Gearing Up for the Foundation Standard

What are Your Options?

You are probably aware of the need to address electrical safety under the Foundation Standard and, if the number of phone calls and emails we receive is anything to go by, there are still plenty of questions about what is required. Here we to look at the options for installing Body Protected Areas and RCDs.

As background, back in January 2016 it appeared that Body Protected Areas would be mandatory for all areas in a medical practice where medical electrical equipment is used. In June 2016 we became aware that, following discussion between the RNZCGP and WorkSafe NZ, this will no longer be mandatory, and the Foundation Standard has since been amended to reflect this.

The onus is now on individual practices to ensure they take appropriate steps to ensure safety. The installation of Body Protected Areas is still one way to achieve this, but there are other acceptable approaches too. Read on and we will explain some of the options.

When and Where Should a Body Protected Area be Used?

A Body Protected Area (BPA) provides a gold standard of electrical safety protection, second only to a Cardiac Protected Area, which you will only find in a hospital. General practices need to consider, on a case-by-case basis, when and where BPAs are needed to provide a safe working environment.

The suggestion is that BPAs will not usually be needed in consulting rooms, where perhaps the only item of medical electrical equipment will be an examination lamp, however a treatment room might require this level of protection depending on the type of equipment used and procedures undertaken. For example you might decide to set up a BPA if you undertake procedures using a surgical diathermy, but if you were treating a patient using a nebuliser, which is low risk, then this level of protection would not be needed.

The reasons for deciding not to set up BPAs often come down to the cost. For some buildings this could be substantial as major rewiring may be required with each power socket in the area needing to be protected with a medical grade RCD, and each room supplied from a separate circuit. This needs to be weighed up against the risk. In Christchurch, practices in new post-earthquake buildings have mostly installed Body Protected Areas, and this is sensible. If you already have Body Protected Areas, rest assured, this is a good thing.

What are the Alternatives to Body Protected Areas?

The discussion with WorkSafe NZ indicated that it is acceptable not to install a Body Protected Area in situations where the risk is determined to be low. The proviso is that all portable medical electrical appliances must always be used in conjunction with a 10mA medical grade RCD. An RCD is a special type of safety switch that disconnects the power if dangerous current flows are detected. The picture on the right shows a typical wall mounted RCD socket outlet.

If you are not planning to set up a Body Protected Area, but have locations where you will be using medical electrical appliances, the next best option is to install RCD protected socket outlets where you plug in those appliances. This is much less expensive than having to have RCD protection on all the outlets in a room. So long as the wiring in the building is in good condition, this is often just a matter of swapping existing outlets for RCD outlets similar to the one in the previous picture. Care needs to be taken that there is not already a 30mA RCD installed upstream on the circuit, as such cascading is not permitted. Your electrician will check this.

Please remember that installing RCDs on their own does not constitute having a Body Protected Area (see the section below on 'Body Protected Areas that Aren't'). There are other criteria such as earthing and separation of circuits that need to be observed, so you can't put up the green BPA sign unless your area meets that standard. Another consideration is that RCDs that are not part of a BPA must still be tested and certified annually.

Where to Locate RCDs

We have suggested replacing socket outlets with RCDs, but some people are no doubt thinking it might be better to install one RCD in the switchboard and cover a number of outlets. In a Body Protected Area this is not permitted; the RCD for the area must be located within the area itself, so as it can be readily located and reset if it trips. For consistency we recommend the same approach for all medical locations. There is another good reason for this too. Due to the lower tripping currents of medical grade RCDs, nuisance trips are much more likely when a number of outlets and general use appliances are connected simultaneously. Having to interrupt even a minor medical procedure to deal with a power loss problem can introduce an unacceptable additional risk, particularly if the offending RCD takes some time to locate.

In-line RCDs

The Foundation Standard Guidelines mentions the possibility of using an in-line cord connected RCD similar to the one in the picture below. These are designed for use on portable equipment such as transit beds in a hospital.

We are aware of some practices obtaining these to use with their ECGs, and this is a good idea if the ECG is used in a number of locations. Be aware that in-line RCDs are usually more expensive than a wall mounted RCD socket, so they aren't necessarily a cheap alternative and they only protect one appliance at a time. We aren't great fans of extension cords and multiboxes (strip boards) in medical situations, but we do recognise that this may be a way of connecting more than one appliance to a single RCD outlet.

Something else to be aware of is that the IEC power cords used on most ECGs have a limited life. The spring contacts weaken and the crimp connections tarnish inside the plastic mouldings, which means most cables will eventually fail an earth resistance test and need replacing. If you are getting an in-line RCD connected into your ECG cord, it would be sensible to replace the cord with a new one at the same time. Otherwise there will invariably be an extra cost to replace a failed cord in the future.

One final word on in-line RCDs. For some appliances the RCD may interfere with our ability to perform some aspects of a routine safety test. We therefore don't recommend the use of in-line RCDs on appliances with a fixed (i.e. non-removable) power cord.

When Do We Need RCDs?

WorkSafe have advised that all mains powered medical electrical appliances must be used with a medical grade RCD. Without the mandatory need to install Body Protected Areas, it is now necessary to decide exactly which appliances will need RCDs.

Remember we said earlier that consulting rooms are unlikely to need to be BPAs? Well that doesn't mean RCDs will not be required in consulting rooms. Typically they will be needed for such things as motorised hi/lo beds, plug in examination lamps and mains powered blood pressure monitors.

In your treatment and nurses rooms RCDs will be needed for nebulisers, ECG, exam lamps, beds, lamps and so on. Some practices will also have items such as plaster saws and ear irrigators.

The general rule of thumb is "if you use it on a patient and it plugs in to the wall while in use, then it will require an RCD. RCDs are not needed for rechargeable appliances (such as a spec lamp) that are only used when running on battery, but if (like many ECGs), an appliance can run on both mains power and battery, an RCD must be used when on mains power.

Typically most practices will install one RCD in each consulting room, and perhaps two RCDs in the treatment room, but there will be variations from practice to practice.

Body Protected Areas that Aren't

We are aware of some situations where green Body Protected Area signs have been fitted, but the areas quite clearly do not meet the requirements for Body Protection. Usually in these cases there is no certification sticker on the BPA sign, and in some cases the signs are even home-made laminated photocopies. We might almost go so far as to describe some of these as 'home-made BPAs'.

Unfortunately there is a bit more involved in a BPA than just putting up the green sign. We also suspect that some electricians who don't understand the requirements for a BPA will happily put up a green sign whenever they install a 10mA RCD. In one recent case each RCD had it's own green sign positioned immediately above. One sign at head height by the room entry is all that is required.

When a BPA is initially set up, the certifying electrician, engineer or inspector will issue a certificate of compliance. This is an important document and needs to be kept by the building owner for the life of the installation. Where we find dubious BPA installations we may ask to see the original certificate of compliance. If this is not available, it may be a case of remedying any areas of non-compliance and retesting from scratch so as a new certificate of compliance can be issued. This is obviously more costly than a straightforward routine recertification.

With the relaxed requirements for Body Protected Areas under the revised Foundation Standard, you might decide that a BPA is not actually required. Our advice in such cases would be to remove the green BPA sign but continue with a routine of 12-monthly RCD testing. This will be sufficient to keep the auditors happy. Unfortunately we can't give a full sign off to areas that are not properly compliant. In such cases we will usually test the RCDs and mark them as tested, but we won't update the compliance sticker area on the green BPA sign.

How Can Meditest Help?

If you are not sure how best to proceed for your practice, why not give us a call? We'll be happy to give you advice over the phone, or perhaps arrange to visit to check out your specific situation more closely. This is a free service for existing customers within the greater Christchurch City area. If you are outside Christchurch and we need to visit, we'll make a small charge to cover travel. There is a charge for practices who are not already customers, but if you decide to sign up for a Meditest safety verification program, we'll credit the charge against your first bill (some conditions apply).