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Original article

Assessment of Infection Prevention and Control Minimum Requirements for Primary Health Care Facilities, Ain Zara, Libya

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ABSTRACT

Background and aims. *Infection prevention and control (IPC) is a critical component of healthcare delivery, ensuring patient safety and reducing the transmission of healthcare-associated infections (HAIs). Primary healthcare facilities play a vital role in providing essential healthcare services to communities. Therefore, assessing the IPC practices in these settings is crucial for ensuring the provision of safe and effective care. This study aimed to assess the IPC minimum requirements for primary healthcare facilities located in Ain Zara municipality, Tripoli.* ***Methods****. A descriptive cross-sectional study was conducted on September 2023 at fourteen primary health care facilities in Ain Zara municipality. The WHO assessment tool on IPC minimum requirements for primary health care facilities was used to collect the data and analysis was done by using SPSS.* ***Results****. IPC core components score of Ain Zara primary healthcare facilities range from 10 to 22 out of 26 (38.46% -84.62%) which means inadequate level of IPC promotion and practice.* ***Conclusions****. Improvement and development of an action plan is required for Ain Zara primary healthcare facilities. Equitable attention is required on all eight components of IPC in all facilities.*

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INTRODUCTION

Infection prevention and control is an evidence-based approach implemented to ensure the safety of patients and healthcare workers by reducing the risk of acquiring and transmitting avoidable infections. It impacts every aspect of health care, including hand hygiene, injection safety, surgical site infections, antimicrobial resistance and how hospitals operate in emergency and non-emergency situations. Effective IPC is crucial to achieve maximal health care delivery and patient safety, especially in low- and middle-income countries [1]. The World health organization has estimated that approximately 10-30% of patients affected by health care associated infections [2]. At any given time, up to 7% of patients from developed and 10% from developing countries will obtain at least one health care associated infection. By implementing effective infection prevention and control measures, a significant percentage of infections can be prevented [3]. The World Health Organization has developed core components of effective IPC programs which were put in place to prevent HAI, fight antimicrobial resistance, and strengthen IPC programmes throughout different countries and health care facilities. The 8 core components at the national and facility level include (1) IPC programmes, (2) IPC guidelines, (3) IPC education and training, (4) Surveillance, (5) Multimodal strategies, (6) Monitoring/audit of IPC practices and feedback, (7) Workload, staffing and bed occupancy, (8) Built environment, materials and equipment for IPC at the facility level [4]. Adequate training and education of healthcare workers about infection prevention and control measures plays a pivotal role in improving IPC practices. Lack of understanding and compliance can contribute significantly to the spread of infections and compromise both patient and health care workers safety [5]. After extensive

research, it is evident that no sufficient studies have been carried out in Libya regarding the assessment of infection prevention and control program in primary healthcare facilities. The lack of studies covering this matter is inherently the motive behind pursuing this study. Nosocomial infections are quite prevalent in health care establishments operating in Libya and this is expected to be the case also in primary care centers specifically [6]. With a high rate of healthcare worker – Patient interaction, it is important to gauge whether IPC components are adhered to in the aforementioned health centers. This will then form the basis of further research and development in the field of Infection prevention and control. This study aimed to assess the IPC minimum requirements for primary healthcare facilities located in Ain Zara municipality, Tripoli.

METHODS

Study design and setting

A cross sectional descriptive study was conducted on September 2023 at 14 primary health care facilities in Ain Zara municipality, Tripoli, Libya. Ain Zara municipality was selected randomly which is one of the largest municipalities in Tripoli Libya.

Data collection and analysis

Interview based data collection by using the WHO infection prevention and control (IPC) core components assessment tools (IPCAT) was done. Permission was obtained from each health facility manger before the interview. The questionnaire was structured into the eight sections which reflecting the eight WHO IPC core components, covering a total of 26 indicators. Each component is divided into several indicators of IPC programmes. Every indicator has a yes/no statement. "1" is assigned if the element exists (implemented, introduced etc.), and "0" means the statement is no (i.e., the element does not exist). The 8 core components at the facility level include (1) IPC programmes, (2) IPC guidelines, (3) IPC education and training, (4) Surveillance, (5) Multimodal strategies, (6) Monitoring/audit of IPC practices and feedback, (7) Workload, staffing and bed occupancy, (8) Built environment, materials and equipment for IPC at the facility level. As these are minimum requirements, the total score will be the sum of all 'yes' responses for each core component. A total score of 26 (100%) means the primary care facility have achieved the minimum requirements for IPC. If the score is less, this means inadequate level of IPC promotion and practice (i.e IPC core components implementation is deficient) in the primary care facility and significant improvement and development of an action plan is required. The data was entered and descriptive analysis done by using SPSS V.25.

RESULTS

Preliminary findings revealed that primary healthcare facilities in Ain Zara had varying levels of IPC program implementation. While some facilities demonstrated a strong commitment to IPC practices, including the presence of written IPC policies and designated IPC focal persons, others lacked these fundamental elements.

Data regarding on total facility score of all Ain Zara primary healthcare facilities were illustrated in Table 1, IPC core components total score ranged from 10 to 22 out of 26 (38.46% -84.62%) which means inadequate level of IPC promotion and practice. Where Ain Zara 20 August primary health center (PHC) and Alabadrie Polyclinic covered the highest facility score 22 (84.62%), followed by Algargani Polyclinic, Fatema Azzahra primary health unit (PHU), Alnasb Altethkari PHC and Alsalaam PHC 21 (80.77%), Abdelmenem PHC 20 (76.92%), Emhemed Almogaraef PHC 12 (46.15%), and lastly with score 10 (38.46%) Khalet Alforjan PHC (Table 1).

This study revealed the different status of infection prevention and control according to the 8 core components in Ain Zara primary healthcare facilities were illustrated in Figure 1, an inadequate level of IPC promotion and practice shown in Khalet Alforjan PHC. This facility did not receive any scores for core components 1, 2, 3, 4 and 5. However, it got 1 out of 2 (50%) for core 6, 1 out of 3 (33.3%) for core 7 and it scored 8 out of 11 (72.73%) for core 8.

On the other hand, Ain Zara 20 AUG PHC had a high level of most IPC components. It scored 100% for core components 1, 2, 4, 5, and 6. It got 10 out of 11 (90.91%) for Core Component 8 (Figure 1).

Regarding the completed IPC core components, out of 14 Ain Zara primary healthcare facilities 6 facilities (43%) had a trained IPC link person (Core component 1), 7 facilities (50%) had a IPC guidelines (Core component 2), only 3 facilities (21%) their health care workers received education and training on IPC (Core component 3), 8 facilities (57%) detected and reported the reportable diseases and outbreaks according to national plans (Core component 4), 11 facilities (79%) used multimodal strategies to implement IPC interventions to improve the IPC practices such as hand hygiene, safe injection practices, decontamination of medical instruments and environmental cleaning (Core component 5), 7 facilities (50%) had a monitoring system for IPC (Core component 6), only two facilities (14%) had a completed core component 7 and 3 facilities (21%) had a completed core component 8 (Figure 2).

Table 1. IPC core components total score of Ain Zara primary healthcare facilities, 2023

Facility Name	Total score of 26	%
Khalet Alforjan PHC	10	38.46%
Emhemed Almogaraef PHC	12	46.15%
Alnaser Salah Aldeen PHC	13	50.00%
Algbaeliah PHC	15	57.69%
Alhomodaat PHU	16	61.54%
Hai Aljameae PHC	18	69.23%
Alsharef Alforjani PHC	19	73.08%
Abdelmenem PHC	20	76.92%
Algargani Polyclinic	21	80.77%
Fatema Azzahra PHU	21	80.77%
Alnasb Altethkari PHC	21	80.77%
Alsalaam PHC	21	80.77%
Ain Zara 20 AUG PHC	22	84.62%
Alabadrie Polyclinic	22	84.62%

**PHU=primary health unit, *PHC= primary health center*

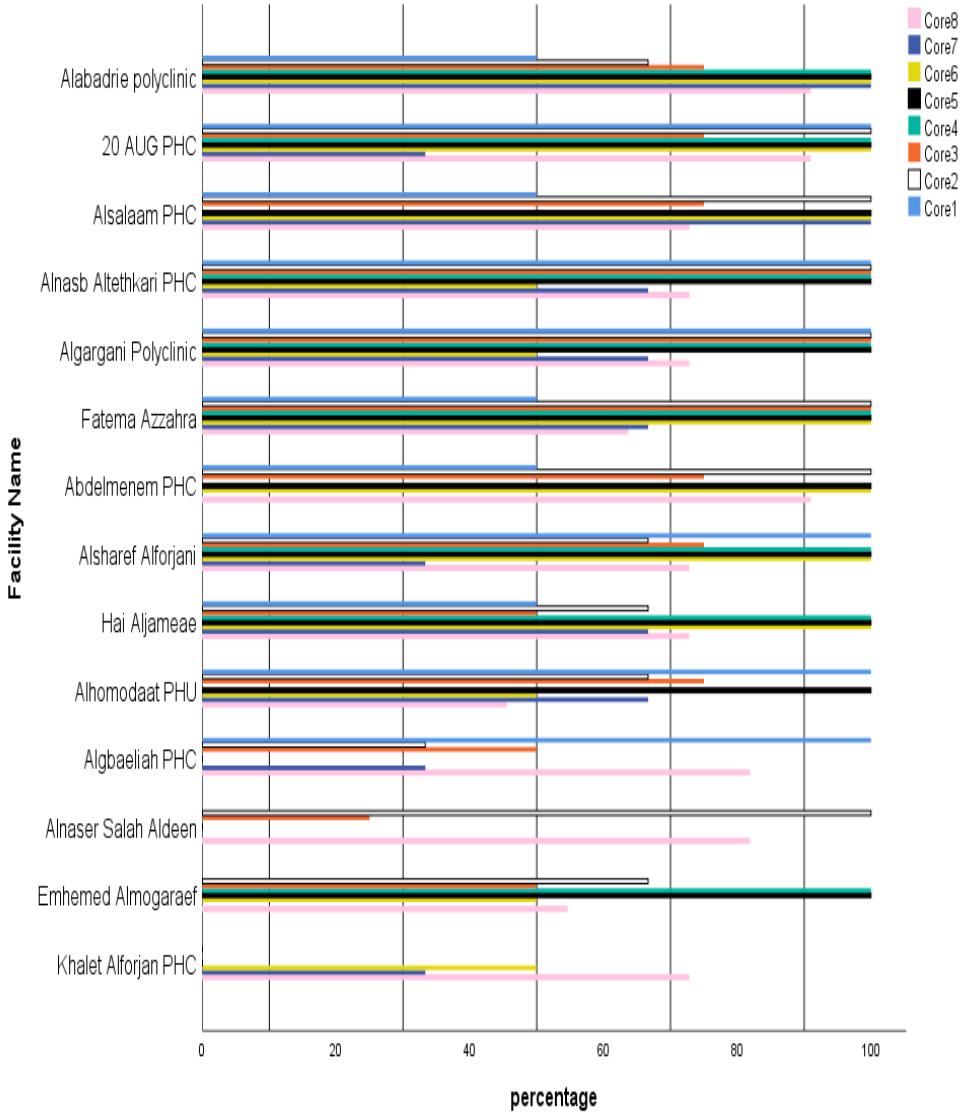

Figure 1. IPC all core components status of Ain Zara primary healthcare facilities, 2023

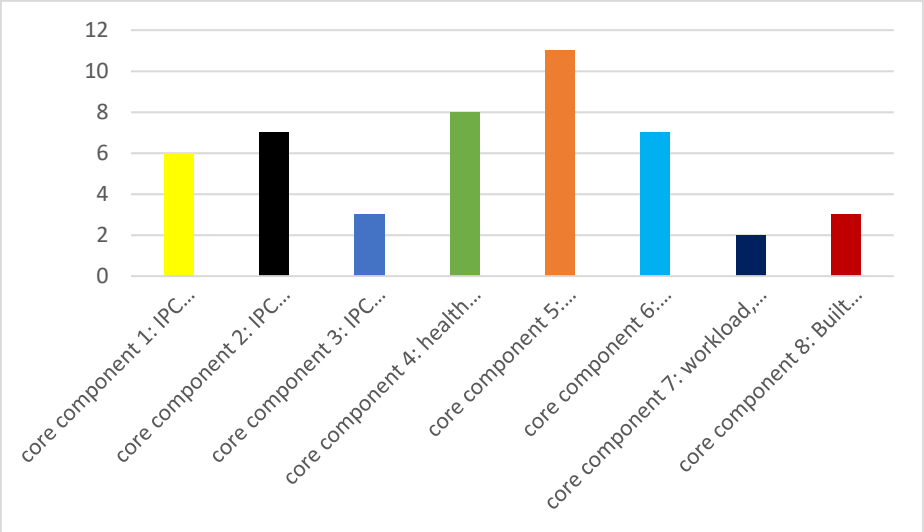

Figure 2. Completed IPC core components at Ain Zara primary healthcare facilities, 2023

DISCUSSION

The study findings indicated that there were significant variations in the levels of IPC implementation among the Ain Zara primary healthcare facilities. Some facilities demonstrated a strong commitment to IPC practices and had higher scores across multiple core components, while others showed deficiencies in several areas. Multiple studies have highlighted the importance of implementing effective infection prevention and control (IPC) programs across various settings [2,7,8].

One notable finding was the limited provision of education and training on IPC for healthcare workers. Only a small proportion of facilities (21%) ensured that their healthcare workers received education and training on IPC. This suggests a need for strengthening training programs to enhance the knowledge and skills of healthcare workers in infection prevention and control. Researches has been shown that all healthcare facilities should have dedicated IPC professionals (ICPs) and access to a trained IPC physician, along with administrative support staff who can effectively contribute to the IPC program [9,10]. Enhancing the training of healthcare workers and improving the capacity for managing healthcare-associated infections (HAIs) can facilitate the promotion of infection control (IC) surveillance activities [11].

The study also revealed gaps in monitoring and evaluating IPC practices. Approximately half of the facilities had a monitoring system for IPC (Core component 6), suggesting room for improvement in this area. Robust monitoring and reporting systems are crucial for identifying gaps, tracking progress, and implementing corrective measures. The findings align with previous research emphasizing the importance of frequent assessments, standardized audits, and monitoring processes in IPC implementation [8,12].

The overall facility scores for IPC core components ranged from inadequate to satisfactory levels. It is evident that some facilities have made significant progress in implementing IPC interventions, while others require additional support and resources to improve their IPC practices. Further research is required to fully understand the reasons for differences in the availability of WHO IPC core components between health facilities and to compare with other municipalities facilities.

Our study had some limitations. The sampling size for the assessed health facilities was small sample therefore the results can't be represented to all primary facilities in Tripoli. Second, a self-assessment was done, and the reported data was not validated. Finally, the inability to monitor the performance of IPC applications is a limitation. Meeting official criteria (e.g., the presence of guidelines) may not necessarily reflect adherence to guidance, and the absence of formal criteria may not imply low adherence to IPC measures.

CONCLUSION

The assessment of infection prevention and control (IPC) practices in primary healthcare facilities in Ain Zara, Tripoli, revealed variations in implementation levels. This highlights the need for targeted interventions and enhancements in areas such as IPC training, guidelines, and monitoring systems. The findings provide valuable insights for policymakers, facility managers, and healthcare professionals to develop strategies that improve IPC practices. Strengthening IPC programs in primary healthcare facilities is vital to ensure safe and effective care and reduce healthcare-associated infections. Ongoing monitoring and evaluation are essential for tracking progress and sustaining improvements in IPC practices.

Conflict of Interest

There are no financial, personal, or professional conflicts of interest to declare.

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تقييم الحد الأدنى من متطلبات الوقاية من العدوى ومكافحتها (IPC) لمرافق الرعاية الصحية الأولية، عين زارة، ليبيا

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المستخلص

الخلفية والأهداف. تعد الوقاية من العدوى ومكافحتها (IPC) عنصرًا حاسمًا في تقديم الرعاية الصحية، مما يضمن سلامة المرضى ويقلل من انتقال العدوى المرتبطة بالرعاية الصحية (HAIs). تلعب مرافق الرعاية الصحية الأولية دورًا حيويًا في توفير خدمات الرعاية الصحية الأساسية للمجتمعات. ولذلك، فإن تقييم ممارسات الوقاية من العدوى ومكافحتها في هذه الإعدادات أمر بالغ الأهمية لضمان توفير رعاية آمنة وفعالة. تهدف هذه الدراسة إلى تقييم الحد الأدنى من متطلبات التصنيف الدولي للبراءات لمرافق الرعاية الصحية الأولية الموجودة في بلدية عين زارة، طرابلس. **طُرق الدراسة**. تم إجراء دراسة وصفية مقطعية في سبتمبر 2023 في أربعة عشر مرفقًا للرعاية الصحية الأولية في بلدية عين زارة. تم استخدام أداة تقييم منظمة الصحة العالمية بشأن الحد الأدنى من متطلبات IPC لمرافق الرعاية الصحية الأولية لجمع البيانات وتم إجراء التحليل باستخدام برنامج SPSS. **النتائج**. تتراوح درجة المكونات الأساسية للتصنيف الدولي للبراءات في مرافق الرعاية الصحية الأولية في عين زارة من 10 إلى 22 من 26 (38.46% -84.62%) مما يعني عدم كفاية مستوى تعزيز وممارسة التصنيف الدولي للبراءات. كان لدى مرافق الرعاية الصحية الأولية في عين زارة مستويات مختلفة من تنفيذ برنامج الوقاية من العدوى ومكافحتها. في حين أظهرت بعض المرافق التزامًا قويًا بممارسات التصنيف الدولي للبراءات، بما في ذلك وجود سياسات مكتوبة للتصنيف الدولي للبراءات ومسؤولين محددين عن التصنيف الدولي للبراءات، افتقرت مرافق أخرى إلى هذه العناصر الأساسية. **الاستنتاجات**. مطلوب تحسين وتطوير خطة عمل لمرافق الرعاية الصحية الأولية في عين زارة. مطلوب الاهتمام العادل لجميع المكونات الثمانية لـ IPC في جميع المرافق.

الكلمات الدالة. برنامج المقارنات الدولية، مرافق الرعاية الصحية الأولية، مكافحة العدوى، الحد الأدنى من المتطلبات.