



Infection Control Current Awareness: December 2014

Australian graduating nurses' knowledge, intentions and beliefs on infection prevention and control: a cross-sectional study.

Mitchell BG, Say R, Wells A, Wilson F, Cloete L, Matheson L.

BMC Nurs. 2014 Dec 12, vol 13, no 1, p43

Abstract

BACKGROUND: In recent year, national bodies have been actively addressing the increasing concern on the spread of healthcare-associated infections (HAIs). The current study measures the knowledge, intentions and beliefs of third-year Australian nursing students on key infection prevention and control (IPC) concepts.

METHODS: A cross-sectional study of final-year undergraduate nursing students from Schools of Nursing at six Australian universities was undertaken. Students were asked to participate in an anonymous survey. The survey explored knowledge of standard precautions and transmission based precautions. In addition intentions and beliefs towards IPC were explored.

RESULTS: 349 students from six universities completed the study. 59.8% (95% CI 58.8-60.8%) of questions were answered correctly. Significantly more standard precaution questions were correctly answered than transmission-based precaution questions ($p < 0.001$). No association was found between self-reported compliance with IPC activities and gender or age. Certain infection control issues were correlated with the percentage of correctly answered transmission-based precaution questions. The participants were most likely to seek infection control information from an infection control professional.

CONCLUSION: Knowledge on transmission-based precautions was substandard. As transmission-based precautions are the foundation of IPC for serious organisms and infections, education institutions should reflect on the content and style of educational delivery on this topic.

The challenges faced in infection prevention and control practices.

Roderick A.

Aust Nurs Midwifery J. 2014 Sep, vol 22, no 3, p40.

Clinical experiences of using Biopatch: a chlorhexidine gluconate-impregnated sponge dressing. Case study 1: renal setting.

Nicholls M.

Br J Nurs. 2014, vol 23(14 Suppl):S20-1.



[Clinical experiences of using Biopatch: a chlorhexidine gluconate-impregnated sponge dressing. Case study 2: paediatric intensive care.](#)

Franklin N.

Br J Nurs. 2014, vol 23(14 Suppl):S21.

[Clinical experiences of using Biopatch: a chlorhexidine gluconate-impregnated sponge dressing. Case study 3: paediatric care.](#)

Whitton J.

Br J Nurs. 2014, vol 23 (14 Suppl):S22.

[Health care workers' knowledge and practices regarding the prevention of central venous catheter-related infection.](#)

Alkubati SA, Ahmed NT, Mohamed ON, Fayed AM, Asfour HI.

Am J Infect Control. 2014 Nov 20. pii: S0196-6553(14)01204-8. doi:

10.1016/j.ajic.2014.09.021. [Epub ahead of print]

Abstract

BACKGROUND: Central venous catheter-related infection (CVC-RI) is considered a common cause of increased morbidity, mortality, and medical care costs in intensive care units (ICUs). The objective in this descriptive study was to assess the knowledge of health care workers in ICUs about guidelines for the prevention of CVC-RI and their adherence to these guidelines in practices.

METHODS: Health care workers were assessed for their actual practices during central venous catheter (CVC) insertion and care. Then a questionnaire was distributed to the health care workers to assess their knowledge regarding the prevention of CVC-RI.

RESULTS: All the health care workers (N = 100; 40 physicians, 60 nurses) in the ICUs (levels I and III and triage) of Alexandria Main University Hospital participated in the present study. The response rate was 100%. The total percentage of correct answers of the health care workers about the guidelines for the prevention of CVC-RI was low. There was no significant difference between physicians' and nurses' knowledge regarding the total score on the questionnaire (P = .134). However, physicians had a significantly higher knowledge about the pathophysiology of CVC-RI and skin antisepsis items than nurses. There were no significant differences between the knowledge of physicians and nurses in other items except for CVC care, where nurses showed significantly higher knowledge than physicians (P = .001).

CONCLUSION: The results of the present study revealed health care worker's low knowledge regarding the prevention of CVC-RI and low compliance with the standard guidelines of CVC care. Therefore, health care workers should be periodically evaluated for their knowledge and practices regarding guidelines for the prevention of CVC-RI.



[Impact of universal disinfectant cap implementation on central line-associated bloodstream infections.](#)

Merrill KC, Sumner S, Linford L, Taylor C, Macintosh C.
Am J Infect Control. 2014 Dec, vol 42, no 12, p1274-7.

Abstract

BACKGROUND: Central line-associated bloodstream infections (CLABSIs) result in increased length of stay, cost, and patient morbidity and mortality. One CLABSI prevention method is disinfection of intravenous access points. The literature suggests that placing disinfectant caps over needleless connectors decreases CLABSI risk.

METHODS: A quasi-experimental intervention study was conducted in a >430-bed trauma I center. In addition to an existing standard central line bundle, a new intervention consisting of a luer-lock disinfectant cap with 70% alcohol was implemented in all intravenous (IV) needleless connectors on patients with peripheral and central lines. Compliance to the disinfectant cap was monitored weekly. A generalized linear model using a Poisson distribution was fit to determine if there were significant relationships between CLABSIs and disinfectant cap use. Impacts on costs were also examined.

RESULTS: The rate of CLABSI decreased following implementation of the disinfectant cap. The incidence rate ratios (.577, $P = .004$) for implementing the disinfectant caps was statistically significant, indicating that the rate of patient infections decreased by >40%. Increased compliance rates were associated with lower infection rates. Disinfectant cap use was associated with an estimated savings of almost \$300,000 per year in the hospital studied.

CONCLUSIONS: Use of a disinfectant cap on IV needleless connectors in addition to an existing standard central line bundle was associated with decreased CLABSI and costs.

[Prevention of Colonization and Infection by *Klebsiella pneumoniae* Carbapenemase-Producing Enterobacteriaceae in Long Term Acute Care Hospitals.](#)

Hayden MK, Lin MY, Lolans K, et al
Clin Infect Dis. 2014 Dec 23. pii: ciu1173. [Epub ahead of print]

Abstract

Background. *Klebsiella pneumoniae* carbapenemase-producing Enterobacteriaceae (KPC) are an increasing threat to healthcare institutions. Long-term acute care hospitals (LTACHs) have especially high prevalence of KPC. **Methods.** Using a stepped-wedge design, we tested whether a bundled intervention (screening patients for KPC rectal colonization upon admission and every other week; contact isolation and geographic separation of KPC-positive patients in ward cohorts or single rooms; bathing all patients daily with



chlorhexidine gluconate; and healthcare worker education and adherence monitoring) would reduce colonization and infection due to KPC in four LTACHs with high endemic KPC prevalence. The study was conducted between February 1, 2010-June 30, 2013; 3,894 patients were enrolled during pre-intervention (16-29 months) and 2,951 patients were enrolled during intervention (12-19 months).

RESULTS: KPC colonization prevalence was stable during pre-intervention (average, 45.8%; 95% CI 42.1-49.5%), declined early during intervention, then reached a plateau (34.3%; 95% CI 32.4%-36.2%; $p < 0.001$ for exponential decline). During intervention, KPC admission prevalence remained high (average, 20.6%, 95% CI 19.1%-22.3%). The incidence-rate of KPC colonization fell during intervention from 4 to 2 acquisitions/100 patient-weeks ($p = 0.004$ for linear decline). Compared to pre-intervention, average rates of clinical outcomes declined during intervention: KPC in any clinical culture (3.7 to 2.5/1000 patient-days, $p = 0.001$), KPC bacteremia (0.9 to 0.4/1000 patient-days, $p = 0.008$), all-cause bacteremia (11.2 to 7.6/1000 patient-days, $p = 0.006$) and blood culture contamination (4.9 to 2.3/1000 patient-days, $p = 0.03$).

CONCLUSIONS: A bundled intervention was associated with clinically important and statistically significant reductions in KPC colonization, KPC infection, all-cause bacteremia and blood culture contamination in a high-risk LTACH population.

Prospective study of incidence and predictors of peripheral intravenous catheter-induced complications.

Abolfotouh MA, Salam M, Bani-Mustafa A, White D, Balkhy HH.
Ther Clin Risk Manag. 2014 Dec, vol 8, no 10, p993-1001

Abstract

BACKGROUND: Although intravenous therapy is one of the most commonly performed procedures in hospitalized patients, it remains susceptible to infectious and non-infectious complications. Previous studies investigated peripheral intravenous catheter (PIVC) complications mainly in pediatrics, but apparently none were investigated among Saudi adult populations. The aim of this study was to assess the pattern and complications of PIVCs at King Abdulaziz Medical City (KAMC), Riyadh, Saudi Arabia.

METHODS: An observational prospective cohort study investigated PIVCs pattern and complications among adults with PIVCs, admitted to various wards at KAMC. PIVCs-related clinical outcomes (pain, phlebitis, leaking, and others) were recorded in 12-hour intervals, using the Visual Inspection Phlebitis scale. Density incidence (DI) and cumulative incidence (CI) of complications and their relative risks (RRs) were calculated. Regression analyses were applied and significance limits were set at $P < 0.05$.

RESULTS: During the study period, 359 adults were included, mounting to 842 PIVCs and 2,505 catheter days. The majority of patients, 276 (76.9%), had medical, chief admission complaints, whereas 83 (23.1%) were trauma/surgical and infectious cases. Complicated catheters were found in 141 (39.3%) patients, with 273 complications (32.4/100 catheters), in 190 complicated catheters (CI = 22.56/100 catheters and DI = 75.84/1,000 catheter days). Phlebitis ranked first among complications, 148 (CI = 17.6%), followed by pain 64 (CI = 7.6%), leaking 33 (CI = 3.9%), dislodgement 20 (CI = 2.4%), and extravasations and occlusion 4 (CI



=0.5% each). Phlebitis was predicted with female sex ($P<0.001$), insertion in fore/upper arm ($P=0.024$), and infusion of medication ($P=0.02$). Removal time for PIVCs insertion was not a significant predictor of phlebitis ($RR = 1.46$, $P=0.08$).

CONCLUSION: Incidence of complications in this study was significantly higher than rates in previous studies. Better insertion techniques may be sought to lower the incidences of PIVC complications, thus extending their onset beyond day 3. Changing catheters is recommended when clinically indicated rather than routinely post-72 hours.

Risk of healthcare associated infections in HIV positive patients.

Mitha M, Furuya EY, Larson E.

J Infect Prev. 2014 Nov 1, vol 15, no 6, p214-220.

Abstract

HIV positive patients are a high risk population due to the alteration in their immune status. Health-care associated infections (HAI) have not been well described in this population, with some risk factors reported inconsistently in the literature. The aim of this study was to describe the epidemiology as well as the underlying risk factors for HAI, specifically urinary tract infection (UTI), bloodstream infection (BSI) and respiratory tract infection (RTI). This was a retrospective cohort study conducted at an academic health system in New York City which included three hospitals over a two year period from 2006 to 2008. There were 3,877 HIV positive patient discharges in 1,911 patients. There were a total of 142 UTI, 106 BSI, and 100 RTI. The incidence rates were 4.35 for UTI, 3.16 for BSI and 2.98 for RTI. CD4 count and antiretroviral therapy were not associated with HAI. Significant predictors of UTI included urinary catheter, length of stay, female gender, steroids and trimethoprim-sulphamethoxazole (TMP-SMX); of BSI were steroids and TMP-SMX; and RTI were mechanical ventilation, steroids and TMP-SMX. Multivariable analysis indicated that TMP-SMX was significantly associated with an increased risk of infection for all three types of HAI [BSI odds ratio 2.55, 95% confidence interval (1.22-5.34); UTI odds ratio 3.1, 95% confidence interval (1.41-7.22); RTI odds ratio 5.15, 95% confidence interval (1.70-15.62)]. HIV positive patients are at significant risk for developing HAI, but the risk factors differ depending on the specific type of infection. The fact that TMP-SMX is a risk factor in these patients warrants further research as this may have significant health policy implications.

US to "rethink" Ebola infection control after nurse falls ill.

McCarthy M.

BMJ. 2014 Oct 14;349:g6240. doi: 10.1136/bmj.g6240.

©The Rotherham NHS Foundation Trust Library & Knowledge Service 2015

You are welcome to reuse and share the content of this bulletin, but please acknowledge the TRFT Library and Knowledge Service as originating source.