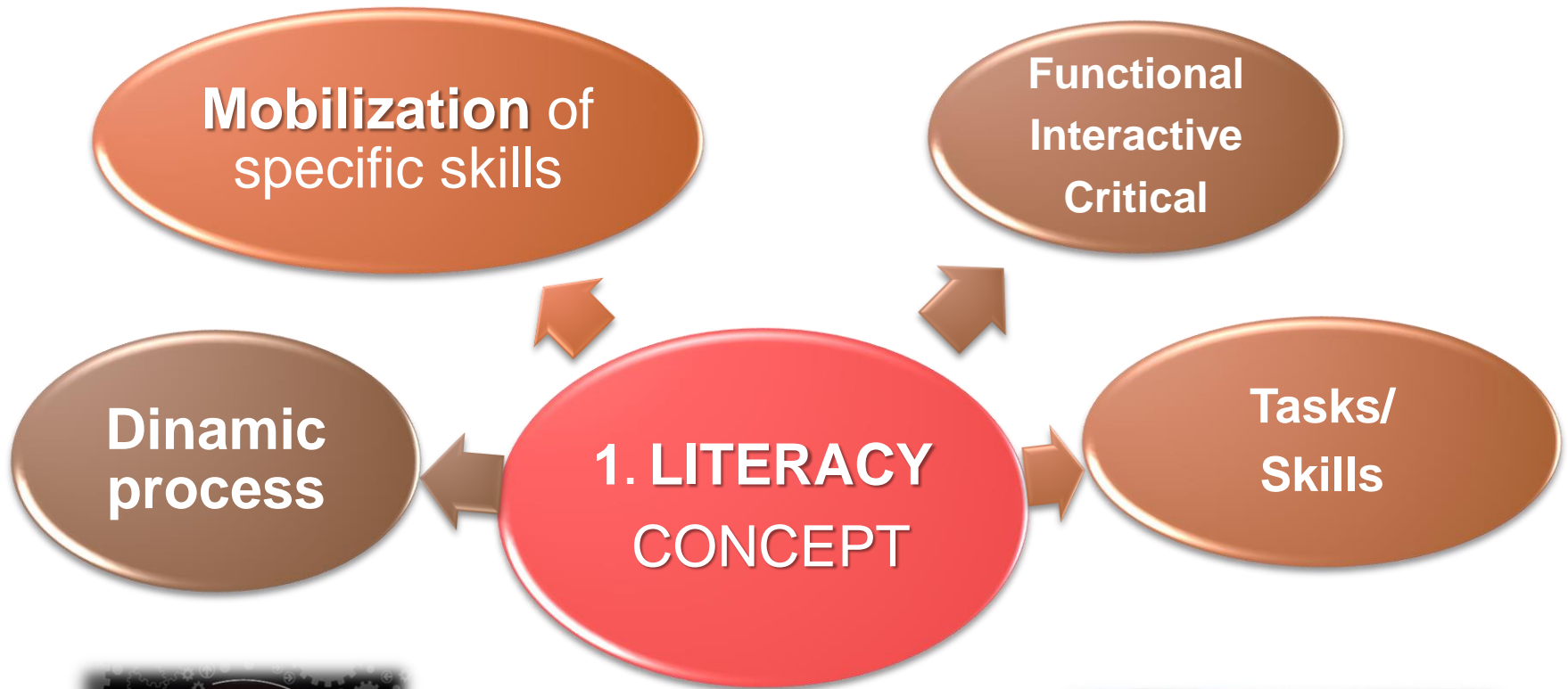
RELEVANCE

PIC

- **Common practice at hospital contexts**

- **Nurse is the RESPONSIBLE**





2. NURSING CARE IN PERIPHERAL VENOUS CATHETERIZATION

Placement of a device within a vein that requires regular care and control (Torres, Andrade & Santos, 2005)

Required specific skills
(Santos, 2014)

Increases the risk of infection

Prevention of associated complications

GUIDELINES
(CDC, 2011)

3. METODOLOGY

PI[C]OD

3.1 RESEARCH QUESTION

Which is the literacy (O), relative to the procedure peripheral intravenous catheterization (I) of the professional nurses (P), with repercussions on the nursing care?

| | | | |
|---|----------|----------------------|--|
| KEYWORDS | P | Participants | Nursing professionals |
| Peripheral intravenous catheter Nurse Knowledge Guidelines | I | Interventions | Identification the literacy of professional nurses on the peripheral venous catheterization procedure with repercussions on nursing care. |
| | C | Comparisons | Comparing the literacy of professional nurses on the peripheral venous catheterization procedure. |
| | O | Outcomes | Changes in the literacy of professional nurses relative to peripheral venous catheterization procedure. |
| | D | Design | Qualitative and quantitative studies... |

| 3.3 STUDY SELECTION CRITERIA | INCLUSION CRITERIA | EXCLUSION CRITERIA |
|------------------------------|--|---|
| PARTICIPANTS | <ul style="list-style-type: none"> Nurses of adult care units | <ul style="list-style-type: none"> Nurses from special care in pediatrics and emergency services; and primary health care; Nursing students. |
| INTERVENCTION | <p><u>Nursing:</u></p> <ul style="list-style-type: none"> Implementation of protocols based on national and / or international recommendations (guidelines) for standardization of nursing care; <p><u>Methodologies of the studies:</u></p> <ul style="list-style-type: none"> Interviews ; Note; Questionnaires application. | <ul style="list-style-type: none"> Other interventions that are NOT directly related peripheral venous catheterization procedure and/or the knowledge of practitioners nurses on this procedure |
| OUTCOMES | <p>Literacy of professional nurses on the peripheral venous catheterization procedure.</p> <ul style="list-style-type: none"> Results about the knowledge based on scientific evidence of professional nurses on the peripheral venous catheterization procedure. | <ul style="list-style-type: none"> Results of other factors related to the occurrence of peripheral venous catheterization complications that are not described as associated with the knowledge of professional nurses |
| | <ul style="list-style-type: none"> Studies published since 2009; Full text studies; | <ul style="list-style-type: none"> All previous studies to 2009; |

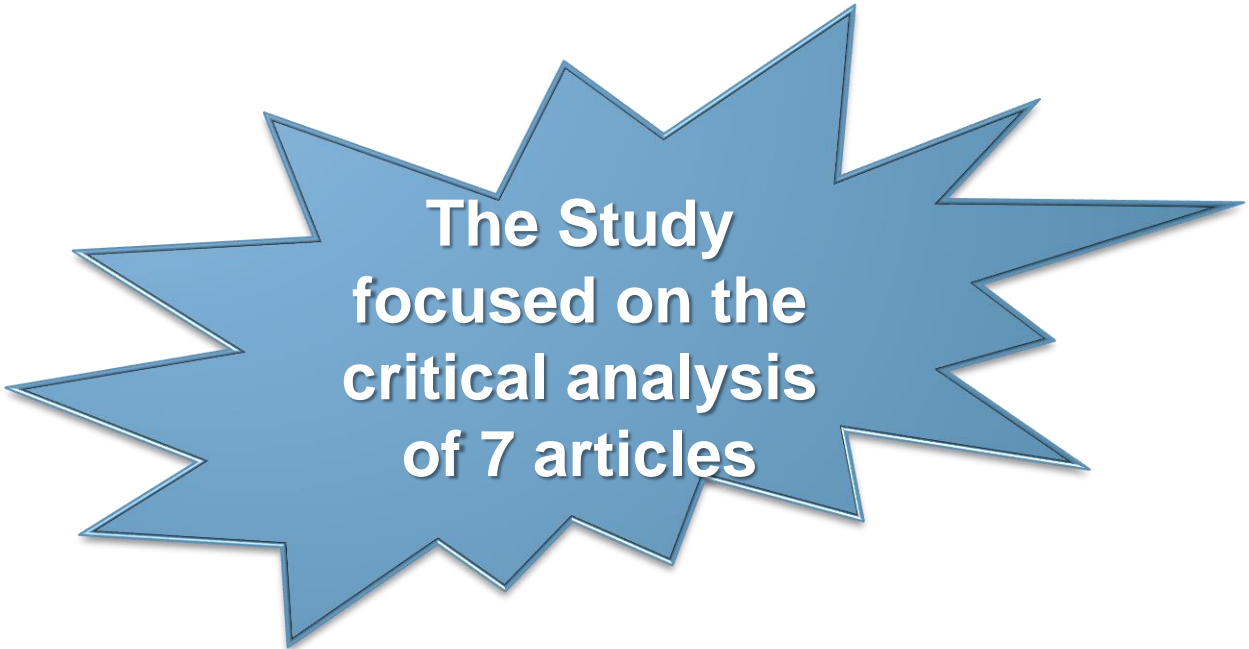
3.4 DATA COLLECTION AND ANALYSIS

Code S1 – Electronic database consulted: **EBSCOhost Interface** (*Regional Business News; Psychology and Behavioral Sciences Collection; MEDLINE with Full Text; SPORTDiscus with Full Text; CINAHL Plus with Full Text; MedicLatina; Academic Search Complete; ERIC; Business Source Complete; Library, Information Science & Technology Abstracts*). Articles published from 2009 to the present were consulted. Used in the English language, descriptors: *knowledge** (*abstract* (AB)) **AND** *nurs** (AB) **AND** *peripheral catheter** (AB). **Results:15. Eligible: 6. Included: 4.**

Code S2 – Electronic database consulted: **EBSCOhost Interface** (*Regional Business News; Psychology and Behavioral Sciences Collection; MEDLINE with Full Text; SPORTDiscus with Full Text; CINAHL Plus with Full Text; MedicLatina; Academic Search Complete; ERIC; Business Source Complete; Library, Information Science & Technology Abstracts*). Articles published from 2011 to the present were consulted. Used in the English language, descriptors: *guidelines* (AB) **AND** *nurs** (AB) **AND** *peripheral catheter** (AB). **Results: 6. Eligible: 4. Included: 2.**

3.4 DATA COLLECTION AND ANALYSIS

Code S3 – Research national reference repository (Library of Coimbra Nursing School). Master`s / theses published Until 2014. Used, on Portuguese language, descriptors: *cateter** (AB) *AND nursing care*(AB).
Results: 1. Eligible: 1. Incuded: 1.



The Study
focused on the
critical analysis
of 7 articles

4. RESULTS

E3-S1: Castro-Sánchez, E., Charani, E., Drumright, L., Sevdalis, N., Shah, N., & Holmes, A. (2014). Fragmentation of care threatens patient safety in peripheral vascular catheter management in acute care- a qualitative study. *Plos One*, 9(1), e86167. doi:10.1371/journal.pone.0086167.

1

DeC.10
Jul.11

Qualitative study (interviews)

United
Kingdom

➤ To understand the influence of the health care professionals behavior on patient with PIC.

➤ Four key themes:

Nurses

- ✓ The **fragmentation** of care management;
- ✓ Feelings of **frustration**;
- ✓ **Disregard** of the hospital policy;
- ✓ **Low perception about the risk** of PIC in the patient security.

E7-S1: Oliveira, A., & Parreira, P. (2010). Nursing interventions and phlebitis due to peripheral venous cathetes. *Sistematic review of the literature*. Referência: *Journal Unit of Scientific Research on the Health Science: Nursing Domain*, 3(2), 137-147.

2

Sistematic Review of Literature of 19 articles

- Three thematic areas – nursing interventions related to:

➤ To Sistematize the scientific literature on nursing interventions on patient with PIC and to understand the influence of these interventions in the occurrence of phlebitis.

Insertion
of PIC

Monitoring
patients

**KNOWLEDGE OF
NURSES**

April 2004 – March 2010

E8-S1: Moncaio, A., & de Figueiredo, R. (2009). Knowledge and practices in the use of intermittent [sic] peripheral catheter by the nursing staff [Portuguese]. *Revista Eletronica De Enfermagem*, 11(3), 620-627.

3

Prospective study, quantitative (interviews and observation)

- To Identify the frequency and to characterize the practices and knowledgement on PIC by nurses.

Aug. 05
Jul. 06

São Paulo,
Brazil

Gap between theoretical
knowledge and actual
practice

- ✓ Necessary to establish effective and integrated education practices

E10-S1: Cicolini, G., Simonetti, V., Comparcini, D., Labeau, S., Blot, S., Pelusi, G., & Di Giovanni, P. (2013). Nurses' knowledge of evidence-based guidelines on the prevention of peripheral venous catheter-related infections: a multicentre survey. *Journal Of Clinical Nursing*, doi: 10.1111/jocn.12474.

4

Qualitative study, descriptive (analysis of questionnaires)

➤ To evaluate the nurses' knowledge about the guidelines for the prevention of infection associated with PIC

Italy

Nov. 11
Jun. 12

Most participants had a **limited knowledge** of current *guidelines* on the prevention of infection related to PIC.

Knowledge of *guidelines* enhances the implementation on the provision of nursing care.

E19-S2: Kampf, G., Reise, G., James, C., Gittelbauer, K., Gosch, J., & Alpers, B. (2013). Improving patient safety during insertion of peripheral venous catheters: an observational intervention study. *GMS Hygiene And Infection Control*, 8(2), Doc18. doi:10.3205/dgkh000218.

5

Aug. 12
Mar. 13

Observational study

Germany

- To determine the use of specific steps on the PIC insertion procedure in providing nursing care and to implement a multimodal intervention aimed at improving compliance with the same.

Significant improvement
in 4 of the 5 PIC insertion
steps after multimodal
practical training

E21-S2: Frigerio, S., Di Giulio, P., Gregori, D., Gavetti, D., Ballali, S., Bagnato, S., & ... Renga, G. (2012). Managing peripheral venous catheters: an investigation on the efficacy of a strategy for the implementation of evidence-based guidelines. *Journal Of Evaluation In Clinical Practice*, 18(2), 414-419. doi:10.1111/j.1365-2753.2010.01590.

6

Mar.- Oct.
2006

Observational study

Torino,
Italy

- To describe the developing *guidelines* process related to peripheral venous catheterization procedure and to evaluate the effectiveness of the application of scientific knowledge in clinical outcomes.

Significant improvement in clinical practice, related to the peripheral venous catheterization, after 2 months of implementation *guidelines*.

E22-S3: Santos, D. (2014). Nursing care in peripheral vnous catheterization: impact on microbiological profile. Master's thesis – Nursing School of Coimbra, Coimbra, Portugal.

7

Descriptive and correlational study, cross-sectional , quantitative

Sep. – Dec
2012

Portugal

Is the nursing care provided to people with PIC sufficiently effective on controlling bacterial colonization of such devices, minimizing the risk of local / bacteremia infection?

- ✓ Nurses act in accordance with the **Nursing Policy Manual of ACSS** (2011);
- ✓ Some of the **recomendations are not properly adopted** by professional nurses
- ✓ Need to **harmonize clinical practice**, increasing the safety of professionals and patients and the **optimization of resources**.

5. DISCUSSION

KNOWLEDGE OF PROFESSIONAL NURSES RELATED TO THE SCIENTIFIC EVIDENCE PIC AND ITS MEMBERSHIP IN NURSING CARE

HAVE KNOWLEDGE: *Guidelines*

- Biswas (2007), Johansson, Pilhammar & Willman (2009) *apud* Oliveira & Parreira (2010) (**E7**)
- Moncaico & Figueiredo (2009) (**E8**)

LIMITED KNOWLEDGE: *Guidelines*

- Cicolini *et al.* (2013) (**E10**)



KNOWLEDGE OF PROFESSIONAL NURSES RELATED TO THE SCIENTIFIC EVIDENCE PIC AND ITS MEMBERSHIP IN NURSING CARE



BARRIERS to the evidence-based practice:

- Lack of knowledge;
- Negative attitudes and skills;
- Organizational and structural factors;
- Peer group;
- Professional user interaction.

FORMATION

Grimshaw *et al.* (2004) *apud* Cicolini *et al.* (2013) (**E10**)

HAND HYGIENE AND USE OF GLOVES

Overall performance inadequate

- Torres, Andrade & Santos (2005) apud Oliveira & Parreira (2010) (E7)

**Simple actions
Save lives...**



Adapted with permission from Canada's Hand Hygiene Campaign

7% identified as not recommended, only in invasive procedures

- Cicolini *et al.* (2013) (E10)

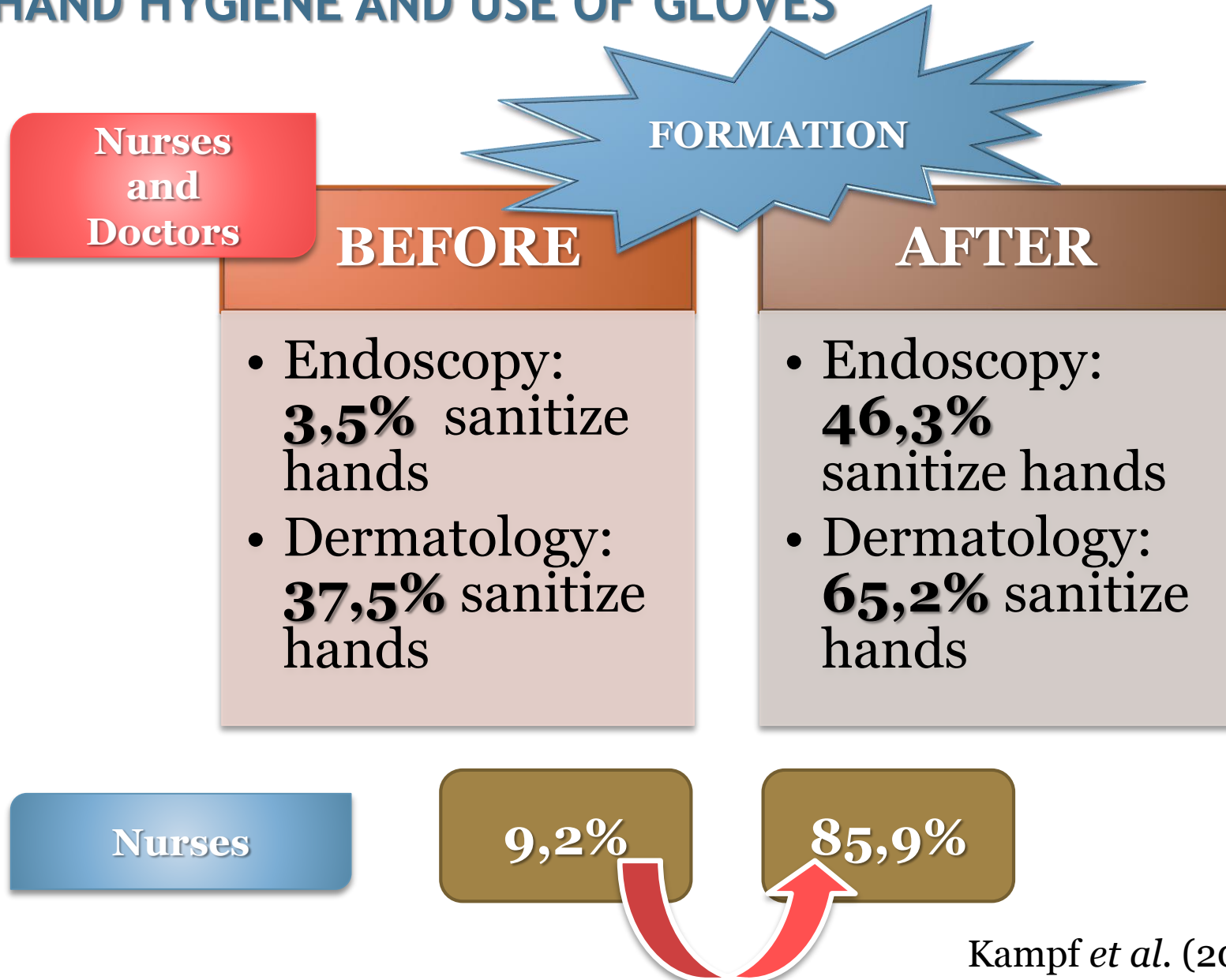
74,8% non-adherence to hand hygiene

69,4% non-adherence to use of gloves

- Moncaico & Figueiredo (2009) (E8)



HAND HYGIENE AND USE OF GLOVES



HAND HYGIENE AND USE OF GLOVES: GUIDELINES (CDC, 2011)

✓ **Aseptic technique** for insertion and care of intravascular catheters (**Category IB**).

✓ Perform **hand hygiene procedures**: washing hands with **soap and water** or disinfecting with **antiseptic solution alcoholic base**. Should be performed **before** and **after** palpate the catheter insertion site, as well as before and after the **insertion, replacing, use, repair** or **cleaning** of intravascular catheter. The palpation of the insertion site should not be performed after the application of antiseptic, unless aseptic technique is maintained (**Category IB**).

✓ Should be used **clean gloves**, rather than sterile gloves, for the insertion of peripheral intravascular catheters, if the access site is not touched after the application of skin antiseptic (**Category IC**). The same applies to the replacement of the dressing (**Category IC**).

DESINFECTION AND TOPICAL APPLICATION OF ANTIBIOTICS

100% disinfects the puncture site

- Kampf *et al.* (2013) (E19)

50,4 % selected the correct option on the recommendations

- Cicolini *et al.* (2013) (E10)

85,2% recognizes that antibiotics should not be applied, but only 30,1% justifies it correctly

- Cicolini *et al.* (2013) (E10)



✓ Prepare clean skin with an **antiseptic** (70% alcohol, tincture of iodine or alcoholic chlorhexidine gluconate solution) **prior to insertion** of peripheral venous catheter. Category IB (CDC, 2011).

✓ **Do not** use ointments or **topical antibiotic** creams at the insertion site, except dialysis catheters. Category IB (CDC, 2011).

STAY TIME PIC AND COUPLED SYSTEMS

90 % select the correct option

- Replacing the PIC



27,5% - replace every 24 hours

24,8% - replace every 72 hours

- Replacement of infusion systems in which **not perfused** lipid solutions, blood or blood products.

88,4% select the correct option

- Replacement infusion systems which **perfused** lipid solutions, blood or blood products.

STAY TIME PIC AND COUPLED SYSTEMS: GUIDELINES (CDC, 2011)

✓ Replacing the peripheral catheters is not necessary **before 72-96 hours** to reduce the risk of infection and phlebitis in adults (Category IB).

✓ If the cliente show **signs of phlebitis, infection**, or if the **cateter is not functioning** should be removed (Category IB).

✓ For users **who have not received blood, blood products or lipudic emulsions**, replace administration systems that are constantly used, including secondary sets and add-on devices , **no more frequently than at intervals of 96 hours and at least every 7 days** (Category IA).

✓ Replacing the systems used to handle **blood, blood products** or **lipudic emulsions**, within 24 hours after the start of infusion (Category IB).

SELECTION THE TYPE OF DRESSING AND ITS REPLACEMENT

57,8% → 37,91% - reduction
the use of inappropriated
dressing
(after adoption of new protocol)

• Frigerio *et al.* (2012) (E21)

63 % select the correct option relative
to the replacement of dressing

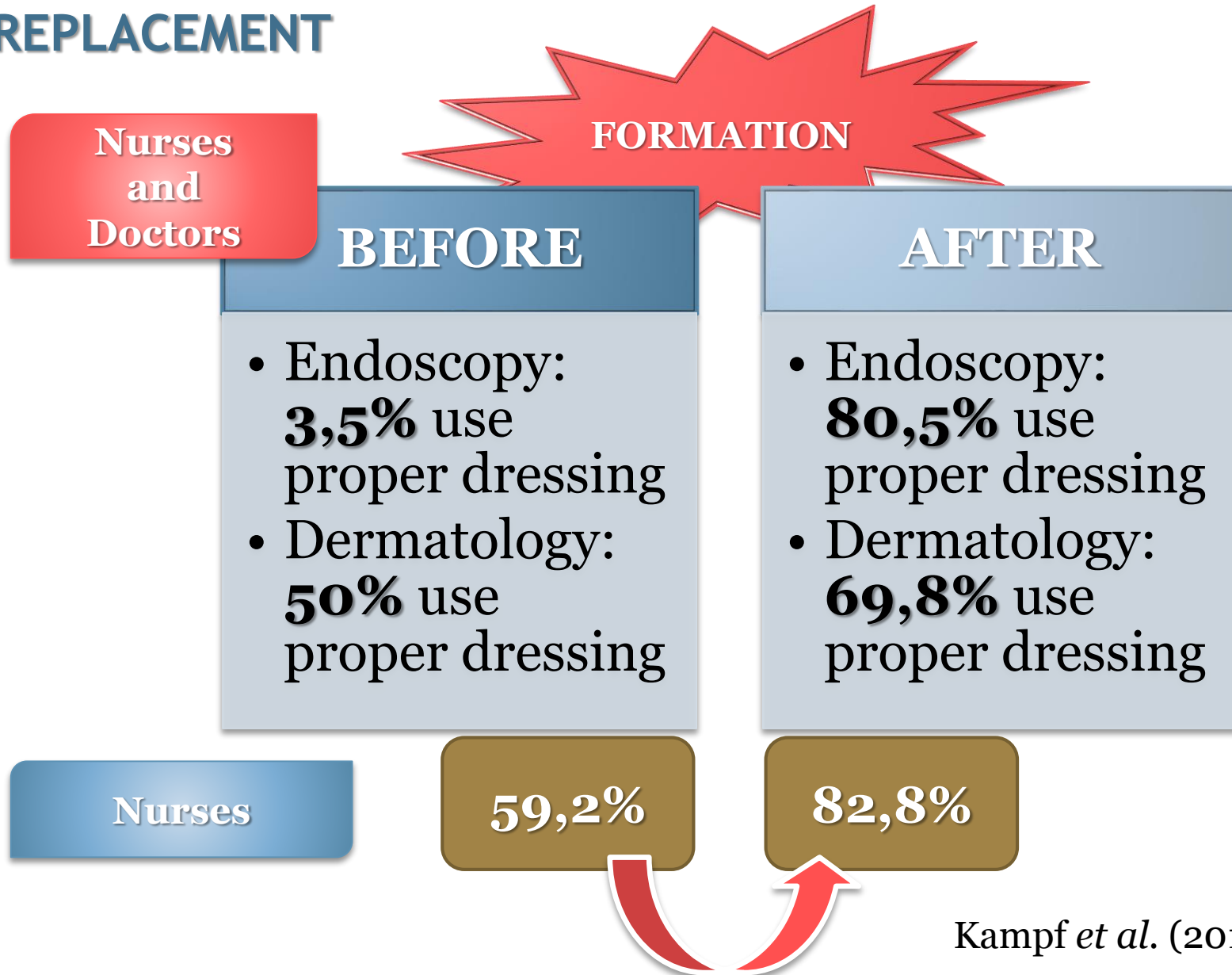
• Cicolini *et al.* (2013)
(E10)

40,9 % select the correct option
relative to the type of dressing

• Cicolini *et al.*
(2013) (E10)

✓The dressing used to cover the cateter may be **sterile gauze** with sterile adhesive tapes, or **sterile dressing, transparent, semi-permeable (Category IA)**. Should be replace if the local gets **wet, bleeds** or is **visibly dirty** or **think is loose - Not functioning** (Category IB).

SELECTION THE TYPE OF DRESSING AND ITS REPLACEMENT



PERMEABILITY CATHETER MAINTENANCE

Moncaico &
Figueiredo (2009)
(E8)

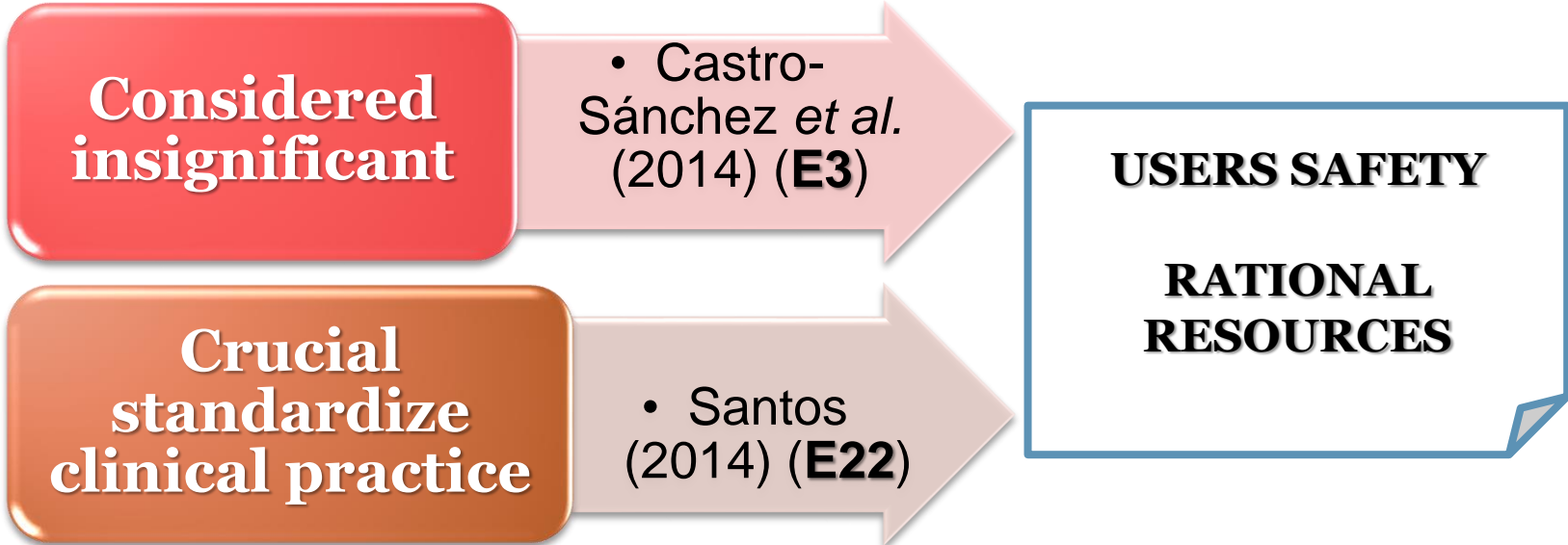
89,4% of PIC have
been salinated

Using the same syringe with
NaCl 0,9% for 3 users (3,5%)



It is recommended **flushing** (with positive pressure) with 0,9% saline, with the periodicity defined in each institution (Steffens & Brandão, 2012, *apud* Santos, 2014, p. 29) (E22).

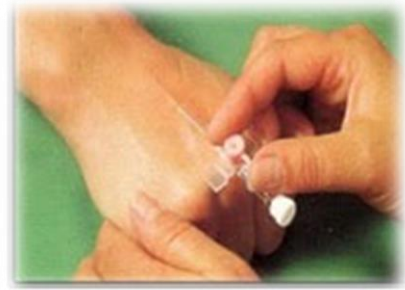
FRAGMENTATION OF SERVICES CARE



BELIEFS AND...



GENERALIZED BELIEFS



Pose *et al.* (2005,p.27 *apud* Oliveira and Parreira, 2010, p.140) (E7)

... INFRINGEMENT the POLICIES

**Disregard
+institutional
polices**

**Low
perception of
risk associated**

Castro-Sánchez *et al.* (2014) (E3)

ADOPT MEASURES TO IMPROVE LITERACY OF NURSING PROFESSIONALS

➤ *Castro-Sánchez et al. (2014)* (E3) propose the **realization and implementation** of policies that **standardized the clinical practice**.

➤ *Oliveira & Parreira (2010)* (E7) – **training in a professional context** on **guidelines** relative to the peripheral venous catheter.

➤ *Moncaio & Figueiredo (2009)* (E8) – required **intensification of educational activities** addressed for changing inappropriate behavior.

➤ *Santos (2014)* (E22) – required mobilize deep knowledge on this subject; it is important a **CONSTANT training** in this area.

➤ *Cicolini et al. (2011)* (E10) – educational programs focused on **learning content**, but also on the importance of following the recommendations for the safety of client.

ADOPT MEASURES TO IMPROVE LITERACY OF NURSING PROFESSIONALS

THE EFFECTIVE OF
IMPLEMENTATION
FORMATIONS

FUNDAMENTAL
THE
INVOLVEMENT OF
NURSES



IMPROVING
EFFECTIVITY IN
LITERACY



CONCLUSION

- Few scientific studies address this issue.

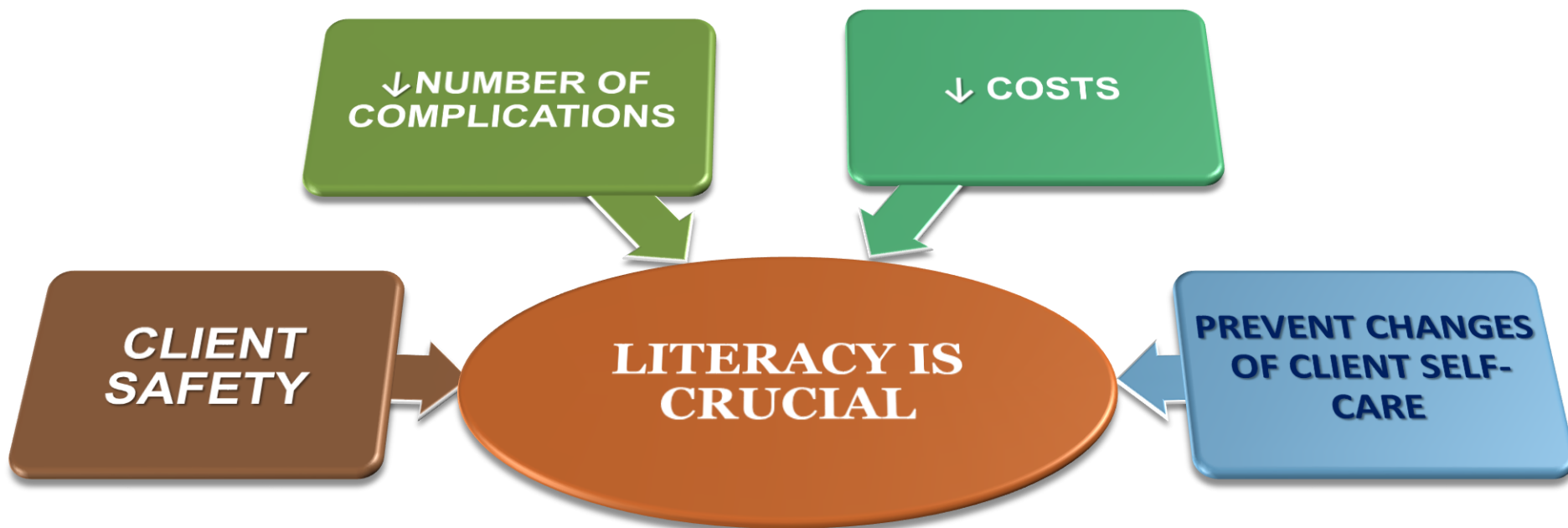


Which is the professional nurses literacy relative to the procedure peripheral intravenous catheterization with repercussions on nursing cares?

Nurses **have knowledge** on the peripheral venous cateter procedure, however, **do not mobilize it always at nursing care.**

Repercussions in nursing care.

CONCLUSION



- The literature identifies as **essential the continuous training** of professional nurses about the PIC procedure. In particular, national and international protocols, such as the *Guidelines* of CDC.
- More inputs are needed from the research.



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REFERENCES

- Ahlin, C., Löfmark, A., Klang-Söderkvist, B., & Johansson, E. (2013). Development of instruments for assessment of knowledge and skills in performing venepuncture and inserting peripheral venous catheters. *The Journal Of Vascular Access*, 14(4), 364-372. doi:10.5301/jva.5000147.
- American Psychological Association. (2010). *Publication manual of the American Psychological Association*. (6th ed.). Washington, DC: APA.
- Arreguy-Sena, C. & Carvalho, E. (jan-fev 2009). Risco para trauma vascular: proposta de diagnóstico e validação por peritos. *Revista Brasileira de Enfermagem*, 62(1), 71-78.
- Beall, V., Hall, B., Mulholland, J. T., & Gephart, S. M. (2013). Neonatal Extravasation: An Overview and Algorithm for Evidence-based Treatment. *Newborn & Infant Nursing Reviews*, 13(4), 189-195. doi:10.1053/j.nainr.2013.09.001.
- Benavente, A. (org.), Rosa, A., Costa, A.F. & Ávila, P. (1996). *A Literacia em Portugal: Resultados de uma Pesquisa Extensiva e Monográfica*. Lisboa, Fundação Calouste Gulbenkian e Conselho Nacional de Educação.
- Castro-Sánchez, E., Charani, E., Drumright, L., Sevdalis, N., Shah, N., & Holmes, A. (2014). Fragmentation of care threatens patient safety in peripheral vascular catheter management in acute care- a qualitative study. *Plos One*, 9(1), e86167. doi:10.1371/journal.pone.0086167.
- Center of Disease Control (CDC). (2011). *Guidelines for the Prevention of Intravascular Catheter-Related Infections*. Estados Unidos da América. Acedido maio 20, 2014, em <http://www.cdc.gov/hicpac/pdf/guidelines/bsi-guidelines2011.pdf>.
- Chapman, L., Sullivan, B., Pacheco, A., Dralean, C., & Becker, B. (2011). VeinViewer-assisted Intravenous catheter placement in a pediatric emergency department. *Academic Emergency Medicine: Official Journal Of The Society For Academic Emergency Medicine*, 18(9), 966-971. doi:10.1111/j.1553-2712.2011.01155.
- Cicolini, G., Simonetti, V., Comparcini, D., Labeau, S., Blot, S., Pelusi, G., & Di Giovanni, P. (2013). Nurses' knowledge of evidence-based guidelines on the prevention of peripheral venous catheter-related infections: a multicentre survey. *Journal Of Clinical Nursing*, doi: 10.1111/jocn.12474.
- Cicolini, G., Manzoli, L., Simonetti, V., Flacco, M., Comparcini, D., Capasso, L., & ... Eltaji Elfarouki, G. (2014). Phlebitis risk varies by peripheral venous catheter site and increases after 96 hours: a large multi-centre prospective study. *Journal Of Advanced Nursing*, doi: 10.1111/jan.12403.
- Delahanty, K. M., & Myers, F. (2009). I. V. infection control survey report. *Nursing*, 39(12), 24-32.
- Escola Superior de Enfermagem de Coimbra. (2007). *Guia de elaboração de trabalhos escritos*. Coimbra.

REFERENCES (cont.)

- Fakih, M., Jones, K., Rey, J., Takla, R., Szpunar, S., Brown, K., & ... Saravolatz, L. (2013). Peripheral venous catheter care in the emergency department: education and feedback lead to marked improvements. *American Journal Of Infection Control*, 41(6), 531-536. doi:10.1016/j.ajic.2012.07.010.
- Frigerio, S., Di Giulio, P., Gregori, D., Gavetti, D., Ballali, S., Bagnato, S., & ... Renga, G. (2012). Managing peripheral venous catheters: an investigation on the efficacy of a strategy for the implementation of evidence-based guidelines. *Journal Of Evaluation In Clinical Practice*, 18(2), 414-419. doi:10.1111/j.1365-2753.2010.01590.
- Gomes, A., Silva, C., Gamarra, C., Faria, J., Avelar, A., & Rodrigues, E. (2011). Assessment of phlebitis, infiltration and extravasation events in neonates submitted to intravenous therapy [Portuguese]. *Escola Anna Nery Revista De Enfermagem*, 15 (3), 472-479. doi:10.1590/S1414-81452011000300005.
- Gomes, M., Ávila, P., Sebastião, J. & Costa, A. (2000). Novas análises dos níveis de literacia em Portugal: comparações diacrónicas e internacionais. In *actas do IV Congresso Português de Sociologia - Sociedade Portuguesa: Passados Recentes, Futuros Próximos*, Coimbra, abril. 2000. Acedido maio 20, 2014, em http://www.aps.pt/cms/docs_prv/docs/DPR462de53172c7d_1.PDF.
- Hetzler, R., Wilson, M., Hill, E., & Hollenback, C. (2011). Securing pediatric peripheral i.v. catheters--application of an evidence-based practice model. *Journal Of Pediatric Nursing*, 26(2), 143-148. doi:10.1016/j.pedn.2010.12.008.
- Hulley, S.B., Cumming, S.R, Browner, W.S., Grady, D.G., Hearst, N.B. & Newman, T.B. (2008). *Delineando a Pesquisa Clínica - Uma abordagem epidemiológica*. (3ª ed.). Porto Alegre: Artmed.
- Kampf, G., Reise, G., James, C., Gittelbauer, K., Gosch, J., & Alpers, B. (2013). Improving patient safety during insertion of peripheral venous catheters: an observational intervention study. *GMS Hygiene And Infection Control*, 8(2), Doc18. doi:10.3205/dgkh000218.
- Lyons, M., & Kasker, J. (2012). Outcomes of a continuing education course on intravenous catheter insertion for experienced registered nurses. *Journal Of Continuing Education In Nursing*, 43(4), 177-181. doi:10.3928/00220124-20111101-08.
- Lopes, P.C. (2011). Literacia (s) e literacia mediática. *CIES e-Working Paper*, 110. Acedido maio 20, 2014, em http://www.cies.iscte.pt/destaques/documents/CIES-WP110_Lopes.pdf.
- Loureiro, L., Rodrigues, M., Santos, J. & Oliveira, R. (2014). Literacia em Saúde: breve introdução ao conceito. In Loureiro, L., Jorm, A., Rodrigues, M., *et al.* (2014) – *Literacia em Saúde Mental: Capacitar as Pessoas e as Comunidades para Agir*. Coimbra: Unidade de Investigação em Ciências da Saúde: Enfermagem, Escola Superior de Enfermagem de Coimbra.
- Martins, T., & Silvino, Z. (2009). Infusions failures in the use of peripheral venous catheters in children: integrative review. *Online*

REFERENCES (cont.)

- *Brazilian Journal Of Nursing*, 8(1).
- Moncaio, A., & Figueiredo, R. (2009). Knowledge and practices in the use of intermittent [sic] peripheral catheter by the nursing staff [Portuguese]. *Revista Eletronica De Enfermagem*, 11(3), 620-627.
- Nutbeam, D. (2000). Health literacy as a public health goal: a challenge for contemporary health education and communication strategies into the 21st century. *Health Promotion International*, 15(3), 259–67. Acedido maio 20, 2014, em <http://heapro.oxfordjournals.org/content/15/3/259.full.pdf+html>.
- Nutbeam, D. (2009). Defining and measuring health literacy: what can we learn from literacy studies? *International Journal of Public Health*, 54(5), 303-5. Acedido maio 20, 2014, em <http://www.ncbi.nlm.nih.gov/pubmed/19641847>.
- Oliveira, A. & Parreira, P. (Dezembro de 2010). Intervenções de enfermagem e flebite decorrentes de cateteres venosos periféricos- Revisão sistemática da literatura. *Referência: Revista Científica da Unidade de Investigação em Ciências da Saúde: Domínio de Enfermagem*. 3(2), 137-147.
- Ordem dos Enfermeiros (Agosto de 2012). Regulamento do perfil de competências do enfermeiro de cuidados gerais. *Divulgar*. 23. Acedido junho 2, 2014, em http://www.ordemenfermeiros.pt/publicacoes/Documents/divulgar%20-%20regulamento%20do%20perfil_VF.pdf.
- Polit, D. (2004). *Fundamentos de Pesquisa em Enfermagem – Métodos, avaliação e utilização*. (5ªed.). Porto Alegre: Artmed.
- Queirós, P. (2014). Apontamentos das Aulas Teóricas da Unidade Curricular Opcional: Gestão do Autocuidado Terapêutico. Coimbra.
- Reynolds, H., Dulhunty, J., Tower, M., Taraporewalla, K., & Rickard, C. (2013). A snapshot of guideline compliance reveals room for improvement: A survey of peripheral arterial catheter practices in Australian operating theatres. *Journal Of Advanced Nursing*, 69(7), 1584-1594. doi:10.1111/jan.12018.
- Russell, E., Chan, R., Marsh, N., & New, K. (2013). A point prevalence study of cancer nursing practices for managing intravascular devices in an Australian tertiary cancer center. *European Journal Of Oncology Nursing: The Official Journal Of European Oncology Nursing Society*, 18(3), 231-5. doi: 10.1016/j.ejon.2013.11.010.
- Santos, D. (2014). *Cuidados de Enfermagem no Cateterismo Venoso Periférico: Impacte no Perfil Microbiológico*. Dissertação de Mestrado – Escola Superior de Enfermagem de Coimbra, Coimbra, Portugal.
- Torres, M., Andrade, D., Santos, C. (2005). Punção Venosa Periférica: Avaliação do desempenho dos profissionais de enfermagem. *Revista Latino-Americana de Enfermagem*, 13(3), 299-304. Acedido maio 20, 2014 em http://www.scielo.br/scielo.php?pid=S0104-116920050003000003&script=sci_arttext.