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Improvement (IHI) Project



3 E’s Strategy to prevent Clostridium difficile

Al Wakra Hospital’s Proactive Approach

(Education, Early Identification and Established Antimicrobial Stewardship Program)

PROBLEM:

Clostridium difficile infections (CDI) is associated with considerable increased lengths of hospital stay, costs, morbidity, and mortality among adult patients , lack of regular review and lack of multidisciplinary assessment of patients prone to CDI is considered a healthcare system problem

In spite of the fact that there is low prevalence of *Clostridium difficile* infection in the Middle East including Qatar. It is vital to identify the reasons behind this low prevalence rate and if true, to develop and maintain a system to prevent the incidence occurring since January 2013 to January 2014. In Al Wakra Hospital, there were six incidences of *Clostridium difficile* infections admitted, two are hospital – acquired infections and the rest were transferred patients from other healthcare facilities.

AIM: To prevent hospital-acquired CDI incidence from occurring during January 2013 to January 2014 in Al Wakra Hospital.

- To identify the CDI incidence and associated risks behind it.
- To evaluate the effectiveness of a 3E strategy to prevent CDI incidence that consists of :(Education, Early Identification and Established Antimicrobial Stewardship Program)
- 1.To evaluate the staff’s knowledge about *Clostridium difficile* & to conduct educational sessions as needed.
- 2. Although it is known fact that, prolonged antimicrobials usage is strongly related to *Clostridium difficile* development, a retrospective review of the confirmed *Clostridium difficile* cases will be done, aiming to prove if it is the main cause of the infection within Qatar’s population or not ,starting from Al Wakra Hospital.
- 3.To maintain a system for prevention of *Clostridium difficile* infection in Al Wakra hospital, starting from our pilot area (6 North) and spread it into the rest of the units

METHODOLOGY:

1. Education Session:

To ensure their ability of CDI identification, diagnosis and handling of patients by contact precautions, a series of educational sessions was given to all healthcare workers in the pilot area – General Medicine ward, 6 North. Pretest and post test evaluations were done to measure the effectiveness of the lectures for improving the the level of CDI awareness.

2. Clostridium difficile Risk Assessment of Patients

A CDI risk assessment form was developed to be used for by physicians for any patient who develops diarrhea during hospitalization. The risk assessment form includes but is not limited to some guiding questions that may alert the physicians to suspect *Clostridium difficile* infection, to include history of taking antimicrobials for more than 14 days within the last two months, previous *Clostridium difficile* infection, use of gastric suppressants, etc. If the patient is at risk for *Clostridium difficile* infection, the physician is requested to send the patient’s stool sample to the laboratory for *Clostridium difficile* toxin test.

3. Antimicrobial Utilization Review

The clinical pharmacist reviews the utilization of the antimicrobials on daily basis, taking note if the patient has already received antimicrobials for 14 days or more and to alert the attending physician during the morning rounds and eventually recommend stopping or deescalating the antimicrobials accordingly. The data was initially collected as a manual survey of all patients on antibiotics for the purpose of the project. However, the clinical pharmacist suggested utilizing the electronic data of the clinical pharmacy antimicrobial stewardship program (ASP), which records all antibiotics used within the hospital.

4. Confirmation of hospital acquired Clostridium difficile infection

Once the microbiology confirmed a *Clostridium difficile* case, they inform the Infection Control Practitioner (ICP), who confirms the initiation of contact precautions. A case review will be done to identify if it is a hospital acquired infection from Al Wakra Hospital or if it was from a different institution or healthcare setting. If it is from another institution within the corporation, the ICP will inform their counterpart on that hospital. The rates are computed and presented to the Hospital Infection Prevention and Control Committee (IPC) and the unit itself.

INTERVENTIONS:

A review of the baseline incidence of *CDI* was done, after which measures were put in place to identify and prevent *CDI*. *A 3E’s strategy was suggested to include three main interventions* as follows:

3 E’s

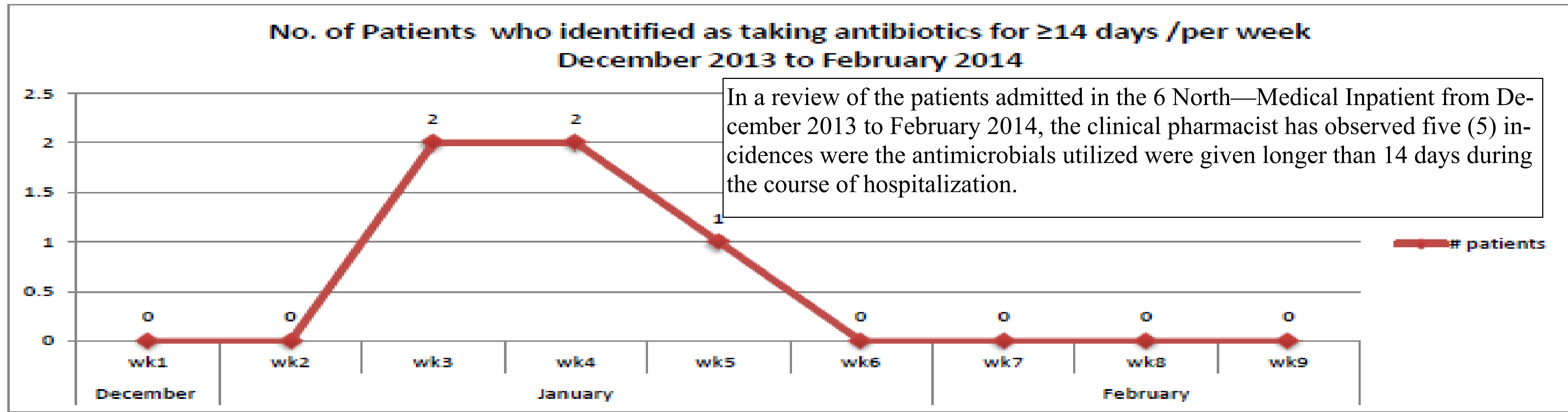
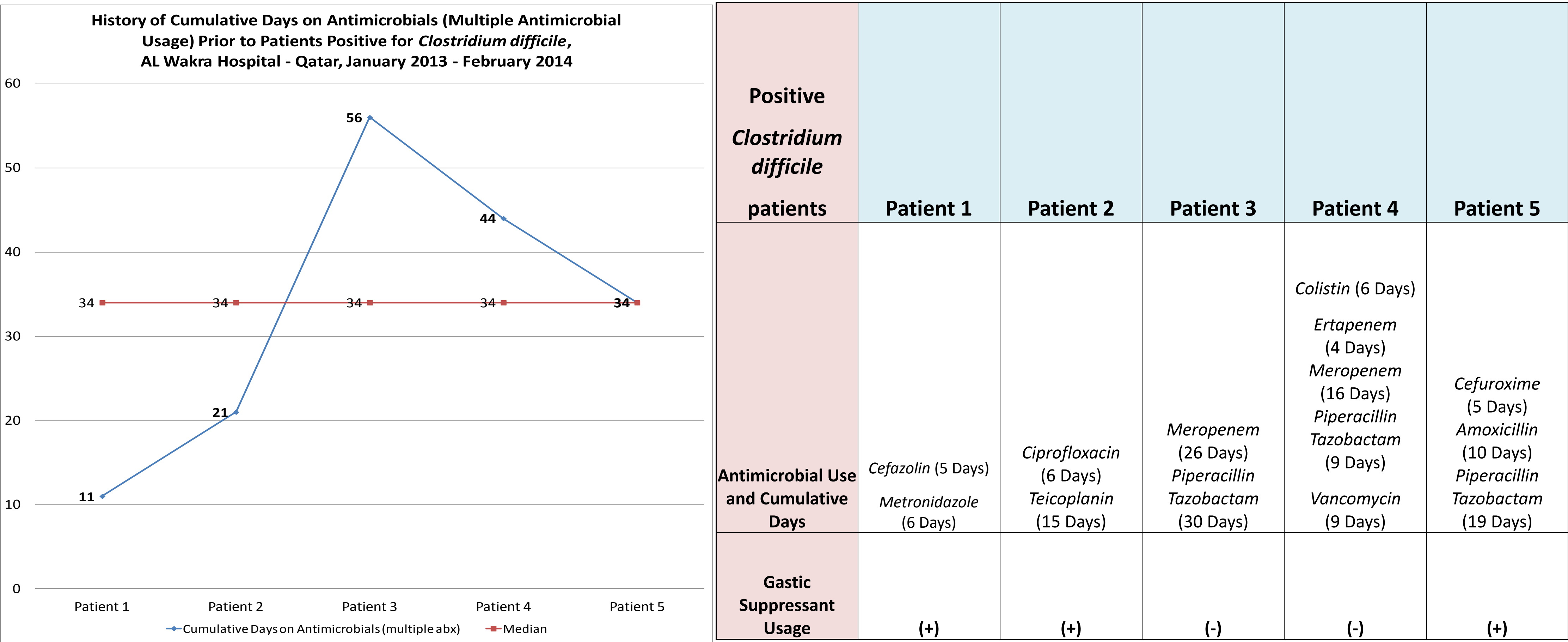
1. Education: To ensure the staff’s ability on identification and diagnosis *Clostridium difficile* infection & handling of patients by contact precautions, a series of educational sessions were given to all healthcare workers in the pilot area – General Medicine, 6 North.

2. Early Identification: Risk assessment form was developed and currently is being tested to assess all patients with diarrhea within the course of hospitalization.

3. Established Antimicrobial Stewardship Program: A review of patients’ history of antimicrobial use longer than 14 days within the last 2 months is being reviewed by the Clinical Pharmacists and raised to the attending physician. The case will be reviewed and the antimicrobial utilization will be shifted depending on the indication of antimicrobial use: stopped or deescalated.

RESULTS:

- There were **7 tests** done within January 2013 - February 2014, **6 of these tests turned positive** for *Clostridium difficile* toxin. Accounting to **85.71% positivity** among specimens sent for testing. **One patient had two separate incidence.**
- Among the **five patients** tested positive for *Clostridium difficile*, an incidental finding was that at the same time 60% [3/5] patients were also receiving gastric suppressants.
- However, only one patient of the five cases or 20% of the incidence was Hospital—Acquired from Al Wakra Hospital.
- In relation to the effectiveness of the educational sessions done, there were 17 nurses in the 6 North who underwent the session. On the pretest, the median score was 6 points, 5 of 17 nurses scored below the median score. The average scores in the pretest was 6.29 points. However, during the post test examinations, the mean score went up to 9 points, all 17 nurses passed the examinations with scores of 9s and 10s. The average score was 9.64 points.



CONCLUSIONS:

- Education of the staff about *Clostridium difficile* infection is very important, so that they can identify and manage patients.
- Early identification of patients who have a diarrhea has a pivotal role, by early assessment of any patient with diarrhea and immediately starts precautions to prevent out-break potentials. Moreover, to properly manage the patient.
- Established antimicrobial stewardship program plays a very vital role in the prevention of *Clostridium difficile* infection. As prolonged Antimicrobial Usage is a major risk factor in the development of *Clostridium difficile* infection, especially some antibiotics generations which can cause *Clostridium difficile* regardless if it was taken for short duration. Also, Gastric suppressant drugs one of the vital risk factors to develop *Clostridium difficile*.

RECOMMENDATIONS:

- Monitor the strategy for more four months. Data will be checked for any fluctuation in the incidences of *Clostridium difficile* infection .depending on that gab analysis and action plan will be done.
- Education to healthcare workers will be continued as needed.
- Antimicrobial Stewardship Program will be followed up, to ensure that antimicrobials are utilized as indicated in the right dose, to the right patient, right frequency and the right duration.

REFERENCES:

- Stevens V. et al. (2011). Cumulative Antibiotic Exposure Over Time and the Risk of Clostridium difficile Infection. Clinical Infectious Diseases. Infectious Diseases Society of America.
- Cohen, S. et al. (2010). Clinical Practice Guidelines for Clostridium difficile Infection in Adults: 2010 Update by the Society for Healthcare Epidemiology of America (SHEA) and the Infectious Diseases Society of America (IDSA). Infection Control and Hospital Epidemiology. United States of America.
- Association of Professionals in Infection Control. (2013). Guide to Preventing Clostridium difficile Infections. United States of America.