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Healthcare Associated Infection and Antimicrobial Resistance and Prescribing Programme (HARP)	
Standards for Infection Prevention & Control in the Use of Mobile Devices (MD) in Healthcare	
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Purpose and Summary of Document: Provide NHS Wales with IP&C standards for the for safe interaction with, management and decontamination of mobile devices in the healthcare setting to minimise risks of Healthcare Associated Infection (HCAI) and improve patient safety.	

Contents

1. 'MOBILE DEVICE 4'	3
2. APPENDIX 1	6
3. APPENDIX 2	9

1

‘Mobile Device 4’

Key Standards in reducing IP&C risks of Mobile Device Use in the Clinical environment



Procurement

Standard 1 – Policies and procedures are in place for the procurement of mobile devices used for the care, management and treatment of patients.

This includes:

- a. *Terms of use or IT policy to address security of patient information and prevention of theft of HB/Trust devices.*
- b. *A clear specification for the procurement of new MD's and associated IT that addresses the IP&C policy for decontamination*
- c. *MD's should be of a standard that allows for adequate decontamination e.g. an intact wipeable case/cover that will withstand cleaning and disinfection.*
- d. *Sufficient procurement funding to address more frequent replacement of devices that may become damaged due to the level of decontamination needed (to address patient safety) that are outside of manufacturer instruction and warranty of current devices.*
- e. *Business plans factor in the need to procure additional devices for clinical use for the mobilisation project ideally of a healthcare standard*
- f. *There will be a clear service and repair arrangement in place for HB/Trust devices*
- g. *'bring your own' devices (BYOD) should ideally be used in non-clinical areas and use is at the owners risk re damage and warranty due to decontamination*
- h. *Audit processes monitor compliance with IT policy and MD specification for purchase*

Training

Standard 2 - All clinical staff using a MD for caring for and managing patients must have adequate training.

This includes:

- a. *Current mandatory training in Infection prevention and control.*
- b. *HCW training in the IP&C requirements for safe use of mobile devices using a bundled approach*
- c. *Trained to check the device in use is in good state of repair before use in a clinical area*
- d. *Clear guidance on risks and safe interaction with the device in the clinical area*
- e. *BYOD guidance on the associated risks to the device from decontamination*
- f. *Audit processes to monitor compliance*

Mobile Device Use

Standard 3- Mobile Devices are used and managed safely to ensure the risk of HCAI is minimised, patient care and safety is not compromised and HCW are not distracted whilst performing their duties.

This includes:

- a. MD's are only accessed in the clinical environment/patient home for patient care, treatment and management and **not non-work activity!**
- b. HCW's store personal devices for non-work activity away from the clinical area e.g. locker/bag during shift and not about their person e.g. in pockets, on lanyards etc.
- c. Hand hygiene (HH) is performed as per Hand hygiene policy and the 'WHO 5 moments' before and after patient interaction and before and after accessing the device
- d. Gloves should be removed and hands decontaminated before using the MD
- e. Good practice guidance of the device at the bedside is available for staff e.g. not placing the MD on bed (consider IT stands or trolleys), managing patient contact with the device.
- f. There is no inappropriate interaction with the device during clinical procedures or high intensity care situations e.g. HCW's will remove themselves from the activity remove gloves, HH if e.g. texting, taking calls
- g. Ward and Department managers will monitor appropriate use of MD's in the clinical area
- h. MD's are used outside the isolation, home or cohort zone of infected patients unless for essential use when a risk assessment of need will be undertaken
- i. Additional measures will be implemented to protect or decontaminate the device for essential use inside the isolation or cohort zone of infected patients
- j. Advice for patients and visitors on good practice on using their own MD is made available
- k. Audit processes to monitor compliance.

Decontamination

Standard 4 – Mobile Devices will be appropriately decontaminated for use in the clinical environment/patient home.

This includes:

- a. MD's used in the clinical environment should be of a standard that allows for adequate decontamination e.g. an intact wipeable case/cover that will withstand cleaning and disinfection.
- b. All medical devices registered with the MHRA should be decontaminated according to manufacturer instructions.
- c. MD's that are used as medical device must conform to medical device regulations
- d. Devices should be intact to allow effective decontamination e.g. no cracked screen, casing or cover
- e. Accessories e.g. charging lead, Bluetooth keypads are intact with no wires bare, no cracks in plugs or case to allow effective decontamination
- f. Devices used for clinical care/treatment/management are decontaminated before, in-between patients and after use.
- g. Adherence to the local policy for the appropriate cleaning product to use for decontamination
- h. A protocol that details correct use and disposal of disposable and/or reusable covers or cases
- i. Devices given to an inpatient for use (ideally not an infected patient) must be cleaned at least twice daily then cleaned/disinfected before use by another patient.
- j. Tablets or touch screens located in public places with open access must be cleaned at least twice daily **or** more frequently if it becomes visibly contaminated **or** there is known or suspected infection and during periods of increased community infections e.g. flu, norovirus.
- k. Charging cabinets are included in cleaning schedule (in accordance with manufacture instructions)

- 1. HCW's are encouraged to clean their personal devices at least daily or beginning and end of shift if used in a non-clinical area or for non-work activity only.*

APPENDIX 1

Background/Literature Review

Mobile devices (MD), often hand held, such as mobile phones, tablets, laptops, smart books are now established in the clinical workplace for supporting patient management. Devices for this use include those supplied by the organisation for use by staff and/or patients as well as those owned and the personal property of staff on a 'bring to work' scheme which are configured with local security for IT access. This document focuses on devices used for Information Technology (IT) including personal devices and accessories that:

- Stay with the healthcare worker (HCW) in clinical areas e.g. smartphone
- Stay with the HCW in the patients home e.g. tablet or smartphone, ipod/ipad
- Are used for patient teaching/survey/entertainment and may stay in clinical areas e.g. tablet, laptop, smart book
- Move from patient to patient in clinical areas e.g. on workstation on wheels, use of vital Pac

Increasing use of MD devices is linked to improved communication and access to resources e.g. electronic patient records for care planning, teaching and surveys of patients, applications (apps) such as micro guide all of which can aid diagnosis and improve clinical outcomes.

The NHS Wales Mobilisation Policy (2019) outlines standards for application, security and use of mobile technology and information access that will enable staff to undertake work tasks regardless of their location and the device they are using. However, manufacturer protocols for decontamination of most frequently used mobile devices e.g. smartphone or tablet is not always sufficient to address the risks of infection transmission in the healthcare environment as they are not classed as medical devices¹. Under the Spaulding classification (1957) most devices (MD's) would be defined as noncritical, however evolving technologies may include MD's with apps used on the skin to sense and detect conditions² or used to treat patients, and used in this context they would be deemed as medical devices and medical device regulations would apply.

Mobile devices may act as fomites in the transmission of infection and while there is limited evidence that directly links their use and the increase in HCAI, studies, especially of mobile phones, have shown they are reservoirs for pathogenic bacteria^{3,4,5,1,6,7,8,9}. Pathogenic bacteria found in these studies included *Staphylococcus aureus* (MSSA and MRSA), *Escherichia coli*, *Klebsiella* spp, *Pseudomonas* spp some of which were multi drug resistant¹⁰ all of which are subject to Welsh Government reduction bacteraemia expectations (WHC 2019)¹¹. While these studies reported bacteria grown from samples, worryingly there is evidence of other Gram negative bacteria which did not grow (dead bacteria) but were retrieved from the devices e.g. *Acinetobacter* spp, *Pseudomonas* spp, *Enterobacter* spp. Failure to culture these organisms could be due to the method used to culture or poor conditions needed for growth. These types of organisms have been implicated in Welsh outbreaks and can be inherently resistant.

It is purported that the MD may also become an extension of the individual user microbiome^{12,9} or of the environment in which it is used. As well as bacteria, viral pathogens have also been isolated on healthcare worker phones¹³.

Use of MDs by healthcare workers increases the risk of repetitive cyclic contamination between the hands and face (e.g. nose, ears, and lips), and differences in personal hygiene and behaviours can further contribute to the risks¹⁴. Mobile devices and the increasing use of mobile phones and tablets pose a unique challenge in healthcare settings with regard to cleaning and disinfection because they are frequently touched with healthcare worker hands with/without gloves, used in multiple patient rooms and other potentially contaminated environments or carried in pockets or on the person.

Therefore, guidance and training of HCWs to mitigate the risks is required. Devices, especially personal mobile phones, may not get cleaned at all. In one study 58% of staff stated they clean their phone once a day at best⁵ in other studies 44% to 90% stated they have never cleaned their device^{3,15}.

A bundled approach to prevention and control for electronic devices is suggested^{1,16} and this guidance has been developed to assist in reducing the risk of HCAI from use/sharing of these 'difficult to decontaminate' and often fragile devices. There is evidence that the regular use of alcohol wipes to decontaminate devices is effective in reducing bacterial load^{17,18} and there has been a study using Chlorhexidine¹⁹ and also UV-C but use of each may breach warranty if there is ingress of moisture into the device or there is degradation and screen damage¹⁶ from this or other disinfectants. It is also important to consider the need to clean before the disinfection stage.

Unsurprisingly the literature identifies that hand hygiene is a key strategy in reducing contamination of mobile devices alongside sensible precautions. A pragmatic approach to decontamination is also required while acknowledging limitations to the use of chemicals on electronic devices. It will therefore be important to improve the knowledge and education of staff about the associated risks, the infection prevention precautions needed in order to bring about a behaviour change in the use and management of these devices. An awareness campaign on reducing infection risks in the use of MD use can improve good practice¹⁵.

Decontamination Considerations

Medical device policies in Health Boards (HBs) and Trusts differ in the products recommended for the decontamination of equipment. Therefore, application of the standards will require a protocol to include those products agreed locally (Appendix 1). Alcohol 70% is most frequently reported in studies to reduce contamination on MD's while manufacturers often recommend wiping with a damp cloth. Wipes (such as those on current welsh contract) are widely used across organisations i.e. clinell and provide a convenient product for ease of disinfection while chlorine based solutions are routinely used for environmental and surface disinfection. Additionally the use of new and emerging technologies such as UV and HPV and sporicidal disinfectants will need to be determined at HB and Trust level.

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Appendix 2

Quick Guide to Mobile Device Use in the Clinical Area

They may be used

- To update and create care records
- To aid the diagnoses of key conditions
- To retrieve patient results
- To access and support decision making tools for prescribing
- To access advice to give to patients, carers, visitors, staff etc.
- To engage patients in surveys related to their experience of care
- To communicate with other colleagues

They should not be used

- For access to and for personal non-work activity in a clinical area or patient home.
- In an isolation room or bay of a known or suspected infected patient without assessing risk
- In the toilets or bathrooms
- On the patient bed

Infection Prevention and Control (IPC) requirements

- Follow HB/Trust IP&C and Medical Device Policies and procedures at all times
- Hand hygiene will be undertaken before and after handling the mobile device and before and after patient contact
- Manufacture decontamination instructions are followed for MHRA registered devices

Cleaning the Device

- ✓ Remove the device from any protective cover
- ✓ Check for damage or cracks to the screen and housing
- ✓ Using the agreed HB/Trust wipe or solution for cleaning and disinfection, wipe the front and back surface, and then the outer edge of the device.
- ✓ Allow to dry before replacing any cover

Cleaning the Protective cover

- ✓ Using the agreed HB/Trust wipe or solution for cleaning and disinfection, wipe all surfaces of the protective cover
- ✓ Allow to dry
- ✓ Replace the protective cover or dispose of single use cover

Charging and storage requirements

- ✓ Charging cables, keyboards and carry cases also need to be wiped at least daily if kept in the clinical area
- ✓ Safe storage to prevent risks of contamination and in accordance with manufacture instructions.

Key Messages Mobile Phones/Tablets:

- ✓ Mobile phones/tablets are increasingly seen as valuable tools in the clinical environment.
- ✓ Such devices may become contaminated with infectious organisms simply from your normal social interactions but could become a fomite for transfer of more sinister multi-drug resistant organisms.
- ✓ Keep you device clean and in good condition
- ✓ Think carefully where you are using a mobile phone/tablet in the clinical environment and consider use in the context of good Infection Prevention & Control practices:
 - Put the device out of use before a clinical engagement (i.e. pocket etc.)
 - Hand decontamination is essential to break the chain of infection.