

Norovirus: strategies to improve terminal cleaning



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This paper provides comprehensive background information related to norovirus outbreak and critically evaluate the implications of the issue by expounding on the adoption of infection control measures and effective management practices to minimise risk factors associated with the epidemic followed by terminal cleaning in an orthopaedic ward. The historical background of the infection was specified when an outbreak of gastro-enteritis was detected in a school in the town of Norwalk, Ohio, USA, more than 25 years ago, and Norovirus (NV) was then recognized as a potential ailment. The virus is derived from a genus within the family Caliciviridae consisting of a diverse group of non-enveloped RNA viruses that generally lead to infection. It was previously named as Small round structured virus (SRSV) infection and Norwalk-like virus (NLV) infection and is said to cause winter vomiting although it can occur at any time of year. Substantial increase has been observed in the outbreaks of norovirus infection in recent years and it has been reported that the GII. 4 norovirus strain has increased transmissibility and virulence resulting in excess expected mortality and morbidity rates amongst affected patients (Harris et al. 2008). Although the disease is self limiting and is considered mild but elderly and immune-compromised patients are said to be at higher risk. Lopman et al, (2003) after analysing data from norovirus outbreaks in England and Wales during 1992-2000, disagreed to acknowledge norovirus as a trivial disease and emphasized that it is one of the contributing factor to the worsening condition of the immune-compromised patients.

The instigation of the infection is acute which is initially characterized by abdominal cramps, diarrhoea, nausea, and vomiting followed by myalgia,

headache, malaise and a low grade fever that might transpire in up to 50% of cases (Wilson 2001). The highly contagious viral gastroenteritis is spread by person to person contact through faecal oral route furthermore, aerosols or environmental contamination followed by faecal accidents or droplet transmission through projectile vomiting is another cause of infection as it spread viruses into the air as an indiscernible mist and especially targets the vulnerable individuals in a closed or semi-closed setting e. g. hospital wards and nursing homes. Noroviruses has the tendency to spread quiet easily and may also cause outbreaks due to contaminated food or drink as these viruses may settle on people or food present in the same room. The virus can also be widely spread due to negligence of healthcare staff to maintain hygiene or due to the contaminated surfaces especially commodes, toilet doors and chains, taps etc (Chadwick et al. 2000). The symptoms lasting for at least 48 hours indicate that the patient with viral gastroenteritis is considered to be potentially infectious. The symptoms may last longer in case of elderly patients and the severity of the vomiting may also result in dehydration. Test results of faeces or vomit determine the identification of viral gastroenteritis and it has been submitted that the onset of vomiting in a number of people over a period of 1-3 days indicate that the virus is continuously spreading within the setting. It has been studied by Love et al, (2002) that norovirus outbreaks can be devastating in closed or semi-closed communities as for example hospitals, nursing homes, child care centres and leisure industry settings such as hotels, restaurants and caravan camps are more susceptible to trigger the outbreak of infection. The daily routine within a closed or semi-closed setting can be seriously disrupted by the outbreaks

due to relatively high attack rates as the transmission of virus is enormously swift.

The outbreak of norovirus infection confers short term immunity with a rapid spread out and therefore, absolute prevention from the epidemic is unattainable however, the risk of norovirus outbreak can be mitigated by effective control measures in order to limit its impact and disruption of routine healthcare services. Every single healthcare unit shall prepare a logical series of steps followed by an outbreak plan agreed by the Infection Control Committee of the hospital or Director of Public Health, in order to recognize the risk of outbreak instantaneously and establish the effective control measures. As soon as norovirus outbreak is suspected, the outbreak control team that is usually comprised of consultant microbiologist or other medical staff members, need to take necessary initiatives to identify the extent of outbreak by coordinating the preliminary investigations and take all the necessary measures to impede the spread of infection, if the outbreak is declared (Said et al. 2008). The most significant aspect after detecting an outbreak is effective communication that can be achieved by placing notices at the entrance to the ward, alerting the relevant and voluntary staff to take charge, distributing leaflets and educating the visitors to postpone their visits. One of the most preliminary preventive measures is stringent hand washing with water and soap followed by the use of gloves and plastic aprons by the healthcare staff while taking care of patients and finally the use of face masks when dealing with vomit or removal of exposed food. Moreover, immediate disinfection of the setting with chlorine releasing

disinfectants, when contaminated with vomit or stool prevents embedding of the virus and further spread.

Segregation and isolation of affected patients are useful preventive approaches however, it could be problematic due to over occupancy of the rooms and beds. On the other hand, patients might also be unwilling to move from their room to another as the isolated patients express greater dissatisfaction towards their treatment and seem to obtain less documented care however, it is crucial to keep the symptomatic people apart from asymptomatic ones. The uninfected patients could be discharged only if the patient is able to cope up with the situation in case if there is a likelihood of him/her becoming symptomatic. Closure of the entire orthopaedic ward is a wise alternative that significantly discourages the exchange of staff and patients between wards so that the probable spread of the infection to other wards can be prevented (Ayliffe et al. 2000). Exclusion of the symptomatic staff members is imperative and must not show up on work until 48 hours after normal bowel habits have returned. The excessive admittance to the ward must also be reduced to avoid the over crowdedness and uninfected patients may be discharged to their homes provided their relatives are educated about the personal risk to themselves and also about the preventive measures so that the probable risk of infection can be minimised.

As studied by Gallimore et al, (2006) norovirus can be found on a huge variety of hand-touch sites such as toilet taps, door-handles, hospital equipment, elevator and microwave buttons, switches and telephones and therefore additional efforts are anticipated from the cleaning staff during an outbreak. In order to control the outbreaks of norovirus the significance of <https://assignbuster.com/norovirus-strategies-to-improve-terminal-cleaning/>

environmental cleaning must be evidently acknowledged and specifically addressed. Cleaning does not necessarily mean to clean the floors, the norovirus outbreak requires a comprehensive terminal cleaning program at least twice a day and the cleaning includes clinical equipment, floors, toilets and general surfaces (Damani 2003). Furthermore, curtains, bed covers and pillow cases should be removed and sent to the laundry, and the rest of the soft furnishings including carpets shall be either washed down or, preferably, steam-cleaned. All general cleaning agents especially those used for cleaning toilets and bathroom areas should be with a chlorine-containing disinfectant or bleach at a specified concentration which is usually 1000ppm chlorine (Horton & Parker 2002). With some surfaces the use of 1000ppm chlorine is incompatible and requires correct safety measures to be taken by the cleaning team which sometimes becomes difficult due to lack of training or individual negligence however, no differences were found between disinfection with 250ppm chlorine and the use of no chlorine. Barker et al, (2004) suggested that the cleaning policies should always include the use of chlorine releasing disinfectants since detergent-based cleaning often fails to eradicate the virus from the environment.

There are certain factors that significantly influence the management of the overall outbreak within a healthcare setting or an orthopaedic ward. The foremost factor that greatly affects the preventive measure is the delay in the identification of an outbreak as a result of which there could be chaos during the epidemic which could be extremely exasperating. The main reason of such a gaffe could be flawed infection control policy, inconsistent decision making, sheer negligence or simply false judgement. The

administrative policy of a healthcare setting plays an important role to determine the success and failure of an organization to combat with complicated health crisis. A clear, concise and effectively documented framework enables the healthcare staff to carry out preventive and control interventions by adhering to the strict rules and regulations and thereby, mitigate the risks of mismanagement. The organizational policy provides a platform for the infection control team to carry out preliminary investigations to substantiate the outbreak and immediately take full control of the situation by integrating the early control measures as for example, segregation and isolation of affected patients and comprehensive cleaning. Regardless of the size and capacity, every closed and semi-closed setting must designate the infection control staff to manage the outbreak. The preliminary investigation should be led by the consultant microbiologist or infection control nurse or any other designated clinician to establish a tentative diagnosis and to convene an outbreak control team if norovirus is suspected (McCulloch 2001). The composition of the team may vary depending on the setting and the extent of the outbreak. The infection control team is responsible to develop a descriptive epidemiology along with environmental health investigation to quantify the extent of the outbreak with the help of survey questionnaires that additionally help to identify the outbreak in terms of an individual, place, time etc followed by which careful preventive measures are undertaken to exclude a sources of contamination. The organizational and structural policy helps the infection control team to compile and analyse data of the reported cases followed by microbiological investigations and complex analytical studies to determine possible exposures and methods of transmission (Pellowe et al. 2003). The role of <https://assignbuster.com/norovirus-strategies-to-improve-terminal-cleaning/>

senior management and decision makers of a healthcare setting is very crucial in addressing the complications raised by the norovirus outbreak within an orthopaedic ward.

For an organization capital and revenue, recurring and non-recurring costs must be considered while developing an infection preventive and control policy. It is very important for a healthcare setting to assess the risk control planning process and compare it with the risk exposure costs with the cost of planned improvements to current controls (White et al. 2008). The norovirus outbreak within an orthopaedic ward demands additional staffing, training requirements capacity, cleaning equipment and several other resources. Extra staffing is required depending upon the size and capacity of the setting but usually additional drivers and substitute nurses are arranged prior to an outbreak. Furthermore, training requirements also increases as an outbreak of norovirus within an orthopaedic ward is an emergency situation where the need of highly skilled and trained healthcare staff becomes higher. The increase in resource requirements must also be considered and identified prior to draw infection management plan as it is quite possible that the impact in cost or resources required might outweigh the actual impact of the risk materialising on the organisation (Reason 2000). Therefore, it is essential for the policy makers to prioritize the needs and requirements of the issue and compare it with the budgetary restrictions and come up with a sensible and realistic plan that not only addresses the issue but also abide by with the fiscal arrangement of the organization. The preventive and control policy must ensure to respond to the increased demand for cleaning in the affected areas and for additional demand for cleaning supplies etc. The

prioritisation of risks allows the organisation to characterise the potential health risks that require early attention on a cost and benefits basis and address them in the most effective way. Moreover, it is wise for the management to develop a partnership culture that guarantees the involvement and participation of all staff in risk assessment so that the distribution of responsibilities is equally distributed and comprehensively understood.

Staffing is yet another factor that subsequently influences the progression of preventive measures and management of infection. Increase workload can be observed followed by a norovirus outbreak within a healthcare setting as there is an incremental admission of patients and this may lead to unmanageable situation. When the workload increases it is quite obvious that the healthcare team is under extreme pressure and a lot of stress on an individual basis and therefore, it becomes vital to draw a sensible management plan to reduce traffic as it becomes very difficult for the healthcare staff to maintain absolute hygiene practices running parallel to incremental workload and visitors. The overcrowded wards shows a potential risk of accelerating the circulation of norovirus in the healthcare setting as well as a wide distribution of the virus in the environment outside a ward or hospital which is alarming. Furthermore, the spread of infection is not restricted to patients and the healthcare team especially those having direct contact with the patients are equally susceptible to catch the disease and hence there is a probability of shrinkage in staff members (Damani 2003). The increasing absences may lead to a difficult situation for the management as the size of the setting or the overall budgetary restrictions may result in

downgrading the infection preventative and control measures. It is very important to retain highly trained staff and nurses in the ward at the time of an outbreak as the lack of trained and experienced staff may also result in the worsening of the overall development. By ensuring hygienic practices and the implementation of strict infection control measures the overall staff benefits as fewer staff members will fall ill, consequently there will be fewer costs for sick leave and the substitution of staff. Moreover, continuous care for the patients will also be guaranteed.

The influential factor like human fallacy is another aspect which cannot be ignored. The patients and healthcare staff are both humans and it is quite possible for an individual to deliberately refuse to follow the specified guidelines and hygiene practices or an individual may unintentionally do something which might aggravate the issue (Reason 2000). On the other hand, poor structural and utility planning may also be an aggravating factor especially where there is a lack of wash hand basins in clinical areas then the possibility of virus spread becomes inevitable (Rayfield et al. 2003). The excessive workload and pressure due to rush season especially when there is a declared epidemic within a healthcare setting, the overstretched staff sometimes become ignorant to comply with the infection preventive and control measures that lead to severe consequences. Another significant aspect is the lack of education regarding the underlying issue which significantly becomes the prime cause of spreading virus. The unhygienic or ignorant behaviour of the patient's visitors also add to the worsening of the situation. The correct approach is to educate every single individual about the norovirus and the preventive measures and every possible means of

communication as for example, advertisements through television, radio programs, newspapers and magazines must all be utilized to spread the message to common people. The management of closed and semi-closed settings must also ensure to educate people by pasting posters and distributing informative materials and leaflets about the norovirus. Collective human efforts to educate each other about the underlying issue would help to minimise the risk of spreading virus and would also facilitate in maintaining cleaner and healthier environment (Reason 2000). Once the outbreak has been declared the ward should be closed to admissions and the doors of the ward should also be kept closed to avoid the irrelevant visitors. There is a need to place an approved notice on the door indicating that a suspected norovirus outbreak, or outbreak of diarrhoea and vomiting within the orthopaedic ward followed by which the unnecessary traffic to the ward must be stopped.

To conclude, the most integral aspect of improving the terminal cleaning of the ward is dependent upon how effectively the awareness has been created amongst the people. It is imperative to educate every individual who is particularly closer to the ward that includes, bed management, nurses, food handlers, waste management staff, cleaners, consultants, and health protection team. According to DoH (2003), daily updates must be circulated among the healthcare staff and the residents of the ward or healthcare setting during norovirus outbreaks. Education is an effective tool as the more individuals are aware of the facts the more they would adhere to preventive and control measures which subsequently result in progression of effective cleaning practices. Apart from educating people, the pragmatic approach

should be adopted right after the discharge of patients followed by removing the linen on the beds and curtains to avoid any chances of left over virus attacks. The tangible surfaces shall be cleaned with neutral detergent and water and then dried. During the terminal cleaning the beds shall not be re-made and every minute aspect shall be emphasized in order to attain a zero defect environment. Noroviruses has the tendency to survive for up to a week on cleaned beds and on clean bed linen and therefore, the terminal cleaning requires careful and thorough cleaning. An adequate amount of literature is available expounding on the infection preventive and control measures pertaining to the norovirus and there is not much difference in the recommended strategies to thwart the issue however, it is significant to realise that despite of such written about issue the prevention of the disease is still unattainable and this is because noroviruses are not visible to the naked eyes and the most critical factor i. e. human fallacy still persists and can never be prohibited. Therefore, to mitigate the spread of norovirus it is important not only to adhere with the specified preventive guidelines but also to increase awareness amongst the uninfected people so that the likelihood of virus spread out can be completely controlled and diminished.