The Royal Australian College of General Practitioners

Effective solutions for e-waste in your practice

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RACGP e-health
Practice, Policy and Innovation unit

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Introduction

Technology is constantly being upgraded and Australians are continually renewing their electronic equipment and gadgets. The discarded and obsolete electronic equipment is known as e-waste, and it is becoming a worldwide problem.

Disposing of e-waste safely and securely is important for general practices, as it is for individuals and business.

The Royal Australian College of General Practitioners has compiled this resource to explain what e-waste is, and to advise on ways to minimise it and dispose of it safely.

What is e-waste?

E-waste is the term given to discarded electrical and electronic technologies; it includes, but is not limited to:

- computers, laptops and tablets
- televisions
- mobile phones
- digital cameras
- printers and photocopiers
- fax machines
- USBs.

Such equipment may or may not be in working order. With technology constantly being upgraded, disposal of outdated electronic equipment is occurring frequently. E-waste has accumulated at such a rapid rate that it has become the fastest growing form of waste in Australia.

A total of 106 000 tonnes of e-waste had been dumped into landfill across Australia by 2008. By 2028 this figure is expected to rise to 181 000 tonnes.[1] Until recently, e-waste has not been disposed of in the most efficient and environmentally sound manner.

Why is e-waste a problem?

Australians are among the highest users of new technology, and e-waste from obsolete electronic goods is one of the fastest growing types of waste.[2] E-waste now makes up 5% of all municipal solid waste worldwide, nearly the same amount as all plastic packaging, but it is more hazardous.

E-waste has a negative impact on our environment and is putting pressure on limited landfill capacity in Australia and around the world.

Electronic technology includes toxic and harmful materials that to date have not been disposed of efficiently or safely. Treating e-waste correctly will help minimise pollution, protect our environment and reduce our carbon footprint.

Many of the materials that make up electronic technology can be recycled for other uses. For example, 90% of the materials in a mobile phone handset can be recovered and reused. Sixty per cent to 90% of future greenhouse gas emissions can be avoided by using these recycled materials.[3]

Fact: Recycling 50 000 mobile phone handsets can remove the need to mine 110 tonnes of gold ore, 213 tonnes of silver-bearing ore or 11 tonnes of copper sulphide ore.[4]

What is the Australian government doing about e-waste?

In response to the accumulating waste across the nation, the Australian government, with input from industry, business and the community, has developed the National Waste Policy.[5] This policy is a nationwide waste management plan within which the National Television and Computer Recycling Scheme has been developed. This scheme began in 2011 and is steadily being rolled out nationally. This national e-waste recycling scheme has signed up service providers to administer free collection and recycling services for computers, printers, televisions and other electronics from households and businesses. The scheme is supported by legislation that ensures all manufacturers and importers of televisions and computers are taking responsibility for their electronic products. As part of the scheme, companies that produce and/or import computers and televisions into Australia will be required to pay for and arrange the collection and end-of-life recycling of their products.

An Australian standard for e-waste recycling will be established and implemented within the National Waste Policy.

The National Television and Computer Recycling Scheme is already available as well as other sustainable e-waste recycling options.

The e-waste recycling scheme supports free pick-up of electronics from households and businesses, and ideally will help increase television and computer recycling rates from only 17% in 2010 to 80% by 2021.

What happens to e-waste?

Electronic waste contains many components that can be recycled and reused. These resources, such as plastics and glass, can be recovered to manufacture new products. Once hazardous materials like bromine, lead, mercury and zinc are removed, the remaining components, such as cables, metals and circuit boards, can be recycled.

Unfortunately, e-waste is not always disposed of in an environmentally friendly way and at times has been dumped as hazardous waste. A staggering amount of e-waste from developed countries is being exported and dumped in developing countries such as Ghana. This is an illegal trade that is being investigated by the Australian government, and the national Hazardous Waste Act is under review to ensure that everything is being done to cease this trade. It is important to know what is happening to your e-waste and ensure it is being recycled by a reputable organisation.

The National Television and Computer Recycling Scheme also aims to improve the recycling of these materials, minimising the solid and hazardous waste that ends up in landfill. This helps reduce the need to use raw materials and essentially assists in saving our natural resources.

Before you discard your old computer, consider whether it is still in good working order. Perhaps, instead of being disposed of, it could be donated to a local community group or charity.

What can I do to be part of the solution?

There are several ways that general practices can be mindful of the current situation, and begin to discard electronic waste in a responsible way. It is no longer acceptable to leave electronic hardware on the nature strip for garbage collection. Recycling companies can be contacted to collect various types of e-waste that need to be removed and recycled, and there are organisations where you can drop off your e-waste without charge.

To find e-waste recycling service locations near your general practice, visit the Recycling Near You or Cleanup.org.au websites.

Initial steps include:

- avoid purchasing new electronic products that cannot be reused and recycled by the manufacturer
- reduce your consumption of electronic devices, and repair broken equipment before purchasing new items
- reuse your electronic devices by donating items to charity, friends or family
- recycle your electronic devices instead of sending them to landfill.

Computers and televisions

While the National Television and Computer Recycling Scheme is being rolled out and more collection and recycle drop-off points are announced, here are some suggestions for what you can do with computers and televisions that you no longer need:

- if they are still in good working order, ask a charity, school or secondhand store if they will take them
- pass them on to friends or family
- contact your local council for more information on their recycling services
- store electronic equipment out of the weather until access to the scheme is available in your area
- approach a company that will refurbish your old computer equipment for use by those who cannot afford new items.

The Australian government has produced a fact sheet that provides householders and small businesses with essential information about the National Television and Computer Recycling Scheme.

Mobile phones

Mobile phones are constructed out of numerous non-renewable materials such as plastics, metals, ceramics and glass, and the contents vary from model to model. As mobile phone technology continuously advances, the materials can change; there is no exact formula or single list of the substances used for mobile phones.

However, around 90% of these non-renewable materials can be recycled and reused. The official recycling program of the mobile phone industry is run by MobileMuster. It is a voluntary recycling program that collects and recycles mobile phone handsets, batteries, chargers and accessories. There are drop-off points across Australia located at mobile phone retailers, local councils, government agents and business.

MobileMuster ensures that all components of the mobile phones are recycled to the highest environmental standards and that none is refurbished or resold in developing countries.

Clean Up Australia also runs a campaign to assist in recycling your old mobile phone. You can request a Clean Up Mobile Phones Recycling Satchel for your device or organise a larger collection.

Many mobile phone parts can be recycled and reused:

- batteries include nickel, cobalt and cadmium, which can be used to make stainless steel and new batteries
- circuit boards include small amounts of gold and silver that can be used in jewellery and other applications

- handset casings include plastics that can be reused to make fence posts and pallets
- plastics and metals found in mobile phone accessories can be shredded, sorted and used to make new plastic or metal products.

But remember, prior to handing in your mobile device for recycling, ensure that all sensitive data have been removed!

Mobile phones contain highly toxic elements, including cadmium, arsenic, lead and mercury. It is important that our old mobile phones do not end up in landfill.

Fact: There are over 22 million unwanted mobile phones hidden away in drawers, cupboards and garages across Australia, the equivalent of 2200 tonnes of metal, minerals, plastic and glass. These are all materials that could be recycled and reused![6]

Printers, photocopiers and fax machines

Large electronic office equipment, such as printers and photocopiers, can be collected or dropped off at recycling plants. Some recycling companies will come and pick up equipment for a fee. They will then remove and recycle ferrous and non-ferrous materials, which diverts them away from landfill sites.

- Use Cartridges 4 Planet Ark, a national program, such as to recycle your printer cartridges. Don't throw them in the garbage bin!
- Visit the electrical equipment pages on the website Business Recycling for information about recycling e-waste and to search for local recycling options.

How to securely remove data before disposing of e-waste

Before any of your electronic equipment can be recycled or donated from general practice, it is important to remove all data from the device. Data can be related to personal details of patients or information about the business of your practice.

Failure to remove data from these electronic devices, particularly sensitive information, breaches patient information privacy and security.

If electronic media such as hard drives, USB flash drives, CDs and DVDs are not properly erased, patient data and general business data may be used for many purposes, such as appropriating and creating bank accounts and loans, or purchasing medicines and medical insurance.[7] Patient-identifiable information can be a prime target for identify theft.

Sold and donated computers have been found in secondary markets, such as auctions, still containing personal information.[8] This data can be more valuable than the electronic equipment it is stored on. Further, it can be relatively easy for those who are technically capable to recover such information from any electronic media.

Don't just delete files

It is not sufficient to delete files and documents on your computer, or to drag and drop files into the recycle bin. The data after deletion still reside on the hard drive even though you cannot access them directly. It is very important to take further measures to ensure this data are securely erased.

Implement effective security

As a first step, it is important for your practice to put effective computer and information security measures in place. The RACGP *Computer and information security standards* and accompanying workbook provide essential guidance on establishing good information security practices and help to 'future proof' your practice's computer and information systems.

Link to information on the standards and computer and information security at www.racgp.org.au/your-practice/standards/ciss

Securely erase data or destroy equipment

Higher levels of sanitisation include wiping the disk, using a secure erase tool or destroying the equipment.

A secure erase tool overwrites the data multiple times so that they cannot be accessed forensically. There are numerous free secure erase tools available on the internet. Since such tools and software are constantly being updated and new products released, we recommend you seek advice from your computer supplier or an IT professional regarding the most suitable secure erase software for your electronic device.

The secure erasing of data should extend to any back-up media, such as tapes, and any media that are used to store or transfer practice data, including hard drives.

How to recycle storage devices

Before these items are sent to be recycled, ensure all sensitive data are removed to maintain data security. Data can easily be deleted from CDs and DVDs; these data are non-recoverable.

CDs, DVDs, USB flash drives and external hard drives are all used as data storage devices. Disks are often discarded into bins when the data are no longer required; however, it is important to remember that CDs and DVDs are non-biodegradable products that contain toxic chemicals and metals. These toxins can contaminate the environment if they end up in landfill.

CDs and DVDs can be recycled to reuse up to 98% of the original disk, including the polycarbonate (plastic) materials and aluminium found within these items. More information can be found at http://businessrecycling.com.au/recycle/cd-dvd

Remove data from mobile phones

Before recycling your mobile phone, make sure any sensitive information saved onto the phone memory is erased. While the subscriber identification module (SIM) card can be transferred from your old to your new updated mobile phone, information stored on these cards can also be simply deleted if no longer required.

Information on how to remove data from your mobile phone can be found on the handset manufacturer's website.

Develop an e-waste recycling policy for your practice

Your policy is a reference document for the decisions your practice has made about what constitutes reasonable e-waste recycling requirements and how these are to be managed.

Your policy should include your practice's objective, specific areas of responsibility and the consequences of policy violations.

You need to document your e-waste recycling policy and associated procedure. This should include the method by which e-waste will be recycled and the measures by which data will be safely and securely erased from electronic devices that hold sensitive information.

Remember, before discarding equipment, consider whether the item contains a hard drive or has additional memory capacity.

Why not encourage your practice staff to bring in their old mobile phones, laptops and tablets for recycling or reuse? This will give them another recycling avenue and reinforce the need to recycle more in the practice.

The National Television and Computer Recycling Scheme details proposed changes to recycling and the responsibilities that different parties have through the lifecycle of electronic products. It is a great initiative to encourage change in the workplace and its introduction marks a good time to make these changes when implementing an e-waste policy.

E-waste policy template

[PRACTICE NAME] is committed to providing continuing, comprehensive and coordinated whole-person healthcare to individuals and families in our community. [PRACTICE NAME] is committed to the protection of health and the environment and is determined to minimise any adverse impacts from its activities. [PRACTICE NAME] is committed to addressing the following issues.

Promote awareness

We will inform and motivate all our staff and encourage them to play an active role in [PRACTICE NAME]'s commitment to its e-waste disposal/environmental policy.

Secure erasure

Prior to discarding electronic equipment, we will securely erase all confidential material from any devices that store data. We will use [name of secure program/method] to complete the sanitisation procedure.

Reuse

We will donate any redundant electronic equipment to [ORGANISATION/NAME].

Recycling

If electronic equipment is beyond repair, we will utilise the services of [COMPANY] to recycle these e-waste items. We will favour suppliers and contractors that are reputable and adopt best environmental practices.

Waste management

We will continue to promote, develop and implement waste prevention, reduction, reuse and recycling onsite in a systematic and cost-effective manner. We will use appropriately regulated waste management contractors to ensure safe management of hazardous and non-hazardous waste sent offsite in accordance with best environmental practice.

Recycling resources

Locate your nearest recycling and waste service

Recycling Near You
http://recyclingnearyou.com.au

Planet Ark
http://planetark.org

Byteback
www.bytebackaustralia.com.au

Recycling organisations and companies

National

1800ewaste
www.ewaste.com.au

Planet Green Recycling
www.planetgreenrecycling.net.au

MRI Recycling
www.mri.com.au

Sims Recycling Solutions
http://apac.simsrecycling.com

Veolia Environmental Services
www.veoliaes.com.au/commercial-services/waste-collection-and-recycling/electronic-waste-recycling

Australian Capital Territory

Department of Sustainability, Environment, Water, Population and Communities
www.environment.gov.au/index.html

New South Wales

City of Sydney – Zero Waste
www.cityofsydney.nsw.gov.au/zerowaste

Northern Territory

Northern Territory Government Waste Minimisation in the Northern Territory
www.nretas.nt.gov.au/__data/assets/pdf_file/0013/14026/fs_recycling.pdf

Queensland

ACT Logistics
www.actlogistics.com.au

Buyequip
www.buyequip.com.au

Charity Computers
www.charitycomputersbrisbane.com

ComputerBank Queensland
www.cbq.org.au

Greenbox
www.greenbox.com.au

GreenICT
http://greenict.com.au/index.php

SiMS GROUP e-Recycling
www.simsmm.com/au

Brisbane City Council – Electronic Waste
www.brisbane.qld.gov.au/environment-waste/rubbish-tips-and-bins/electronic-waste/index.htm

South Australia

Government of South Australia – Zero Waste
www.zerowaste.sa.gov.au

E-cycle Recovery Pty. Ltd
www.ecyclerecovery.com.au

Tasmania

E-waste Tasmania
www.ewastetas.com.au

Victoria

Byteback Australia
www.bytebackaustralia.com.au

Victorian Government – Zero Waste
www.sustainability.vic.gov.au/www/html/1344-towards-zero-waste.asp

Western Australia

The Government of Western Australia – Waste Authority
www.zerowaste.wa.gov.au/

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