



# Infection Prevention and Control Newsletter Dhaka Medical College Hospital



## *Message of the Director*



It is my pleasure to be a part of Infection prevention and control (IPC) Committee of DMCH. As a Director of DMCH it is my responsibility to keep the infection rate under control at DMCH. Working with Prof. Dr. S.M. Shamsuzzaman and other learned members of the IPC team gives me an opportunity to improve the infection prevention and control of DMCH. I have visited several wards, OT and CSSD with IPC team and took measures suggested by IPC team. I am happy to let the people know that after taking measures infection rates have been significantly decreased in some wards which is the ultimate goal of formation and activities of IPC team of DMCH.

I wish more and more success of the IPC team.

Brig. Gen. Dr. Md. Nazmul Haque  
Director, DMCH  
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## *Editorial*

Infection prevention and control (IPC) committee is an integral part of a hospital. An efficient and full functioning IPC committee can minimize the infection rate among patient, nurses, doctors and staffs of a hospital. Although there was an IPC committee at DMC for the last one decade but it was not functioning well. After formation of new IPC committee in January 2020, several innovative measures were taken which contributed a lot in reducing Covid-19 infection rate among doctors and health care workers of DMCH. Regarding bacterial infections, IPC team identified the influencing factors for post-surgical site infections and some measures were taken such as, identification of sterilization failure and took steps to rectify it. After several interventions post-surgical infection rate including port site infections has been significantly reduced from around 40% to around 10% in some wards. The ultimate goal of IPC committee of DMCH is to decrease the proportion of infection among patients of DMCH at zero level which will certainly contribute to achieve sustainable development goal. For this, continuous and heartfelt support from the doctors, nurses and other health care workers is necessary. Above all, all sorts of supports from authorities of Dhaka Medical College and Dhaka Medical College Hospital are also needed for efficient function of the IPC committee.



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**Background:** In 2020, when Coronavirus disease 2019 (Covid19) situation became alarming, it was important to prevent and control severe acute respiratory syndrome coronavirus-2 (SARS-Cov-2) infection by maintaining the basic health rules. In each hospital it is mandatory to form a proper Infection prevention control (IPC) committee to prevent and control infection. There was an IPC committee at Dhaka Medical College Hospital (DMCH) for the last one decade but it was not functioning well due to absence of IPC nurse(s).



**Fig. 1.** DMCH Covid19 ward visited by DGHS team.

**Formation of IPC committee at DMCH:** At DMCH, a new IPC committee was formed on January 6, 2020 according to a letter issued from CDC, DGHS. In that committee, former Director of DMCH Brig. General Dr. AKM Nasir Uddin was the Chairman, Prof. S M Shamsuzzaman, Head of the Microbiology Department, DMC was the IPC focal person and all departmental heads of DMCH were included as member. In that committee, six nurses were selected as 'IPC NURSE' who were dedicated to IPC related activities. These nurses were selected who had training on IPC rules and regulations from Japan International Cooperation Agency (JICA), Directorate General of Health Services (DGHS) and a few from abroad. For effective infection prevention and control it was decided that IPC nurses would be spared from their daily nursing duties and their role would be limited to only IPC related works. They are working dedicatedly in IPC committee from then.

**Formation of IPC sub-committee:** An IPC sub-committee (working committee) was formed with fewer members on July 19, 2020. Then IPC sub-committee was comprised of the following:

Chairman: Brig. Gen. DR. Md. Nazmul Haque (Director, DMCH)

Advisory Chairman: Prof. Dr. SM Shamsuzzaman (Head, Microbiology, DMC)

### Members:

1. Prof. Dr. Sultana Shahana Banu (Head, Virology, DMC).
  2. Assistant Directors of DMCH: [Dr. Md. Akhtaruzzaman (transferred), Dr. Md. Ashrafal Alam, Dr. Ashrafun Nahar, Dr. Halima Sultana Haque].
  3. One Assistant professor from each of the department of Medicine, Surgery, Neurosurgery, Obs & Gynae and Virology.
  3. Senior store oflcer: Dr. Md. Saad Ullah
  4. Nursing Superintendent: Shikha Biswas (Retired)
  5. Six Infection Prevention Control (IPC) nurses: 1. Mst. Nazma Akther, 2. Shapna Rani Sarker, 3. Janoki Mondol, 4. Monoara Begum, 5. Salma Afroz Lily, 6. Razia Begum
- [Due to transfer, retirement and death of few members of initial "IPC Nurses" 5 new members are added named Karima Khatun (N. Superintendent), Khandoker Ferdousi, Rokeya Begum, Regia Begum, Most. Nasima]
6. Ward masters of DMCH (8 in number): 1. Md. Babul Miah, 2. Md. Abdul Gofur, 3. Md. Riaz Uddin, 4. Md. Abul Hossain, 5. Md. Zillur Rahman, 6. Md. Kazi Aby Sayed, 7. Md. Soriful Islam, 8. Md. Abul Basar Shikder.

Member Secretary: Dr. Kakali Halder (Assistant Professor, Microbiology, DMC)



**Fig. 2.** Present IPC sub-Committee, DMCH

**Activities:** From the beginning, this committee arranged weekly (every Tuesday at 11 AM) IPC meeting with the presence of all sub-committee members including Director of DMCH and prof. S.M. Shamsuzzaman from Microbiology. Besides, PWD engineer and contractors, commander of Bangladesh Ansar in DMCH remain present regularly. At first, the meeting was held physically at conference room of Director Ofice but due to worse covid-19 situation, online meeting was started from January 2021. From then weekly zoom meeting is continuing. About 80 meetings were held till the end of November, 2022.

At first, due to worsen Covid19 situation, main focus was to control the increasing rate of corona virus infection by implementing basic IPC rules in hospital among doctors,

nurses, hospital staffs, health workers, patients and patient- attendants.

Gradually the IPC team started to look into other concerns of hospital infections like post-operative wound infection with cause of infection, proper use of antibiotics, change of antibiotic use according to culture sensitivity reports, training on sterilization procedures among nurses and staffs, cleanliness of patients before and after operations, prevention wearing Operation Theatre (OT) dresses and slippers outside the OT area, proper wound care like use of sterilized dressing materials, maintenance of proper personal hygiene during work specially for cleaners, awareness about infection prevention and control among health-care personnel along with patients and their attendants.



Fig. 3. Seminar on hand hygiene.



Fig. 4. Online IPC meeting.

Six IPC nurses visit the whole hospital (both Covid and non-Covid wards) for 6 working days and provide the reports in the meeting about the cleaning conditions of the hospital environments, waste management, proper wearing of mask, hand hygiene of health care workers, visitor control, post-operative wound infection rate and their culture sensitivity reports, use of antibiotics, sterilization procedures of Central Sterile Services Department (CSSD) and OT etc.

According to their reports, Director of DMCH discusses about the current problems and their solutions with all the

members especially Advisory-Chairman Prof. Dr. S M Shamsuzzaman for his valuable opinions and distributes the duties among the members accordingly to solve the problems. Doctors from Neurosurgery, Obs. & Gynae., Hematology, Surgery and Casualty departments also present the problems of their respective wards in the meeting.

After completing the meeting, member secretary of the committee Dr. Kakali Halder compile the minutes of each meeting and send it to the IPC WhatsApp group as a PDF file. Besides, IPC related any queries and problems are also discussed anytime in the group among the members.



Fig. 5. IPC nurses are visiting wards.



Fig. 6. Nurse's monthly meeting with nurse in- charges.

In next meeting, at first the progress of the problems discussed in previous meeting are assessed and directions of subsequent activities are given accordingly.

In last 2 years, IPC committee did the following notable works:

1. Established "Donning and Doffing room" in Covid19 wards and Triage according to national guideline. IPC

committee visited the Covid19 building (DMCH-2) at first in July 2020 and after that many times to find out the IPC related problems. The IPC team advised how to make an ideal Donning or Doflmg room. After visit committee asked to remove all the unnecessary things like bed, foamed-chair, table etc. from the Donning and Doflmg rooms and add some things (plastic chair, full-length looking glass, related posters, lidded yellow bin with biohazard bag, basin with continuous water supply, hand sanitizer, PPE). Committee also suggested for fogging with chlorine-dioxide in doctor's room, nurse's station, donning-doflmg room, Covid19 wards and lifts to kill Corona viruses. With the help and co-operation of Director of DMCH changes were made accordingly and urgently.

2. To establish temporary "Doflmg room" in the corner of every non-covid ward to discard used PPE. IPC committee arranged a meeting with nursing in-charges of every ward of non-covid building and trained them about the rules of doflmg, hand hygiene, proper mask wearing and waste management.
3. In initial period of Covid-19 pandemic many doctors and other healthcare workers of DMCH were infected with SARS-Cov-2 virus. After interventions the SARS-Cov-2 infection rate among doctors, nurses and staffs was significantly reduced.
4. The IPC sub-committee tried to implement some important decisions to prevent hospital acquired infection (HAI) through nursing staffs such as: i) patient files should be kept in Nursing-trolley instead of patient bed, ii) nurses should help to make the habit of maintaining hand hygiene of doctors before and after examination of each patient, iii) to raise voice about hand hygiene of patients and their attendants vi) visitor control. IPC committee has arranged training programs about IPC rules for doctors, nurses, supporting staffs, ambulance drivers and cleaners during this pandemic situation.



Fig. 7. PC training of Doctors of DMCH.

5. Tried to make a habit to use "polythene waste bag" in waste bin in every ward and change the waste bag 8 hourly or whenever needed to discard the waste in proper place.

6. Trained the cleaners about the proper use of 0.5% bleach solution for mopping the wards 3 times daily. Also distributed check-list in every ward's nursing in-charge to monitor the regular cleaning timely.



Fig. 8. Covid19 IPC training of cleaners.

7. Cleaners were awakened by the committee about needle-stick injury, infection sources, health hazards and trained them to wear rubber gloves, gum-boots, mask, gown during cleaning and handling of wastes.



Fig. 9. Cleaners using Biohazard bag.



Fig. 10. Polythene bag in waste-bin.

8. Committee suggested to give plastic “PADDLE BIN” in every patient’s bed side of the Covid ward (fig-11). Biohazard Polythene bags have to be kept within it to prevent the spread of virus.



Fig. 11. Individual waste-bin in Casualty dept.



Fig. 12. Lidded Paddle-bin in Covid ward.

9. The IPC committee made some sudden visits to different surgery wards and suggested to autoclave all the “dressing sets” needed to use in the wards for dressing of the patient of wound infections. In this regard, it was suggested that lifters should be kept in a dry and sterile metallic container instead of sinking in liquid antiseptic solution which is a common scenario of the wards because such antiseptic solution may be a common source of infection. They were also instructed to autoclave the remaining dressing sets after opening the drum. By implementing these, wound infection rate has been reduced from over 40% to around 10% or even less in some wards.
10. IPC nurses are providing services dedicatedly from the beginning of the committee formation. Committee designed “IPC Nurse Batch” for their identification and each IPC nurse was given the batch so that everybody of this hospital can recognize them as an “IPC Nurse”.



Fig. 13. Discussion with Doctors of Neurosurgery dept.



Fig. 14. General OT visit.



Fig. 15. IPC Nurse” identity batch distribution.

11. Committee makes sudden visits in different selected wards to recognize the IPC related problems and try to solve it as soon as possible with the help of hospital Director. The full IPC team including Director DMCH and Prof. Dr. S.M. Shamsuzzaman visited Neurosur-

gery, Surgery, Obs. & Gynae., Pediatrics, CSSD, OT, kitchen, Canteen and outdoor frequently and some interventions are given to reduce the hospital acquired infections and subsequently outcome were assessed though monitoring team (whether infection rate is reduced or not). Results were satisfactory in some wards and infection rates are decreasing. Professor Dr. Akhil Ranjon Biswas from Haematology and Assistant Professor of Obs. & Gynae. department Dr. Abida Sultana are working with IPC team and give valuable opinions to reduce the infection rate in respective departments. Dr. Arif Hossain, Assistant Professor of Casualty recently joined the IPC team.



Fig. 16. IPC nurses' visit to Radiology dept.



Fig. 17. CSSD room.



Fig. 2. Giving 'Florence Nightingale' award to IPC Nurses.

12. IPC team has 8 efficient ward masters who all attend weekly IPC meeting regularly. According to decisions of the meetings the Director of DMCH distributes their work about cleanliness of the hospitals and they try to finish the work before the next meeting. Their works are monitored by IPC nurses, IPC nurses prepare a report on and present the report in subsequent IPC meeting. Ward masters involve the cleaners in daily cleaning, weekly deep cleaning and proper waste management.



Fig. 18. Ward masters attend online IPC meeting in Director's room.



Fig. 19. Weekly deep cleaning of wards.

same type of complains came to microbiology department and



Fig. 19. Regular cleaning of wards



Fig. 20. Steps of Cockroach killing

- 13. IPC team took steps to kill cockroaches in hospital wards, washrooms, kitchen and OT by taking measures through a paste-control company (fig-20).
- 14. Committee arranged a hands-on-training by specialized person about proper sterilization and cleaning process of instruments for CSSD staffs and OT nurses. They were trained about proper washing and handling of instruments, proper operation of instruments, use of autoclave, use of chemical and biological indicators, proper packaging of instruments, waste management, importance of proper sterilization of instruments for surgery.



Fig. 21. Training on sterilization.

- 15. Many instruments were being used in OT after boiling. The IPC team has strongly discouraged the use of instruments after boiling. According to the suggestions of IPC a number of new autoclaves have been installed in several places other than CSSD (some autoclaves are waiting for installation) which are being used during emergency and in need for effective sterilization. Such practice is helping in decreasing infections.
- 16. In February 2021 IPC team was informed about the high rate of wound infection in neurosurgery ward. Most of the patients mainly who had a history of craniotomy and had a shunt were released from hospital after operation and again came with the complaints of discharge from the wound for a long period. Culture and sensitivity were done several times from the wound swab and most of the cases had a report of "no growth". So, antibiotics were frequently changed by the clinicians for those patients but the situation remained unchanged for a long time. IPC team visited Neurosurgery department and met with some of the Professors, Associate and Assistant Professors and Registrars and told them to send those patients to Microbiology department. About 20 patients with the

15 of them were

diagnosed as Non-Tuber-

culous Mycobacterium (NTM) infection. Microbiology department also provided a treatment guideline for NTM infection which includes 4 drugs (Clarithromycin, ciprofloxacin, linezolid and amikacin/meropenem) for 4-6 weeks followed by 3 drugs (Clarithromycin, ciprofloxacin, linezolid) for 3-5 months. Most of the patients were improved and some are improving with this treatment. Microbiology department disseminated the information in a CME session. One Assistant Professor of Neurosurgery department named Dr. Kaniz Fatema Ishrat Jahan Rifat is working with the IPC team actively for the last one year and helping the team in every step to reduce hospital acquired infection in Neurosurgery wards.



**Fig. 22.** Newly installed Autoclave in 214 ward, Obs. & Gynae. Department.



**Fig. 23.** Chronic serous discharge in Non-tuberculous Mycobacterium infection 6 months after craniotomy

**Fig. 23.** Healed after getting of full course anti-NTM treatment.

17. According to the suggestions given by IPC Committee sterilized OT gowns were supplied to possible every patient before operation for reducing contamination from dirty dress of the patients. Many wards had already taken the action.
18. IPC committee arranged a meeting with the clinicians to change the habit of moving outside of OT wearing OT dresses and shoes. IPC team wants to seek attention of doctors, students, nurses, OT staffs in this regard and requests to take it seriously. Truly speaking, only our tiny dedication can change this habit within

few days. Without changing this habit, it is impossible to reach the goal of prevention of hospital acquired infections and reduction of post-operative wound infection rate.

19. The surgeons were advised to change the mackintoshes after each surgery and to wear fresh and washed another mackintosh for the next surgery. It is an urgent need to decline the post-operative wound infection rate. For implementing this, director of DMCH has increased the supply of mackintoshes in operation theatres.
20. IPC team advised all the nurses-in-charge to maintain the proper supply chain of hand washing materials before and after surgery and wound-dressing, before and after physical examination of each patient, any intervention procedure on patient like induction of canula, nasogastric tube, urinary catheter and also whenever needed. Hospital store department ensured the committee that they are always ready to fulfill their demand.



**Fig. 24.** Training on IPC,



- Fig. 25.** Giving 'Florence Nightingale' award to IPC Nurses.
21. An Assistant Professor from each of the Obstetrics & Gynaecology and Neurosurgery departments was assigned as an IPC focal person of the respective department to reduce the infection rate, monitor the current situation and implement IPC rules more smoothly. The IPC has included 4 more wards from Obstetrics & Gynaecology department and tries to

find out the cause of infection in these wards. Already IPC team has visited those wards and took some steps to achieve the goal.

22. Recently, DMCH authority and IPC committee have taken a project to include 4 wards as model wards through a pilot project with the collaboration of International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b). To fulfill this goal, nurses and all the supporting staffs of these wards were trained about the IPC rules. One doctor and one IPC nurse are provided by icddr,b in these wards to supervise and monitor the condition. IPC committee also visits and monitors the IPC related situations. The project is running in ward no- 103, 106, 214 & 220.
23. In the last 2 years, post laparoscopic port site wound infection rate were increased not only in DMCH but also in many of the hospitals. The IPC team participated several meetings with Surgery department in presence of Director of DMCH and Prof. S.M. Shamsuzzaman. At first IPC team tried to find out the possible reasons of such infections. Committee advised to change some practices and add some activities like proper washing and autoclaving of instruments before laparoscopic surgery, use of some new chemical sterilizer, maintain accurate time of sterilization, identification of causes of sterilization failure, maintenance of pre and post-operative patient hygiene. After implementing these post laparoscopic wound infection rate is decreasing. From Surgery department an assistant professor Dr. Abul Kalam Azad is working and helping the IPC team actively.
24. For the last few months the IPC team is trying to collect the culture sensitivity reports of patients having wound infections from several wards to see the resistance pattern of antibiotics in organisms. The objective is to prepare an antibiogram of DMCH to make sure that our patient will receive the right antibiotic, in right time with right dose and right duration, literally we call it 'Antibiotic Stewardship'.
25. In the current Dengue outbreak, the IPC team suggested the Hospital authority to be more vigilant about collection of water in any place in the hospital premises where Aedes mosquito breeding may occur and to spray chemicals to kill larvae of mosquito in the drains and where collection of water is seen with regular fogging with insecticide to kill mosquito. The IPC team also suggested to use mosquito net for the patients admitted in 'Dengue ward'. The hospital authority took appropriate measures accordingly.
26. For efficient running of IPC it is necessary to encourage nurses and ward masters involved in IPC. The IPC committee has decided to distribute certificates to the IPC nurses and some incentives to the ward masters for their relentless work.

IPC committee is looking forward: Although IPC committee was formed during early Covid19 pandemic and took some necessary measures to prevent Covid19 infection, now the team is focusing on:

1. Proper sterilization of instruments and other materials used in OT.
2. Prepare antibiogram from culture sensitivity reports.
3. Antibiotic resistance containment.
4. Proper use of appropriate antibiotics to control infection.
5. Initiation of antibiotic stewardship program.
6. Ensure overall cleanliness of hospital environment regularly.
7. Maintenance of basic rules of IPC.
8. Provide training to doctors, nurses and staffs regarding IPC.
9. Inclusion of more wards and OTs under close supervision of IPC team.

Limitations: In spite of taking necessary measures and giving valuable suggestions, still we have some limitations:

1. IPC team failed to motivate some surgeons, doctors, nurses and staffs to change their habit of wearing OT dress and shoes outside of the OT area.
2. Some cleaners are also reluctant to wear protective dresses, gloves and shoes during working.
3. Proper waste management is still under process.

Conclusions: Due to huge patient load and most of the patients come from the lower socioeconomic class from all over the country it is difficult to prevent and control infection at DMCH. Since the formation of new IPC committee, remarkable progress have been made regarding cleanliness of wards and hospital premises, significant reduction of infection rates in the wards where interventions were given. This is the beginning and a lot of progresses are to be made. After completing the present programs of IPC team such as improvement and monitoring of sterilization done in CSSD, finalization of antibiogram and initiation of antibiotic stewardship program, increasing awareness about IPC among the doctors, nurses and staffs of DMCH, infection will further be reduced at DMCH. The ultimate goal of IPC committee is to make patients of DMCH free from all sorts of infections which will certainly contribute to achieve SDG by 2030.

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