

Study on hand hygiene in optometry nursing essay



**ASSIGN
BUSTER**

Hand hygiene is a term used to describe any act of hand cleansing. There are various methods of decontamination each with their own level of efficacy (Lucet et al., 2002; Kampf, Löffler and Gastmeier, 2009). It is an essential practice among health care workers (HCWs) to prevent the transmission of microorganisms and spread of nosocomial infections in a clinical setting. Despite this knowledge, compliance among HCWs remains low averaging 40% which increases the risk of patients contracting hospital acquired infections (Boyce and Pittet, 2002). The World Health Organisation (2005) recognise hospital acquired infections as being a major cause of death and mortality in hospital bound patients, averaging 5000 deaths a year in England. Improving hand hygiene practice among HCWs is the cornerstone in reducing nosocomial infections such as methicillin-resistant *Staphylococcus aureus* (MRSA) and *Clostridium difficile* (C. diff.). However, implementing this change in behaviour is complex and difficult to achieve. An integral factor for improved hand hygiene compliance relies on HCW's educational training and the introduction of motivational programmes designed specifically to influence behaviour. Monitoring and encouragement will be necessary for these procedures to be successful (Boyce, 2008; Saint et al., 2009).

1. 2 Hand hygiene in Optometry

There is an apparent lack of research into hand hygiene practice in a primary and community care setting; optometric practice included. Currently there are no evidence based studies directly linked with Optometry to support the recommended guidelines set out by The College of Optometrists. Instead these guidelines are based on expert opinion with little conclusive evidence of efficacy in primary care. The importance of effective hand hygiene in the

prevention and control of infection is stressed. They have adopted recommendations set by The National Institute for Health and Clinical Excellence (NICE 2003), which are for the use of professionals in primary and community care. A minimum standard of hand hygiene practice would be to decontaminate hands before each and every episode of patient contact and after any procedure or contact that would cause hands to become contaminated. The College of Optometrists (2009) expand upon this stipulating that there is no set regularity in hand washing episodes and that instead it should be adhered to in circumstances such as contact lens insertion and removal, after going to the toilet, when hands appear visibly unclean, before and after contact with ocular surfaces or the adnexa, before and after administering topical ointments or drops, after any possible microbial contamination, after handling soiled or contaminated materials and before wearing and after removing gloves. Furthermore, an instruction of appropriate hand hygiene technique in clinical practice is suggested:

‘ Wet hands under running water.

Dispense soap/antiseptic into cupped hand (N. B. bar soap should not be used).

Rub hands vigorously and thoroughly for 10-15 seconds without adding more water.

Ensure all surfaces of the hands are covered.

Rinse hands thoroughly under warm running water.

Dry hands with a disposable paper towel. The use of non disposable towels is not good practice.'

Advisory recommendations for optometrists regarding hand hygiene in the community setting remains at a robust level. To improve standards, further research must be conducted as it is widely regarded that sound clinical practice requires conclusive clinical evidence (Smith, 2009). Optometrists in a primary care setting could benefit from adopting higher standards of hygiene expected in hospital environments.

1. 3 Hand hygiene guidelines and technique

Due to the clinical and economic implications of health-care associated infection the World Health Organisation (WHO) and the US Centers for Disease Control and Prevention (CDC) have formulated guidelines to promote improved hand hygiene adherence among health care workers (Boyce and Pittet, 2002; Pittet, Allegranzi and Boyce, 2009; Sax et al., 2009). These guidelines include specific indications for hand washing and hand antiseptis episodes. A detailed description of appropriate hand hygiene technique is also included. The recommendations are categorised on the basis of published scientific data, theoretical knowledge, applicability in a clinical setting and economic involvement. The CDC/HICPAC created a system for categorising hand hygiene recommendations. These categories are shown in Table 1

Table 1 showing the CDC/ HICPAC categorisation of guidelines (Boyce and Pittet, 2002)

Category

<https://assignbuster.com/study-on-hand-hygiene-in-optometry-nursing-essay/>

Criteria

IA

Strongly recommended for implementation and strongly supported by well-designed experimental, clinical or epidemiologic studies

IB

Strongly recommended for implementation and strongly supported by certain experimental, clinical, or epidemiologic studies and a strong theoretical rationale.

IC

Required for implementation, as mandated by federal or state regulation or standard

II

Suggested for implementation and supported by suggestive clinical or epidemiological studies or a theoretical rationale or a consensus by a panel of experts.

No recommendation

Unresolved issue. Practices for which insufficient evidence or no concensus regarding efficacy exist.

Sections 1, 2 and 6 of the CDC/HICPAC recommendations advise specifically on handwashing and hand antiseptis indications, hand-hygiene technique

and other aspects of hand hygiene. Each guideline is given a classification category relevant to Table 1. These recommendations are as follows:

‘ 1. Indications for handwashing and hand antisepsis

A. When hands are visibly dirty or contaminated with proteinaceous material or are visibly soiled with blood or other body fluids, wash hands with either a nonantimicrobial soap and water or an antimicrobial soap and water (IA).

B. If hands are not visibly soiled, use an alcohol-based hand rub for routinely decontaminating hands in all other clinical situations described in items 1C-J (IA). Alternatively, wash hands with an antimicrobial soap and water in all clinical situations described in items 1C-J (IB).

C. Decontaminate hands before having direct contact with patients (IB).

D. Decontaminate hands before donning sterile gloves when inserting a central intravascular catheter (IB).

E. Decontaminate hands before inserting urinary catheters, peripheral vascular catheters, or other invasive devices that do not require a surgical procedure (IB).

F. Decontaminate hands after contact with a patient’s intact skin (e. g., when taking a pulse or blood pressure, and lifting a patient) (IB).

G. Decontaminate hands after contact with body fluids or excretions, mucous membranes, nonintact skin, and wound dressings if hands are not visibly soiled (IA).

H. Decontaminate hands if moving from a contaminated-body site to a clean-body site during patient care (II).

I. Decontaminate hands after contact with inanimate objects (including medical equipment) in the immediate vicinity of the patient (II).

J. Decontaminate hands after removing gloves (IB).

K. Before eating and after using a restroom, wash hands with a non-antimicrobial soap and water or with an antimicrobial soap and water (IB).

L. Antimicrobial-impregnated wipes (i. e., towelettes) may be considered as an alternative to washing hands with non-antimicrobial soap and water.

Because they are not as effective as alcohol-based hand rubs or washing hands with an antimicrobial soap and water

for reducing bacterial counts on the hands of HCWs, they are not a substitute for using an alcohol-based hand rub or antimicrobial soap (IB).

M. Wash hands with non-antimicrobial soap and water or with antimicrobial soap and water if exposure to *Bacillus anthracis* is suspected or proven. The physical action of washing and rinsing hands under such circumstances is recommended because alcohols,

chlorhexidine, iodophors, and other antiseptic agents have poor activity against spores (II).

N. No recommendation can be made regarding the routine use of nonalcohol-based hand rubs for hand hygiene in health-care settings. (Unresolved issue).

2. Hand-hygiene technique

A. When decontaminating hands with an alcohol-based hand rub, apply product to palm of one hand and rub hands together, covering all surfaces of hands and fingers, until hands are dry (IB).

Follow the manufacturer's recommendations regarding the volume of product to use.

B. When washing hands with soap and water, wet hands first with water, apply an amount of product recommended by the manufacturer to hands, and rub hands together vigorously for at least 15 seconds, covering all surfaces of the hands and fingers. Rinse hands with water and dry thoroughly with a disposable towel. Use towel to turn off the faucet (IB). Avoid using hot water, because repeated exposure to hot water may increase the risk of dermatitis (IB).

C. Liquid, bar, leaflet or powdered forms of plain soap are acceptable when washing hands with a nonantimicrobial soap and water. When bar soap is used, soap racks that facilitate drainage and small bars of soap should be used (II).

D. Multiple-use cloth towels of the hanging or roll type are not recommended for use in health-care settings (II).

6. Other Aspects of Hand Hygiene

A. Do not wear artificial fingernails or extenders when having direct contact with patients at high risk (e. g., those in intensive-care units or operating rooms) (IA).

- B. Keep natural nails tips less than 1/4-inch long (II).
- C. Wear gloves when contact with blood or other potentially infectious materials, mucous membranes, and nonintact skin could occur (IC).
- D. Remove gloves after caring for a patient. Do not wear the same pair of gloves for the care of more than one patient, and do not was gloves between uses with different patients (IB).
- E. Change gloves during patient care if moving from a contaminated body site to a clean body site (II).
- F. No recommendation can be made regarding wearing rings in health-care settings. Unresolved issue.'

These guidelines were developed for the use of health care professionals in a clinical setting and were not specifically designed with optometric practice in mind. However, many of these recommendations remain highly relevant when adopted to an optometric environment and are strongly supported by The College of Optometrists. The World Health Organisation have extended the recommendations on hand-hygiene technique and produced a visual publication poster detailing the hand hygiene technique for use with alcohol-based formulations and the handwashing technique for use with soap and water. These are shown in Figures 1 and 2 respectively.

Figure 1 showing recommended hand hygiene technique with an alcohol-based formulation (World Health Organisation 2006) ***online access reference

2

Figure 2 showing recommended handwashing technique using soap and water (World Health Organisation 2006) **online access reference

1. 4 Hand hygiene practices among health care workers

Hand hygiene practice among health care workers is poor with many observational studies reporting low compliance rates in a number of indicative areas. Hence, understanding current trends among health care workers is critical in planning and implementing the necessary modification in behaviour (Allegranzi and Pittet, 2009). Hand hygiene adherence can be investigated over a range of parameters such as duration spent cleansing or disinfecting, frequency of hand washing episodes over a given time and observing the variations in performance with regard to clinical setting, physician status and gender (Boyce and Pittet, 2002). Employing the appropriate hand hygiene technique is essential. Consider the situation in which hand hygiene episodes per hour compliance is high. If insufficient hand hygiene technique is being performed e. g. inadequate coverage of hand surfaces and a short cleansing time, then the overall standard of compliance will decrease. This confirms that hand hygiene practices among health care practitioners involves both multimodal strategies and multidisciplinary approaches to improve adherence (Pittet, 2001; Dierssen-Sotos et al., 2009).

Multiple factors are associated with the suboptimal hand hygiene performance among health care practitioners and they vary in relation to resources available and the setting involved. For example, the lack of appropriate infrastructure, equipment and materials will hinder good hand

<https://assignbuster.com/study-on-hand-hygiene-in-optometry-nursing-essay/>

hygiene practice, the cultural background and perhaps even religious beliefs can also affect performance (Ahmed et al., 2006; Allegranzi et al., 2009). The most commonly reported causes of poor hand hygiene compliance are: (i) physician or nursing status, (ii) clinical care setting e. g. ICU, A&E, surgery units (iii) understaffing and overcrowding (iv) male (rather than female) gender and (v) inaccessible hand hygiene supplies (Pittet, 2000).

(Erasmus et al., 2010) conducted a systematic literature review of studies based on observed or self-reported hand hygiene compliance rates in hospital practice, mainly intensive care units. The median compliance rate was low at 40%. Physician status was found to be a factor affecting adherence, lower among doctors (32%) than nurses (48%). In general, a lower compliance rate was found in physicians reporting a high level of activity in clinical practice. Compliance rates improved in situations whereby physicians or nurses associated the task as being visibly dirty or unhygienic, alcohol-based hand rubs or gels were available, feedback performance was introduced and when materials and facilities were easily accessible.

Hand hygiene compliance among optometric practitioners is an area yet to be investigated. Opticians are encouraged to follow the recommended guidelines set by organisational bodies such as the World Health Organisation and The College of Optometrists.

1.5 Hand hygiene behaviour

Hand hygiene behaviour can be investigated in relation to factors such as social cognitive determinants. A number of situations trigger a hand cleansing episode to occur and therefore affect compliance e. g. knowledge

and perception of the risks associated with cross contamination, social expectations for adequate hygiene, self evaluation of the perceived advantages against the existing hindrances and the initial motivation to perform the hand hygiene action (Pittet, 2004; Whitby et al., 2007). This cognitive behavioural response falls into two categories (Whitby, McLaws and Ross, 2006). 'Inherent hand hygiene behaviour' arises in circumstances when individuals deem hands to be visibly soiled, sticky or gritty. This type of intrinsic hand washing behaviour is initiated when a task is recognised as being unhygienic or has a potential risk factor involved to the individual concerned. The other component of hand hygiene behaviour is denoted as 'elective hand hygiene behaviour'. This type of behaviour is represented in situations such as tactile social contact e. g. shaking hands to greet someone. This will not induce a response for many individuals to wash their hands and instead it becomes an elective response. Similarly, health care workers may partake in non-invasive impersonal contact with patients when taking pulses or touching inanimate objects in their surroundings. This type of social contact is not perceived to be a danger and does not drive a hand cleansing episode to take place. Instead an elective response has to be made. However, hand cleansing or disinfection after such contact in a hospital setting is crucial, because failure to do so may lead to microbial hand contamination, with the increased risk of cross-infection.

1. 6 Relation of hand hygiene with the acquisition of nosocomial infections

Hand hygiene reduces the transmission of microbial contamination and the spread of health-care associated pathogens from one patient to another via

the hands of health care workers (Pessoa-Silva et al., 2007; Pittet et al., 2007; Allegranzi et al., 2010). Hand hygiene is the cornerstone in securing adequate patient safety. Failure to comply with this standard prolongs duration of hospitalisation, causes unnecessary suffering, increases costs as well as mortality rates (World Health Organisation, 2009). Thus, to raise awareness and combat the problem of health care associated infections, (Sax et al., 2007) produced an evidence-based, user-centred design to promote improved hand hygiene adherence termed ‘ My Five Moments for Hand Hygiene’, shown in Fig. 3. This highlights the five most common routes of transmission which HCWs are exposed to in daily clinical practice. The model is based on the World Health Organisation’s hand hygiene guidelines. It recommends hand washing episodes to occur before touching a patient, before clean/aseptic procedures, after a body fluid exposure risk, after patient contact and after touching patient surroundings. Although designed specifically for HCWs in a clinical setting, this model could be adopted for use in community practice to include an optometric environment. Optometrists should be aware of the risks of cross contamination and demonstrate an understanding of appropriate infection control methods (Lakkis et al., 2007).

Figure 3- ‘ My 5 moments for hand hygiene’ model

1. 7 Infection control in optometry

Modern optometric practitioners are offering an expanding area of services and care with regards to the treatment and management of eye diseases and eye injuries. Therefore, more specialised procedures and techniques are being carried out in the primary care setting which have the potential to spread infection and disease via blood borne and air borne transmission.

<https://assignbuster.com/study-on-hand-hygiene-in-optometry-nursing-essay/>

Hence, practitioners have an obligation to carry out adequate infection control measures to ensure a high standard of patient safety and protection (Tyhurst and Hettler, 2009). The majority of optometric procedures are considered low risk for the spread of disease and infection. However, in a few occasions the risk increases e. g. when instruments come in direct contact with an infected patient and when blood, cuts or abrasions are exposed (AOA Primary Care and Ocular Disease Committee, (1993). Other procedures which have the potential for infection include the collection of eye culture samples, foreign body removal, contact lens fitting, lacrimal lavage and the treatment of patients exhibiting ocular trauma.

1. 7. 1 Hand hygiene and protective barriers to infection

A basic measure of infection control begins with effective hand hygiene. Many eye diseases and infections are spread manually, and it is the responsibility of the optometrist to minimise this transmission to patients by adhering to appropriate hand washing techniques before and after examinations and procedures. Appropriate hand hygiene technique refers to the standard described in section 1. 2. In addition, the use of protective barriers such as disposable medical gloves, gowns, masks and protective eyewear has been suggested in specialised circumstances as a precautionary control to minimise the transmission of microorganisms (Lakkis et al., 2007).

1. 7. 2 HIV, Hepatitis B and Hepatitis C

Diseases can be spread by direct contact between individuals, via blood or other bodily fluids and as a result of airborne transmission. Considerable awareness has been directed towards the transmission of the human

immunodeficiency virus (HIV) and the Hepatitis B and C viruses, (HBV) and (HBC). HIV has been isolated from tears, contact lenses and ocular tissues, but there is no evidence to support transmission of the disease through these medians (Cantrill et al., 1988; Tillman, Klotz and Maino, 1992). Studies have reported the detection of the hepatitis B surface antigen in tears and aqueous humour, suggesting that optometrists must take all necessary precautions in clinical practice (Temel, Seber and Gunay, 1990; Tsai et al., 2009). Although these are areas of concern, the risk of transmission in an optometric setting is remote.

1. 7. 3 Influenza A (H1N1) virus

In 2009, the emergence of the influenza A (H1N1) virus in humans has led to the first global pandemic in 41 years. It is more commonly referred to as ‘swine flu’ and is made up of porcine, avian and human genes. Although a potentially fatal disease, the mortality rate is expected to be less than previously known influenza pandemics and is more likely to cause harm to young people and individuals with compromised health (CDC 2009). In order to contain the spread of this infection, health care personnel were advised to heighten infection control measures. (Kiely et al., 2009) discussed specific infection control guidelines applicable in an optometric environment. A basic measure of infection control begins with frequent handwashing. Due to the close proximity to patients throughout the eye examination, in a more extreme guideline, it was recommended that optometrists should wear personal protective equipment such as surgical masks, goggles, gowns and gloves when treating a suspected infectious individual. It was indicated that influenza A (H1N1) should be treated like any other form of influenza.

1. 7. 4 Creutzfeldt Jacob Disease

The theoretical transmission of prions, implicated in Creutzfeldt Jacob Disease (CJD) and variant Creutzfeldt Jacob Disease (vCJD) is an area of concern in optometric practice (Lakkis et al., 2007). These diseases are degenerative neurological conditions that are incurable and invariably fatal. Reusing ophthalmic devices such as RGP trial lenses and contact tonometer heads has been identified as a possible risk factor in spreading this disease from one patient to another but has been described as highly improbable (Armstrong, 2006).

1. 7. 5 Summary of infection control in optometric practice

Due to the potential risk factors in an optometric environment, practitioners must abide by the recommended guidelines in order to control the spread of infection and disease. Lack of motivation and insufficient knowledge of expected protocol will lead to non-compliance among optometrists. Hence eye care personnel are advised to develop and implement a suitable infection control policy within practice (Seewoodhary and Stevens, 1999; Stevens, 2008).

2. 0 Aim

The purpose of this survey was to examine the typical hand hygiene practice among optometrists in a primary care setting. It investigates the level of compliance among practitioners to include the type of hand products used, hand hygiene technique and the hand hygiene facilities available in various optometric environments.

3. 0 Method

3. 1 Survey design

In order to determine the role of hand hygiene in optometric practice, a questionnaire was designed to gain an insight into hand hygiene product use, hand hygiene technique, facilities and general compliance among practitioners. The questionnaire was split up into three sections, ' All About You', ' Facilities' and ' Hand Hygiene Technique'. It consisted of 28 questions, the majority being mandatory to answer. The format of questions was either on a yes-no basis, multiple choice, tick box and rating of answers using a scale based response. Questions were designed on the basis of international guidelines regarding hand hygiene. A detailed literature review was conducted to ascertain appropriate hand hygiene technique, hand hygiene facilities and reported barriers to hand washing. The questions from the survey are shown in the Appendix.

3. 2 Survey circulation

The questionnaire was launched using Bristol Online Surveys. This is a site used by over 200 UK organisations in order to develop, distribute and analyse web-based surveys. It was sent to volunteers via e-mail using a webpage link.

3. 3 Volunteers

A total of 124 individuals responded to the survey which included optometrists working in university, hospital, multiple, franchise and independent optometric practice around the UK. If an individual worked in a combination of practices, they were instructed to answer questions based on

the place they worked most of the time. All participants were asked to answer honestly as the survey would remain anonymous.

3. 3 Survey analysis

Results were recorded online within the Bristol Online Surveys (BOS) site. Key features of the BOS results section included the option of statistical investigation, cross tabulation of answers, looking at individual responses and the export of data to a spreadsheet document on Microsoft Excel. The data was analysed and arranged into a variety of tables, graphs and pie charts for easier interpretation of results.

4. 0 Results

4. 1 All about you

A total of 124 optometric practitioners took part in the study. An almost even distribution of gender was found totalling 61 males and 63 females, with an average age \pm SD of 41.4 ± 15.5 .

The majority of individuals who responded to the questionnaire were Cardiff University graduates totalling 26%, followed by City University, Aston University, The University of Bradford, The University of Manchester and Glasgow Caledonian. The remaining sector of individuals were grouped in the category other and included graduates from Auckland University, Bradford College, Dublin Institute of Technology, Northampton Polytechnic, Rand Afrikaans University, Southern College of Optometry, University of Durban and the University of Ulster. This is shown in Figure 4.

Figure 4. University attended by each participant

The number of years qualified as an optometrist was investigated and is shown in Fig. 5. Most respondents have been qualified for 21-30 years, followed by participants who have been practicing for less than 5 years. A small minority of individuals have been qualified for more than 40 years.

Figure 5. Years qualified as an optometrist

Over half of respondents work in independent practice, with a smaller proportion working in a variety of practices such as multiples, hospital based settings, a combination of practices and franchises. The minority fall into the category named other e. g. domiciliary practitioners, retired optometrists and University based optometrists who no longer practice. This is shown in Fig. 6.

Figure 6. Type of practice participants work in

Figure 7. Gender related response regarding hand washing or disinfection between each patient episode

Fig. 7 illustrates that more females than males wash or disinfect hands between each patient episode. 71.1% of the male and female optometrists who wash or disinfect hands between each patient episode, do so in front of the client.

Table 2. Reasons for not washing or disinfecting hands between each patient episode

Reasons

Male response as a %

<https://assignbuster.com/study-on-hand-hygiene-in-optometry-nursing-essay/>

Female response as a %

Busy clinic

24

57

Forget

20

43

Unnecessary

48

76

Lack of facilities

4

5

Sore skin

8

19

Other

12

14

Practitioners who do not wash or disinfect hands between each patient episode (25 males and 21 females) were asked their reasons for not doing so. More than one answer could be selected and is shown in table 2. The majority of these individuals deemed hand washing or disinfection an unnecessary practise. Twice as many females compared to males report that the busy clinic prevents such behaviour occurring, they forget or blame sore skin as reasons for not washing hand between each patient episode. Refer to Table 3 for Other responses.

Table 3. Other reasons for not washing or disinfecting between each patient episode

Other responses from optometric practitioners:

Never been part of routine

Was never stressed during University or Pre-reg

Only recently became an issue

Wash hands for each contact lens patient, but not all refraction patients

Hand wash during the appointment and not between

Figure 8. Practitioner response as a percentage regarding patient greeting with a handshake

Fig. 8 illustrates that just under half of respondents do not greet patients with a handshake. The remaining individuals answered yes or sometimes to this form of patient contact. 39.5% of male optometrists and 44% of female optometrists who greet patients with a handshake, wash or disinfect their hands after this contact.

Figure 9. Satisfaction of hand hygiene practises

The vast majority of individuals have a high level of satisfaction with the hand hygiene practices currently employed at the practice where they work. Collectively, 8.9% of individuals are fairly unsatisfied or unsatisfied with current hand hygiene practises. Results are illustrated in Fig. 9.

4. 2 Practice facilities and structure

The questionnaire investigated the number of staff members in each individual practice to include optometrists, locum optometrists, dispensing opticians, optical assistants and receptionists. These results were calculated as a median function to include the range and are shown in Table 4. The frequency of patient appointments in an average working day were investigated and appointment duration. Practice facilities were reported upon such as number of consulting rooms and number of bathrooms. Results were averaged or calculated as a median function to include the range and are illustrated in Table 5.

Table 4. Number of staff members in practice

Position held

(Median, range)

<https://assignbuster.com/study-on-hand-hygiene-in-optometry-nursing-essay/>

Optometrist

(1, 1-20)

Locum Optometrist

(0, 0-5)

Dispensing Optician

(1, 0-6)

Optical assistant

(1, 0-35)

Receptionist

(2, 0-8)

Table 5. General practice statistics and available facilities

Average \pm SD

(Median, range)

Number of patients seen per day per optometrist

13. 8 \pm 3. 74

(14, 10-25)

Appointment length (in minutes)

30. 7 ± 6.21

(25, 15-60)

Number of consulting rooms

(2, 1-12)

Number of bathrooms

(1, 1-5)

In regard to practice facilities, greater than half of all participants are assigned to their own personal consulting room and report that the hand washing facility is separate from the toilet. Three quarters of individuals said that there is at least one wash basin in each consulting room. Fig. 10 illustrates these findings.

A large proportion of individuals reported that the practice they worked in did not display a poster detailing official recommendations on the hand washing and hand rubbing technique. Just under half of participants were aware of the poster being displayed in practice. The minority were unsure and this is shown in Fig. 11.

Figure 10. Practice facilities

Figure 11. Guidance poster detailing the advised handwashing and hand rubbing technique

3. 3 Hand hygiene products

Figure 12: The gender related practitioner response as a function of hand hygiene product use.

A variety of hand hygiene products were listed. Participants rated how often they used each product in relation to the scale provided (' always', ' most of the time', ' occasionally', ' very rarely' or ' never'). Results were plotted as a function of gender. Fig. 12(a) illustrates that the majority of male