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A Qualitative Study of Hospitals Decision-Makers Regarding Infection Prevention Control

Ayad A. Rashid[1]*, Samir M. Othman[2]

[1]*M.Sc. community health nursing. General directorate of health Erbil/Ministry of health Kurdistan/Iraq*
EM: ayadabdulla1999@gmail.com
[2]*(PhD) Community health medicine, Department of Community Medicine, College of Medicine, Hawler Medical University, Erbil- Iraq.*

*Corresponding author: Ayad A. Rashid (ayadabdulla1999@gmail.com)

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Abstract

Background: Establish defined IPC priorities, evidence-based standards, and a framework for local adaptation so important to infection control program. Guidelines can lead to desired IPC outcomes and quality improvement if they are successfully linked to education and training when implemented and monitored. Aim: To identify areas in which existing practices, infection control guidelines and instruction resources are generally satisfactory and where there are issues that should be addressed with new policies or programs. Methods: A Quantitative study design using purposive non-probability sampling methods was carried out to assess the hospital's infection control program among decision makers in Erbil teaching hospitals. The study was carried out from 1st June 2021 through 31st December 2021. Data collected by direct interview with eleven managers, assistant managers and heads of infection control units in hospitals. Results: We inferred from 11 interviews in 11 teaching hospitals that there was variation between hospitals in practices regarding infection prevention control practice and guidelines. Most participants mentioned that establishing an infection control committee and infection control guidelines available in the hospitals. Few hospitals had isolation rooms for patients who were suspected due to communicable diseases. Less than half of participants agreed that backup strategies like alternative laboratory services considered. A majority of hospitals had agreed that the incineration of sharps wasn't available in the hospital. Less than half of study participants showed that there is an availability of computerized resources for the activities developed by the hospital infection control. Nearly more than half of the study participants showed that they had regular reports of the results of the epidemiological surveillance produced. Conclusions: There is a wide difference in teaching hospitals in Erbil city. However, efforts to improve care in this setting should focus on generating new effectiveness research and WHO guideline's, which is necessary to understand infection prevention and control practices are associated with the lowest infection risk among patients and health staff.

Keywords
Infection control; Guidelines; Teaching hospitals;

The Infection Prevention and Control (IPC) Assessment Framework (IPCAF) is a tool to help acute healthcare facilities execute WHO Guidelines on fundamental components of IPC programs (WHO, 2020). Before using this tool, the user should familiarize himself or herself with the contents of these guidelines, including the interim practical manual supporting the implementation of the IPC core components at the facility level (Edwan, 2020). The IPCAF is a systematic instrument that can give a baseline assessment of an IPC program and its activities at a healthcare facility, as well as continuing evaluations through repeated delivery to track progress and support improvement (PHE, 2020). The framework's purpose is to examine your facility's current IPC situation, that is, existing IPC activities/resources, and identify strengths and deficiencies that can be used to influence plans. It can be used as a diagnostic tool to help facilities identify pertinent issues or flaws that need to be addressed, as well as areas where they can satisfy international standards and criteria. The effectiveness of the IPCAF as self-assessment hinges on it being completed objectively and as accurately as feasible. Existing strengths and accomplishments can be used to boost confidence and persuade decision-makers that success and development are feasible. Recognizing gaps honestly will help to build a sense of urgency for the necessary changes to improve IPC. As a result, it's critical to figure out the right answer (CDC, 2019). The interim practical manual for the implementation of the IPC core components at the facility level, among other resources, can be utilized to construct an action plan based on these findings to reinforce existing measures and encourage facilities to step up their efforts where they are needed. Facilities can track their progress over time by completing it regularly such as: Preparing for success, reference line evaluation, developing and implementing an action plan, assessing impact and long-term program sustainability (WHO, 2018).

Aim of the study

To identify areas in which existing practices, infection control guidelines and instruction resources are generally satisfactory and where there are issues that should be addressed with new policies or program

Subjects and Methods

Research design

A Quantitative study design using purposive non-probability sampling methods and was carried out to assess the hospital's infection control program was used a direct interview with the managers, assistant managers and heads of infection control units in hospitals.

Setting of the study teaching hospitals in Erbil City ((Rizgary, Maternity, Raparin, Emergency, Surgical Specialty Hospitals, Psychiatric hospital, Roshhalt Hospital, Roshawa Hospital, Nanakali Hospital, Central emergence Erbil Hospital, and Jemhori teaching Hospital).Time of the study was carried out from 1st June 2021 through 31st December 2021. Inclusion criteria were the manager, assistant managers and head of the infection control unit. Exclusion criteria were non-teaching hospitals and health staffs. Distribution of samples by hospitals was eleven managers, assistant managers and the head of the infection control unit were included in the study for assessment and improvement of the infection control program in teaching Hospitals of Erbil City. The tools, instruments and methods of data collection were a modified questionnaire designed by the WHO Western Pacific Regional adopted for data collection. Verbal and written informed consent were obtained from each participant after explaining the purpose, benefits of the study and participants were assured of no risks, and how the information would be used to improve infection prevention practices. A semi-structured interview guide was used to moderate the discussions. A questionnaire was developed after an extensive review of relevant literature, which consisted of

validity the questionnaire, has been validated by a panel of three experts in the specialty of community medicine to investigate the content of the questionnaire for clarity, relevancy and adequacy. A copy of the questionnaire was referred to each expert. The result indicated that the common of the experts agreed upon the items of the study with few comments and suggestions which were all taken into attention. Modifications were employed and the final draft of the instrument was completed to be suitable for conducting the study. Statistical data analysis and management, every interview was verbatim recorded on audio, then transcribed. When there was no longer any fresh data or topics emerging from the interviews, the data had achieved saturation. All transcripts were imported into Microsoft Excel for data analysis. The results drawn from this study were informed by thematic analysis. After familiarizing the data, the lead researcher reviewed and reread the transcribed data in order to discover emergent key themes that were then utilized to pinpoint supporting themes for in-depth descriptions of experiences. The code was completed by indexing each theme's existence and choosing certain quotes to support subthemes. The data have been coded, entered and analyzed by using Statistical Package for Social Sciences (SPSS, version 26) for socio demographical data. After collecting data, the researcher analyzed using descriptive statistics like frequencies and mean. The researcher was interviewed by relevant counterparts (ICPs) in hospitals to explain the specific objectives of the assessment, gain their understanding and approval, and provide them with a copy of the assessment tool for their reference. Data was collected through face-to-face interviews and open discussions.Modified questionnaire used for this purpose was based on the world health organization infection prevention and control: guidance to action tools (WHO, 2021). Scope and limit to the research was before designing a strategy for the implementation of the IPC program, the opinions of the healthcare professionals are sightseen, since these opinions influence the implementation of the IPC program either directly or indirectly by making the uncomplimentary environment of the nonexistence of support from peers and seniors. Administrative arrangement for this study, written of official permission was obtained from the scientific committee/College of Medicine/Hawler Medical University. The data collection and permission to conduct this study have been secured from the General Directorate of health -Erbil, June 2021.

Results

Socio demographic data

Out of the total sample of 11 individuals, 7 (63.6%) were males, and 4 (36.4%) were females. The majority (90.9%) of the study sample were married, and less than half (45.5%) were managers and manager of infection control unites (45.5%). The highest percentage, (81.8%) of the employment group, was >10 years, and the. The majority of health staff qualifications were master degree (45.5%). The attendance rate to symposia regarding infection control among study participants was (81.8%). Regarding hepatitis B vaccinations, this study showed that 9 (81.8%) had of participants had been vaccinated. Out of the total vaccinated participants, 118 (9.8%) have received complete vaccination two doses. On the other hand, this study showed 11 (100%) had a history of vaccination against covid19 infection, 11 (100%) have received two vaccination doses. 8 (72.7%) had a vaccination history against influenza infection in the last three years.

Part -1-Sociodemographic data	No.	(%)
Gender		
Male	7	(63.6)
Female	4	(36.4)
Marital status		
Single	1	(9.1)
Married	10	(90.9)
Divorced	0	(0.0)

Widowed	0	(0.0)
Occupation		
Manager	5	(45.5)
Assistant manager	1	(9.1)
Manager of infection control	5	(45.5)
Years of employment		
1-5 Years	**2**	**(18.2)**
>10 Years	9	(81.8)
Qualification		
High Diploma	3	(27.3)
Bachelor	**3**	**(27.3)**
M.Sc.	5	(45.5)
Attended symposia regarding infection control		
Yes	9	(81.8)
No	2	(18.2)
Attending training regarding infection control		
Yes	6	(54.5)
No	5	(45.5)
Received hepatitis vaccine		
Yes	9	(81.8)
No	2	(18.2)
Doses of hepatitis vaccine		
Zero dose	2	(18.2)
Two	9	(81.8)
Received covid19 vaccine		
Yes	11	(100)
No	0	(0.0)
Doses covid19 vaccine		
One	11	(100)
Two	11	(100)
Received influenzas vaccine last three years		
Yes	8	(72.7)
No	3	(27.3)
Total	**11**	**(100.0)**

Part -2- Infection control program in hospital

Theme.1. Organization of Infection Control

1.1. Most participants mentioned that establishing an infection control committee and IC guidelines available in the hospitals

"There was established an infection control committee and appointed an infection control team and we have practical guidelines for infection control in healthcare from general directorate of Erbil health and I support the work of these existing committees and IC guidelines available in our hospital. But it remains for health workers to follow up and work on implementing the instructions, while some time the application is not implemented"(I9M45Y)

1.2. Most of the study participants expressed that, Infection Control team consisting of doctors, pharmacists and nurses, received monthly reports from the infection control team, and Training was repeated to the health staff:

"I'm receiving monthly report from infection control team and Give my opinion on the reports in the notes. Training repeated according the order of the infection committee and general directorate of Erbil health if any new program or guidelines improve."(I5M48Y)

Theme.2. Clinical specialty

2.1. Less than half hospitals had isolation rooms for patients who were suspected due to communicable diseases, especially Covid-19 disease and TB

"We have isolation room in Hospital for patients who suspected due to communicable diseases, especially Covid-19 disease and TB" (I9M45Y)

2.2. Less than half hospitals had a fever ward/clinic in Hospital

"We have a fever ward/clinic in Hospital" (I5M48Y)

2.3. More than half hospitals had microbiological laboratory support (either present on or off-site) for routine day-to-day use.

"Our facility have microbiological laboratory support (either present on or off site) for routine day-to-day use and they do a great job with no raises to their salary" (I5M48Y)

Theme.3. Epidemic preparedness

3.1. The majority of hospitals had an epidemic contingency plan in place.

"We have an epidemic contingency plan in place in coordination with the directorate of Erbil health" (I5M48Y)

3.2. More than half of hospitals were made training for HCWs: Preparedness for infection and Diseases emergencies.

"We have training for HCWs: Preparedness for infection and diseases emergencies which provided and supported by directorate of Erbil health and international agencies like WHO" (I11M39Y)

Theme.4. Clinical management (Standard Operating Procedures)

4.1. A majority of the study sample had a clinical management plan for infectious patients in place and implements the guidelines of the ministry of health and WHO adapted according to the local needs and resources while maintaining key

infection prevention control standards.

"The hospital has a clinical management plan for infectious patients in place with support of directorate of Erbil health. And we improved implementation of the guidelines of ministry of health and WHO adapted according to the local needs and resources while maintaining key infection prevention control standards" (I11M39Y)

Theme.5. General Infection Control practices

5.1. Most hospitals had Soap found in the units of a hospital

"Soap found in the unites of a hospital"(I11M39Y)

5.2. More than half had sinks per bed found [Hand washing basin placement ratios]

"We have the sinks per beds found [Hand washing basin placement ratios]

But four of hospitals hadn't the sinks per beds found [Hand washing basin placement ratios] because the shape of our hospital vary old and the number of patient increased from the past and there's need to support from health directorate we haven't new design to cover and the sinks per beds found [Hand washing basin placement ratios]" (I4F40Y)

5.3. A majority of the study sample hadn't Alcoholic hand rubs is found per bed and the Ratio of alcoholic hand rubs per bed covers the needs of patients and health care staff for the disinfection process.

"We haven't alcoholic hand rubs to cover per beds and to cover the Ratio of alcoholic hand rubs per beds and not cover the needs of patients and health care staff for disinfection process because we recive little amount of alcohol from general storage." (I3M36Y)

Theme.6. General waste management

6.1. The majority of participants agreed that the definition of infectious waste: Infectious Waste- means those solid wastes which may cause human disease and may reasonably be suspected of harbouring human pathogenic organisms or may pose a substantial threat or potential hazard to human health.

While one participant did not know the definition of infectious waste

"Because I didn't participate in infectious waste management and not read for this branch I haven't know this definition" (I7M41Y)

6.2. More than three quarters agreed that they had medical waste management in the hospital

Theme.7. Surveillance of healthcare-associated infections

7.1. Less than half of the study sample had a surveillance system for hospital-acquired infections in place

"The hospital has a surveillance system for hospital-acquired infections in place in this activity done by the infection control team." (I9M45Y)

7.2. More than half of study participants mentioned that they had professionals responsible for surveillance activities been trained in basic epidemiology, surveillance and IPC and they use standardized data collection methods (for example, active prospective surveillance) according to international surveillance protocols (for example, CDC NHSN/ECDC) or if adapted, through an evidence-based adaptation process and expert consultation.

"We have the professionals responsible for surveillance activities been trained in basic epidemiology, surveillance and IPC supported by ministry of health and we use standardized data collection methods (for example, active prospective surveillance) according to international surveillance protocols (for example, CDC NHSN/ECDC) or if adapted, through an evidence-based adaptation process and expert consultation and this process coordinate with ministry of health guidelines" (I9M45Y)

Theme.8. the hospital facility is surveillance conducted for:

8.1. The majority of participants mentioned that: hospital facility is surveillance conducted for Surgical site infections, hospital facility is surveillance conducted for Device-associated infections (for example, catheter-associated urinary tract infections, central line-associated bloodstream infections, peripheral-line associated

bloodstream infections, ventilator-associated pneumonia), and hospital facility is surveillance conducted for Ante-room for changing and storage of supplies.

"our hospital facility is surveillance conducted for Surgical site infections and I see the surveillance every week , our hospital facility is surveillance conducted for Device-associated infections (for example, catheter-associated urinary tract infections, central line-associated bloodstream infections, peripheral-line associated bloodstream infections, ventilator-associated pneumonia) which it vary important, our hospital facility is surveillance conducted for Ante-room for changing and storage of supplies" (I11M39Y)

8.2. More than half of the study sample agreed that hospital facility surveillance is conducted for Clinically-defined infections (for example, definitions based only on clinical signs or symptoms in the absence of microbiological testing).and hospital facility is surveillance conducted for Colonization or infections caused by multidrug-resistant13 pathogens according to the local epidemiological situation.

"Our hospital is surveillance conducted for Clinically-defined infections (for example, definitions based only on clinical signs or symptoms in the absence of microbiological testing) for example TB and our hospital facility is surveillance conducted for Colonization or infections caused by multidrug-resistant13 pathogens according to our local epidemiological situation" (I5M48Y)

Theme.9. Isolation of infectious patients

9.1. More than half of study participants revealed that the hospital supports the Drills/test runs for managing isolated infectious cases conducted Including training with PPE and the hospital has Single isolation rooms available approximately 5 rooms.

"Our hospital facility support the Drills/test runs for managing isolated infectious cases conducted which including training with PPE and in our hospital have Single isolation rooms available approximately 5 rooms" (I9M45Y)

9.2. A majority of study participants stated that the hospital had Ante-room for changing and storage of supplies, Dedicated patient care equipment for patients in isolation, and centralized air conditioning found.

"In our hospital have Ante-room for changing and storage of supplies and storage of supplies, dedicated patient care equipment for patients in isolation, and centralized air conditioning found" (I11M39Y)

9.3. Seven of the study participants mentioned that they hadn't Toilet/bathing facilities for every single room and cohort room.

"In our hospital have Toilet/bathing facilities for each single room and cohort room" (I7M41Y)

Theme-10- Assessment indicator of the technical-operational structure of the hospital infection control program applied in hospitals

10.1. Less than half of the study participants mentioned that the hospital Infection Control Committee is found and represented by, at least, members of the administration, nursing, and medical services.

"Our hospital Infection Control Committee is found and represented by, at least, members of the administration, nursing, and medical services" (I2M39Y)

10.2. More than half of the study participants stated that there is a statute determining the operation of the Hospital Infection Control Committee and/or hospital infection control services.

"There is a statute determining the operation of the Hospital infection control committee and/or hospital infection control services" (I2M39Y)

Theme.11. Assessment indicator of the operational guidelines for prevention and control of hospital infections applied in hospitals

11.1 A majority of study participants showed that the hospital there is a recommendation for assessment and referral of accidents with sharp objects and other cases of exposure to biological material.

"In our hospital there is a recommendation for assessment and referral of accidents with sharp objects and other cases of exposure to biological

material." (I2M39Y)

11.2. Nearly three quarters of study participants showed that there is there are recommendations for the disposal of health care waste.

"There is There are recommendations for the disposal of health care waste." (I11M39Y)

11.3. More than half of the study participants showed that there are recommendations for respiratory infection control and prevention.

"There are recommendations for respiratory infection control and prevention." (I3M36Y)

Theme.12. Assessment indicator of the hospital infection epidemiological surveillance system applied in hospitals

12.1. Half of the study participants showed that they had epidemiological surveillance (global or per component) conducted at determined intervals of periods of times at last one month and Hospital infection epidemiological surveillance is conducted through the active search of cases

"We have Epidemiological surveillance (global or per component) is conducted at determined intervals of periods of times at last one month. And Hospital infection epidemiological surveillance is conducted through active search of cases" (I11M39Y)

12.2. More than half of the study participants showed that they had an Active search of Hospital infection cases conducted in higher-risk units (ICU, nursery, burn units, etc.). The reports correlate results with adopted control and prevention strategies (intervention) and the reports are regularly made available to the concerning public bodies (managers).

"Active search of hospital infection cases is conducted in higher risk units (ICU, nursery, burn units, etc.). The reports correlate results with adopted control and prevention strategies (intervention) and the reports are regularly made available to the concerning public bodies (managers)." (I5M48Y)

Discussion

Theme.1. Organization of Infection Control

Most of participants mentioned that establishing an infection control committee and IC guidelines available in the hospitals and most of them expressed that, infection control team consisting of doctors, pharmacists and nurses, and most of them mentioned that they received monthly reports from the infection control team, and training was repeated to the health staff. This finding is in agreement with several worldwide studies carried out in Ankara(Giroti et al., 2018), in Nigeria (Brisibe et al., 2014), and in Brazil (Giroti et al., 2018)

Theme.2. Clinical specialty

Less than half of hospitals had isolation rooms for patients who were suspected to have communicable diseases, especially Covid-19 disease and Tuberculosis. Also, less than half of hospitals had a fever ward/clinic in Hospital. Additionally more than half of hospitals had microbiological laboratory support (either present on or off-site) for routine day-to-day use. This finding in collaborate with the finding of studies done in china (Zhou et al., 2014), in South Africa (Dramowski et al., 2016), in Uganda (Okwii, 2017), in the UK(Charani et al., 2013).

Theme.3. Epidemic preparedness

The majority of hospitals had an epidemic contingency plan in place; however, more than half of hospitals were made training for HCWs: Preparedness for infection and diseases emergencies and less than half of participants agreed that backup strategies like alternative laboratory services were considered. This finding is nearly similar to that reported in Malaysia(Azlan et al., 2020), in North-Western Nigeria(Iliyasu et al., 2016), in Egypt(Abdel Wahed et al., 2020), and UK(Charani et al., 2013).

Theme.4. Clinical management (Standard Operating Procedures)

A majority of the study sample had a clinical management plan for infectious patients in place and implements the guidelines of the ministry of health and WHO, adapted according to the local needs and resources while maintaining key infection prevention control standards. This finding is in

agreement with a study carried out in Ankara(Giroti et al., 2018).

Theme.5. General Infection Control Practices

Most hospitals had Soap found in the units of a hospital and had sinks per bed found [Hand washing basin placement ratios], beside that a majority of the study sample hadn't alcoholic hand rubs found per bed and the ratio of alcoholic hand rubs per bed covers the needs of patients and health care staff for the disinfection process. This finding is in agreement with different studies in the world; in UK(Charani et al., 2013), in Malaysia(Azlan et al., 2020), in Egypt (Abdel Wahed et al., 2020), in Iran (Goodarzi et al., 2020) and in Iran (Soleimani et al., 2021).

Theme.6. General waste management

The majority of participants agreed on the definition of infectious waste: ‘’Infectious waste-means those solid wastes which may cause human disease and may reasonably be suspected of harboring human pathogenic organisms or may pose a substantial threat or potential hazard to human health’’. On the other hand more than three-quarters agreed that they had medical waste management in the hospital, the majority of the sample study agreed that they hadn't incineration for waste management. This finding is similar to different studies in the worldwide; Karnataka, in Ethiopia (Hussein et al., 2017), in Ethiopia **(Desta et al., 2018), in India (Lobo et al., 2019), in Pakistan (Riasat et al., 2019), in the UK(Charani et al., 2013), in Ethiopia (Bayleyegn et al., 2021) and in Egypt (Abdel Wahed et al., 2020).**

Theme.7. Surveillance of healthcare-associated infections

Less than half of the study sample had a surveillance system for hospital-acquired infections in place, while more than half of the study participants mentioned that they had professionals responsible for surveillance activities been trained in basic epidemiology, surveillance and IPC and they use standardized data collection methods (for example, active prospective surveillance) according to international surveillance protocols (for example, CDC NHSN/ECDC).This finding collaborates with several studies done in worldwide, a systematic review (Van Mourik et al., 2015), in India (Swaminathan et al., 2017), and in England (Ciccolini et al., 2014).

Theme.8. the hospital facility is surveillance conducted for:

8.1. The majority of participants mentioned that: hospital facility is surveillance conducted for surgical site infections, hospital facility is surveillance conducted for device-associated infections. This finding in collaborate with summary of data reported to the national healthcare safety network, 2015–2017(Weiner-Lastinger et al., 2020) and in china (Chen et al., 2017)

Theme.9. Isolation of infectious patients

9.1. More than half of the study participants revealed that the hospital supports the Drills/test runs for managing isolated infectious cases conducted including training with PPE and the hospital has single isolation rooms available approximately 5 rooms. This result is in agreement with the systematic review with meta-analysis done by (Purssell et al., 2020).

9.3. Seven of the study participants mentioned that they hadn't had Toilet/bathing facilities for every single room and cohort room.

Theme.10. Assessment indicator of the technical-operational structure of the hospital infection control program applied in hospitals

10.1. Less than half of the study participants mentioned that the hospital Infection Control Committee is found and represented by, at least, members of the administration, nursing, and medical services. This finding collaborates with several studies done in worldwide, in Brazil

(Giroti et al., 2018), in Nepal (Paudel et al., 2021), and in Sudan (Ali, 2021).

Theme.11. Assessment indicator of the operational guidelines for prevention and control of hospital infections applied in hospitals

11.1 A majority of study participants showed that in the hospital there is a recommendation for assessment and referral of accidents with sharp objects and other cases of exposure to biological material. This finding is in agreement with several studies done in worldwide, in Bangladesh (Zaman et al., 2021), in Iraq (Thamer and AlRmadhan, 2021), and in Iran (Soleimani et al., 2021)

11.2. Nearly three-quarters of study participants showed that there are recommendations for the disposal of healthcare waste. This study in collaboration with studies, in Nigeria(Oyekale and Oyekale, 2017), Bangladesh (Chowdhury et al., 2022), and in Botswana (Mmereki et al., 2017)

Theme.12. Assessment indicator of the hospital infection epidemiological surveillance system applied in hospitals

The cornerstone of any prevention and control measures is epidemiological surveillance. Surveillance is "the ongoing systematic collection, analysis, interpretation and dissemination of data regarding a health-related event; for doing actions". Surveillance is a critical part of public health practice. Real-time analyses of epidemiological data are urgently required for increasing awareness about the problem and for prompt interventions. (Ibrahim, 2020)

12.1. Half of the study participants showed that they had epidemiological surveillance (global or per component) conducted at determined intervals of periods at last month and Hospital infection epidemiological surveillance is conducted through the active search of cases. This finding has collaborated with several studies done in worldwide in china (Chen et al., 2017) in England (Ciccolini et al., 2014), and in India (Swaminathan et al., 2017).

12.2. More than half of the study participants showed that they had an active search of hospital infection cases conducted in higher-risk units (ICU, nursery, burn units, etc.). The reports correlate results with adopted control and prevention strategies (intervention) and the reports are regularly made available to the concerned public bodies (managers). This finding is coincide with several studies done in worldwide in Sudan(Ali, 2021), and in Chinese(Chen et al., 2017).

Conclusion

There is wide difference in teaching hospitals in Erbil city in regards to application of infection prevention program. Additional training of decision-making regarding understands key infection prevention and control concepts, standard guidelines and definitions. However, efforts to improve care in this setting should focus on generating new effectiveness research and WHO guideline's, which is necessary to understand infection prevention and control practices are associated with the lowest infection risk among patients and health staff. Results of those studies can better inform decision-making regarding transmission risk and appropriate practices for health staff and patients, especially in cases of colonization, cohosting and other organism containment practices.

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