SHORT REPORT

# Knowledge and attitude towards identification and management of sepsis among resident physicians in a tertiary care teaching hospital in Pakistan

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## Abstract

This study was conducted to determine the compliance and knowledge of sepsis guidelines among resident physicians in a tertiary care hospital of a developing country. A self-structured validated questionnaire was prepared to evaluate compliance and knowledge of the Surviving Sepsis Campaign (SSC) guidelines. A total of 76 resident physicians completed the questionnaire; out of these, 51 (67%) were from Internal Medicine department and 25 (33%) were from Emergency Medicine department of the Aga Khan University Hospital, Karachi. A total of 71 (93%) participants claimed to be aware of the SSC guidelines but only 20 (26%) considered themselves very knowledgeable on the subject. Thirty-five (46%) physicians claimed that they were using the guidelines regularly. We concluded that the overall knowledge and compliance of sepsis guidelines was suboptimal. This emphasises the need for increased awareness and teaching of sepsis and SSC guidelines to improve patient outcomes in developing countries.

**Keywords:** Sepsis knowledge; health education; critical care.

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## Introduction

Sepsis is a serious healthcare concern around the world, affecting more than 30 million people each year and causing more than six million deaths.[1] The main barriers in sepsis bundle implementation are low accessibility of resources, lack of intensive care unit (ICU) beds, and shortage of healthcare professionals; however, one of the main problems to be addressed is the low awareness of sepsis.[2] Several studies have proven that the management of sepsis is very time sensitive.[3,4] Although there is limited data about mortality rates due to sepsis in South East Asia, the rates range between 30% and 40%.[5] This pilot study was conducted to evaluate the knowledge and compliance of SSC guidelines among resident doctors of Internal Medicine and Emergency Medicine departments who deal with sepsis patients on a daily basis.

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## Methods and Results

This evaluation study was conducted from July 1 to July 31, 2019, at the Aga Khan University Hospital (AKUH) Karachi, Pakistan, after approval by the Institutional Review Board (2019-1586-3925). To evaluate the knowledge and attitudes of resident physicians about sepsis, a self-structured questionnaire was prepared which was pilot-tested and revised by the same panel of experts. The questionnaire was composed of four parts. The first part included demographic data, the second part assessed the participant's attitude towards sepsis management guidelines, the third part assessed the knowledge regarding diagnostic criteria of sepsis and organ dysfunction, and the last part tested the knowledge regarding immediate management of sepsis as per the updated 1-hour bundle. The questionnaire was analysed on the basis of scalar-scoring method. All participants were handed out the pre-approved questionnaire in an exam-like setting, consisting of three shifts each of 20 minutes, at three different dates for the convenience of the resident physicians to attend. IBM SPSS 22 was used for data analysis which is presented as mean with standard deviation for numerical data and number with percentage for categorical data.

A total of 76 resident physicians completed the questionnaire; 51 (67%) were Internal Medicine residents and 25 (33%) were Emergency Medicine residents. Seventy-one (93%) participants claimed to be aware of the SSC guidelines but only 20 (26%) considered themselves very knowledgeable on the subject. A total of 35 (46%) physicians claimed that they were using the guidelines regularly (Table 1). Seventy-three (96%) chose the correct definition of sepsis. whereas 51 (67%) participants correctly identified sepsis in the two fictitious cases (Table 2). On the basis of scalar scoring method, 42 (55%) resident physicians had excellent knowledge and attitude towards sepsis bundle, 19 (25%) had good and 15 (20%) had poor attitude and knowledge towards the sepsis bundle. It is interesting to note that our results were comparable to other studies conducted around the world. A multi-centre study conducted in eight centres from all over Turkey showed

**Table-1:** Attitudes of resident physicians towards sepsis management (n=76).

| Question | Internal Medicine (n = 51) | Emergency Medicine (n = 25) |
|---|---|---|
| 1. Are you aware of the Surviving Sepsis Campaign Guidelines used to manage sepsis patients? | 48 (94%) | 23 (92%) |
| 2. Have you ever had a formal teaching session on management of sepsis patients? | 29 (57%) | 19 (76%) |
| 3. How knowledgeable are you with the Surviving Sepsis Guidelines? | | |
| A. Very knowledgeable | 13 (25%) | 7 (28%) |
| B. Somewhat knowledgeable | 37 (72%) | 17 (68%) |
| C. Not at all knowledgeable | 0 | 0 |
| 4. How often do you use these guidelines when managing a sepsis patient? | | |
| A. Always | 19 (37%) | 16 (64%) |
| B. Sometimes | 30 (59%) | 9 (36%) |
| C. Never | 2 (4%) | 0 |

**Table-2:** Knowledge of resident physicians regarding diagnosis of sepsis (n=76).

| Variable | Internal Medicine (n = 51) | Emergency Medicine (n = 25) |
|---|---|---|
| 1. Which one do you think is the most appropriate definition of sepsis? | | |
| A. Blood contamination by dirty materials | 0 | 0 |
| B. Life-threatening food poisoning after ingestion of seafood such as fish and shellfish | 0 | 0 |
| C. Life-threatening infectious disease caused by multidrug-resistant bacteria | 2 (4%) | 1 (4%) |
| D. Systemic inflammatory response caused by microbial infection | 49 (96%) | 24 (96%) |
| E. Allergic reaction against microbes | 0 | 0 |
| 2. Ms A is a 55-year-old lady who has had cystitis for 2 days. Her temperature is 38·7ºC, pulse 86 bpm, BP 101/80 mmHg, respiratory rate 27 breaths per minute. Urine output was 30 mL/h for the past 3 h. Is this patient septic? | 34 (66%) | 17 (68%) |
| 3. Mr B is a 42-year-old man who has a painful, red and swollen area on his left lower leg. His temperature is 35·5ºC, respiratory rate 28 breaths per minute, pulse 120 bpm, BP 120/70 mmHg and white cell count 4 × 109/L. Is this patient septic? | 34 (66%) | 21 (84%) |
| 4. Which of the following might suggest a patient has organ dysfunction? | | |
| A. Low platelet levels | 30 (59%) | 14 (56%) |
| B. Raised Creatinine | 25 (49%) | 17 (68%) |
| C. Raised bilirubin | 21 (41%) | 15 (60%) |
| D. Hypertension | 1 (2%) | 1 (4%) |
| E. Hyponatraemia | 4 (8%) | 5 (20%) |

similar results.[6]

The main limitation of our study is the relatively small sample size. Secondly, although knowledge of the basic concepts is an important step in recognising and treating sepsis, the performance of the participants could be different in a real clinical setting. Sample size was not calculated.

## Conclusion

The overall knowledge and compliance of sepsis guidelines was suboptimal in our study. We found that 46% of the resident physicians used the guidelines regularly. Furthermore, only 55% of them had excellent knowledge and attitudes towards the bundle. These results emphasise on the need for increased awareness and teaching of sepsis and SSC guidelines to improve patient outcomes in developing countries.

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**Conflict of interest:** None.

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