Factors influencing intention to obtain the HPV vaccine in Mainland China and Special Administrative Regions: A systematic review

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Abstract

Factors Influencing Intention to Obtain the HPV Vaccine in Mainland China and Special Administrative Regions: A Systematic Review

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Background: Human papillomavirus (HPV) has been known as the most important cause incidence of cervical cancer, but HPV vaccination hopefully shall help prevent it. To achieve this goal, public acceptance of HPV vaccination and active participation of target population are crucial. A systematic review was conducted to identify the factors influencing a woman's intention to have the HPV vaccine.

Methods: A comprehensive literature search was performed using the PubMed, Web of Science. Finally, 21 studies were selected. They were all cross-sectional study using in first person and going on a self-reported questionnaire. All articles were written in English.

Key Findings: The study has found that intention to get vaccinated was generally positive among women from most regions in China. The main factors preventing women from vaccination were 1) The Cost of Vaccination; 2) Safety and Efficacy Concerns to the Vaccination; 3) Lower Knowledge Level. We recommend that: 1) Partial Government Funding may help lift off a little burden from the patient's side; 2) Public Medical Education is significant in promote the HPV-relevant knowledge; 3) The Herd Effect can influence public whether vaccinated, hence physician must feel obliged to convince the public.

Recommendation: We have provided suggestions to tackle the mentioned factor that were stated. This include the main methods such as the effective use of microblogs to provided medical knowledge to a wider mass, using outreach program to reach the less fortunate and so on. We have also provided suggestion to tackle the quality of recommendations of the doctors and the price of the vaccination. We hope that these may be implemented in the future and that it will help to promote HPV vaccinations among women.

AMSA
England

Interventions to Prevent Nosocomial Methicillin-Resistant Staphylococcus Aureus Colonization in Hospital Inpatients: Systematic Review with Meta-Analysis.

Scientific Paper

Interventions to Prevent Nosocomial

Methicillin-Resistant *Staphylococcus Aureus*

Colonization in Hospital Inpatients:

Systematic Review with Meta-Analysis.

Brezovjakova H., Lim, S. M. L., Ng, C. Y. L., Yang, V. X., Hong, S.-B., Kim, W.-C., Han, S., Shrewsbury, J., Lazzari, L.

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In-text references word count: 646

ABSTRACT

Background: Methicillin-resistant *Staphylococcus aureus* (MRSA) still represents one of the commonest hospital-acquired organisms. MRSA infection poses a significant challenge in clinical setting by increasing recovery time, worsening patient outcomes, and ultimately raising mortality. MRSA colonization is oftentimes the preventable step before patient develops MRSA infection.

Objectives: This systematic review investigates the effectiveness of different interventions aimed at decreasing the incidence rate of MRSA, determining which ones are most successful and effective on across all eligible studies.

Data sources: Ovid BNI, Ovid EMBASE, Ovid MEDLINE, *The Cochrane Library* CENTRAL, Pubmed

Study selection and methodology: Initial search identified 15,417 studies; after removal of duplicates and addition of eligible studies from included systematic reviews, titles and abstracts of 8,324 studies were screened according to our inclusion and exclusion criteria. 148 studies were retrieved for full-text screening; 45 studies were included in systematic review, 18 of which were included in the meta-analysis.

Results: According to the results of our meta-analysis, all the interventions combined were found to be effective at reducing nosocomial MRSA incidence (OR 0.59 [0.47 - 0.73]). The greatest decrease was identified with hygiene (OR 0.38 [0.28 - 0.52]), although the largest body of evidence supported bundles of interventions (0.47 [0.27 - 0.81]), followed by rapid screening (OR 0.75 [0.60 - 0.94]). Antibiotic stewardships, isolation, and decolonization did not show statistically significant difference in MRSA incidence (confidence intervals crossed 1). Surveillance was not included in meta-analysis but the studies were generally in favor of interventions.

Conclusion: The choice of intervention(s) depends on the capacity and needs of each individual healthcare facility, as some interventions can be unfitting in certain settings. Overall, introducing bundles of interventions is the safest option with high likelihood of yielding significant MRSA colonization reduction; if due to financial or other reasons, the facility cannot afford to implement more than one intervention, standard infection control measures, especially hand-hygiene program is the second best thing. For better understanding of the effectiveness and efficacy of each intervention, more randomized controlled trials need to be conducted.

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To study the effect on microbial load before and after installation of portable air purifiers in a pediatric intensive care unit in a public sector hospital in urban India

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Abstract:

Airborne microbes have always been perceived as a potential threat especially in the high-risk areas of the healthcare setting. Increased microbial load has been attributed to increased risk of air borne infections in immunosuppressed patients in these areas. This contamination by microorganisms becomes significant in special environments like Intensive Care Units (ICU) where patients admitted are often immunocompromised and hence more susceptible to acquire nosocomial infections. The microbial composition is affected by factors like the number of occupants (patients, staff and visitors), enforcement of good infection prevention practices (hand hygiene and use of appropriate personal protective equipment), facility engineering controls (adequate ventilation systems and maintenance) and infection prevention planning at times of renovation activities. In the present study, we aim to determine the baseline level of airborne microbial flora (the microbial spectrum and load) in the Paediatric Intensive Care Unit (PICU) of a public sector hospital before and after installation of incremental number of portable air purifiers in a phased manner. The results of this study highlight effects of such air purifiers on burden of airborne microbial flora in the ICU environment. This may aid in our endeavour to evolve new strategies to address the problems of infection control.

This study was conducted in the PICU of Lok Nayak Hospital, Delhi, India. Three AV-PRO-8501® units were used at their maximum speed of 600 m^3/h. The study was conducted in three phases i.e. before installation, after installation and after adding another purifier. The sampling was done using air samplers and settle plates. The percentage reduction and the log reduction in the microbial counts were calculated. The significance of the results was evaluated by paired t-test using SPSS version 21. There was a definite percentage reduction in the pathogenic organisms count recorded by both the settle plates and the air sampler after installation of the air purifier.

The present study showed that although there is a decrease in microbial load on using air purifiers but addition of third purifier in the hallway of PICU lead to a paradoxical increase. Thus when using portable purifiers, the location of such purifiers in critical to reduce microbial load. Additionally, the

study concluded that air quality monitoring using air samplers is a more sensitive method than the conventional settle plate method.

Exploring the Relation Between Pulmonary Tuberculosis Patients' Knowledge and Perception Towards Treatment Compliance in Indonesia: A Multi-Center Study

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Abstract

Background: Tuberculosis (TB) is a major health problem in Indonesia as the nation's fifth leading cause of death. This is exacerbated by the emergence of multidrug-resistant (MDR) and extensively drug-resistant (XDR) TB, whose prevalence in Indonesia is high, with 6.800 new cases recorded annually. Patients' poor compliance towards treatment, in addition to hampering the success of therapy, also increases the likelihood of MDR-TB emergence. As the world's fourth most populous country, failure to control TB incidence will considerably impact the global effort in eradicating TB. Studies have identified several causes of poor compliance among patients, including: (1) false belief that they are cured; and (2) apprehension towards the adverse effects of treatment, both of which are strongly influenced by patients' knowledge and perception of their disease. To date, no nation-wide study in Indonesia has evaluated this association. Thus, this study aims to describe the influence of patient's knowledge and perception of TB disease towards their compliance to treatment among pulmonary TB patients in Indonesia.

Methods: A cross-sectional, questionnaire-based study was done across 15 cities in Indonesia between April to May 2018, involving 104 patients. Information regarding patients' knowledge and perception towards TB was collected with a questionnaire comprising both open-ended and yes/no questions. Collected data was then analyzed with SPSS version 23.

Results: Knowledge level was better in subjects with better compliance (adjusted $p<0.05$), while there was no significant association between perception and treatment compliance ($p>0.05$). Subjects with better perception also exhibited better knowledge level ($p<0.05$). *Conclusion*: Patient with better knowledge level exhibit better compliance and perception towards tuberculosis.

Keywords: '*Tuberculosis', 'Compliance', 'Anti-Tuberculosis, 'Knowledge, and 'Perception*

AMSA
Japan

Laparoscopic Surgery as an Alternative for Controlling Surgical Site Infection (SSI): A Systematic Review and Meta-analysis

Scientific Paper

Laparoscopic Surgery as an Alternative for Controlling Surgical Site Infection (SSI): A Systematic Review and Meta-analysis

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ABSTRACT

Surgical site infection (SSI) is considered the most common healthcare associated infection (HAI) among inpatients in acute care hospitals around the world. It increases healthcare costs, frequency of reoperation, and postoperative hospital length of stay. There are many risk factors of SSI, but one of the significant risk factor is the operative approach: traditional open surgery or laparoscopic assisted surgery. Our meta-analysis study collected and discussed about the use of laparoscopic approach applied to colon surgery. The literatures were searched using words, "Surgical site infection", "colon surgery" and "Laparoscopy". 48 articles were firstly picked up after screening by title and abstract. All of the 48 articles were then screened by the criteria of this study: 12 articles were finally included, and extracted the data for analysis. Risk ratios of SSI treated with laparoscopic surgery versus open surgery for each study were then calculated. Statistical analysis was completed in R (version 3.2.3) with methods in the metafor and rmeta R Package.

Among a total of 110,887 patients who underwent colon surgery, 13,378 (12.1%) presented with SSI. Of all patients, 56.9% s had open surgery (N=61,987), while 44.1% underwent laparoscopy (N=9,467). SSI occurrence for these patients was 15.3% and 8.0% respectively. A pool analysis of both treatment modalities allowed a random-effect model of all patients to be generated. The calculated SSI OR for patients treated with laparoscopy was 0.55 (95% CI 0.42-0.72), with heterogeneous results among the studies (p<0.05; Q=50.17; I2=0.86).

Therefore, the lower rate of SSI in laparoscopic surgery was statistically significant compared to open surgery. The use of laparoscopic approach in colon surgery is strongly recommended as one potential way to reduce SSI occurrences.

Keywords: Surgical site infection, Open surgery, Laparoscopic surgery

Knowledge and practice of intensive care nurses on prevention of ventilator associated pneumonia

AMSA Mongolia

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Abstract

Ventilator-associated pneumonia (VAP) continues to be a common and potentially fatal complication of patient and often encountered within intensive care units (ICUs). Ventilated and intubated patients present critical care nurses the unique challenge to incorporate evidence-based practices surrounding the delivery of high-quality care. Bundled practices approach is composed of individual preventive measures for preventing the incidence. The aim of this study is to assess the critical care nurses' knowledge. A descriptive exploratory study design was utilized. A sample of convenience of 49 critical care nurses was recruited from different critical care units in Mongolia for this study. Data were collected between April and May 2018. The questionnaire consisted of two main parts. First part is a socio demographic characteristic of the nurses includes that name, gender, years of experience and hospital. The second part consisted of 12 items regarding knowledge of VAP prevention distributed on two section. Then, direct observation of nurses who provided nursing care to mechanically ventilated patients was carried out utilizing VAP bundle compliance checklist that consisted of ventilator bundled practices for preventing VAP. The main bundle items were hand washing care, endotracheal suctioning care, and oral care. The results of 12 items questionnaire revealed inadequate knowledge scores 31 (63.3%) and most of the nurses were unsatisfactory with ventilator associated pneumonia bundle practices 16 (33.3%). The findings of the study recommended the need for developing and implementing a protocol for VAP prevention in ICUs. Moreover, there is also a need for training programs for nurses on infection control and VAP bundle preventive measures to lessen the prevalence of ventilator associated pneumonia.

Key Words: knowledge, prevention, ventilator associated pneumonia (VAP)

A Meta-Analysis on the Risk Factors Associated with Multidrug-resistant Tuberculosis (MDR-TB) in Southeast Asia

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The emergence of multidrug resistant tuberculosis (MDR-TB) poses a new challenge in the existing problem of tuberculosis in developing countries such as the Philippines. Culture sensitivity testing for *Mycobacterium tuberculosis* (MTB CS), and GeneXpert MTB/RIF assay, which are the gold standards for the detection of MDR-TB, are expensive methods that entail a high out-of-pocket (OOP) expenditure. Hence, this study aims to determine the risk factors associated with the development of MDR-TB in Southeast Asia to establish a determinant and an additional basis for the assessment of the need of culture sensitivity testing in patients with pulmonary tuberculosis. A systematic review and meta-analysis of eleven studies on the risk factors for MDR-TB in Southeast Asia gathered from different journal databases was conducted. The selection of risk factors to be tested were those that were common in at least two studies. A total of fourteen factors were chosen, and eight out of these fourteen factors, namely treatment non-compliance (OR=6.20 95% CI: 2.75, 13.98), previous history of TB treatment (OR=4.25, 95% CI 2.97-6.08), cavity in chest X-ray (OR = 4.65, 95% CI 3.07-7.05), AFB smear (OR = 1.90, 95% CI: 1.24, 2.91), HIV status (OR=1.89, 95% CI: 1.24, 2.89), age belonging to the younger age group (OR = 2.06, 95% CI: 1.37-3.09), marital status belonging to the single subgroup (OR = 0.41, 95% CI: 0.21, 0.81), and alcohol consumption (OR = 1.80, 95% CI: 1.13, 2.86), were significantly associated with the development of MDR-TB. The presence of risk factors to develop MDR-TB will make laboratory work-ups, specifically MTB CS and GeneXpert MTB/RIF assay, more reasonable for economically challenged countries.

Research and Analysis on Current Status of Infection Control in Korea and Finding Possible Solutions to Undergoing Problems

Authors

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Abstract

Infection control is a method of preventing the spread of infectious diseases within healthcare facilities. Efficient management of the infection control system allows for quick responses to communicable diseases. However, due to the dispersion of roles in the infectious disease management system, as well as its inefficient structure, South Korea was unable to appropriately respond to the MERS epidemic. Furthermore, owing to the lack of professionals and equipment needed for the management of infectious diseases, the proximity of different facilities within hospitals, the prevalence of large multi-bed inpatient rooms, the overcrowdedness of emergency departments and other factors, the vulnerability to infections within hospitals was inevitable. Thus, it is necessary to increase efficiency by reinforcing infection control organisations and elevating the authority of Korean Centres for Disease Control and Prevention (KCDC). Moreover, it is necessary to create a hospital structure what allows for separate examination of suspected or confirmed patients, and to prevent the spread of infectious diseases through efficient regulation of emergency departments. In addition, by gathering information on new infectious diseases occurring abroad through the establishment of international cooperation network and the expansion of research, and by cooperating with relevant foreign government, infection control will become more efficient and effective. In this study, we did a research on the current status of infection control in Korea and analysed it. By doing so, we came up with possible solutions to the problems that were overlooked. We hope that the outcome of our study can contribute to the medical field in a way that people can use it as new helpful reference to solve problems regarding infection control.

Application of Big Data and Artificial Intelligent on Infectious Disease Control
— An Example of Rabies Outbreak in Taiwan

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Abstract

Rabies has been an important issue in zoonoses in past decade, especially after an event of outbreak of rabies occurred in Taiwan. Before that, rabies thought to have been extinct for 52 years. We must start to warrant how important the prevention and treatment of rabies. Therefore, the construction of "three-dimension rabies virus evolution map" is the main purpose of this experiment. We can understand how the disease spread, and then develop and apply to the prevention and treatment of major zoonotic diseases with the help of 3D evolution map.

We choose to simulate the critical step *in silico* of how rabies virus infects a host---the binding of G protein and acetylcholine receptor. Later, we ensure the rationality of the docking simulation progress by testing it with various ways. Next we compared the homology similarity between TW1614 and other rabies virus strains from worldwide by BLAST server. The results were organized and constructed a pathogenicity assessment evolution map (including time and estimated pathogenicity). With the help of the pathogenicity assessment of different regions and time points on the 3D rabies virus evolution map, we can infer the severity of rabies and their relative locations.

As a result, we confirmed that the binding pose simulated by 3D docking and the pathogenicity assessment (binding score) can be used to determine the pathogenicity. We also confirmed that the rabies virus in Taiwan has evolved separately from China. The pathogenicity of Taiwan rabies virus strain is lower than other China rabies virus strains and this may be the critical reason why rabies virus can lurk in Taiwan for so long and didn't spread. To combine this technique with "big data" and artificial intelligence and make a difference at insufficient- medical-resource areas, we headed back and examine the simulation progress and try to clarify which steps are worth improving, including the original G protein can be used for simulation, mammal's or human's AChR can be used as experimental materials and various technical limitations can be overcome.

Effectiveness of a Motion Sensor Device to Improve Hand Hygiene Compliance, an Innovation Invented by Medical Students

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Abstract

Background

Hand hygiene is one of the most important means to prevent healthcare-associated infections. Global efforts have been made to improve hand hygiene in healthcare. However, hand hygiene compliance remains low.

Objective

To assess the impacts of a motion sensor device in improving hand hygiene compliance

Methods

A controlled before and after study was conducted during April-May 2018 in 2 medical ICUs of a tertiary care hospital in Bangkok, Thailand. One ICU was assigned to a motion sensor device intervention, another is assigned to hand hygiene day intervention. Hand hygiene compliance was determined pre- and post-intervention through direct observation using surveillance cameras. Descriptive statistics and student's t-test analysis was performed to identify significant difference between the two groups.

Results

A total of 2692 opportunities of hand hygiene were observed. After the intervention, higher compliance rates were achieved. Hand hygiene compliance increased significantly ($p<0.01$) from 15.9% to 29.1% in the motion sensor device intervention group, compared with a slight increment from 13.3% to 16.8% in the hand hygiene day intervention group.

Conclusions

The motion sensor device intervention improved hand hygiene compliance significantly, compared to hand hygiene day intervention. However, additional interventions are needed to enhance the results. Long-term evaluation and further work on interactive interventions to improve hand hygiene may prove valuable.