WATER FOR WELLBEING

A resource kit to promote adequate fluid intake for the older person
The Victorian Continence Resource Centre (VCRC) is a not-for-profit organisation that aims to promote continence for all people living in Victoria. We are the Continence Foundation of Australia Victoria Branch, the peak body for bladder and bowel health. Our aim is to raise awareness about bladder and bowel control problems, management and treatment options, and where to get help. The VCRC reaches out to a wide demographic that is ethnically, gender, age, socio economically diverse through a range of educational activities and events.

This resource kit has been developed to assist Home and Community Care Providers (HACC) and Residential Aged Care Facilities (care managers, health professionals, assessment staff, care workers and informal carers). The aim of the kit is to promote the benefits of adequate fluid intake for frail older people and to develop hydration practice that is evidence informed. The work has been led by the Victorian Continence Resource Centre, Continence Foundation of Australia Victoria Branch.

The assistance of representatives of the following organisations, who formed the original project advisory group and provided input to the concepts and development of the materials is greatly acknowledged: Cabrini Residential Care Ashwood, City of Banyule, Department of Human Services Aged Care Branch, Doutta Gala Community Health Service, Royal District Nursing Service and St.Georges Hospital. Excerpts from the ‘Water for Healthy Ageing: Hydration Best Practice for Care Homes’ toolkit are reproduced with the kind permission of Water UK.

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Drinking adequate amounts of fluid is essential for health and wellbeing.

Almost every bodily function requires water: breathing, digestion and absorption of nutrients, waste removal and temperature control are just a few examples of how the body uses water.

Many frail older people are not drinking sufficient fluid to maintain adequate hydration. As a result, dehydration is common in older adults living in residential care facilities and those living in the community.

The consequence of not drinking sufficient fluid can lead to poor health outcomes such as constipation, poor oral hygiene, urinary tract infections, and may be a factor in hospitalisation. These health problems are often perceived as minor issues but for the individual, dehydration can have a significant impact on their quality of life.

The purpose of the Water for Wellbeing resource kit is to provide community and residential aged care services with tools to assist the implementation of hydration practice that is, where possible, evidence-informed thus improving health outcomes and quality of life for clients and residents.

Important: the kit is a general guide only and may not be suitable for individuals on fluid restrictions due to specific health problems and illnesses.
On average, our bodies are 60% water and it is the primary component of all bodily fluids - blood, lymph, digestive juices, urine, tears and sweat (Tortora and Derrickson 2010). Water is critical to many bodily functions - circulation, digestion, absorption and the elimination of wastes to name a few. Water carries electrolytes (mineral salts) that help convey electrical currents in the body; the major elements that make up these salts are sodium, potassium, calcium and magnesium. Water is one of the six nutrients vital for life; the others being carbohydrates, proteins, minerals, vitamins and lipids.

**How fluid is lost from the body**

All persons breath, sweat, pass urine and faeces. The fluid lost, known as obligatory loss, must be replaced to maintain the water content in the body. On average a person loses around 2.5 litres of fluid each day. An inactive older person’s fluid loss may be closer to 2 litres per day. Fluid is lost in the following ways (Tortora and Derrickson 2010):

- **Breathing**: 300 mL
- **Sweating**: 600 mL
- **Urine output**: 1500 mL
- **Faeces**: 100 mL

Physical activity and a hot environment further increases the amounts of fluid loss, through an increased breathing rate and excessive sweating. In residential aged care, the ambient temperature is around 25°C, thus loss from sweating will be similar for residents throughout the year. It is also important to remember to maintain fluid intake in the colder months. If an individual has diarrhoea or vomiting then fluid loss will also increase.

**Recommended fluid intake for the older person**

Adequate intake of ‘total water’ comes from the combined intake from drinking water, other beverages and food sources. Approximately 60% of total water intake comes from fluids, 30% comes from moist foods and the remaining 10% is produced by the body’s metabolism (Tortora and Derrickson 2010). Optimal daily fluid intake depends on various factors including weight, health status and energy expenditure, therefore; there is no single recommended daily intake (RDI) for adults (Godfrey et al 2012).

The current guidelines suggest a minimum of 1500ml of fluid daily for an older person (Mentes 2006).

**Health benefits of adequate fluid intake**

To maintain health everyone needs to drink well and maintain fluid balance. Fluid balance meaning that fluid intake equals output (Mentes 2006). Some of the health benefits of adequate fluid intake and problems of inadequate fluid intake for the older person are summarised below.
**Bladder health:** Maintaining adequate fluid intake is important for the health of the bladder. Many older people limit their fluid intake in an attempt to prevent urinary incontinence or the need to go to the toilet overnight, known as nocturia. This strategy has little or no effect on these bladder symptoms and may worsen for some individuals (Gray and Krissovich 2003; Townsend et al 2011).

**Urinary tract infections (UTIs) are common in residential aged care.** Reduced urine flow from inadequate fluid intake is one factor that puts the older person at greater risk of developing UTIs. Adequate fluid intake is therefore an important strategy in reducing UTIs in residential aged care (Ruxton 2012; Whitehead 2009).

**Bowel health:** Adequate fluid intake is one simple measure that reduces any tendency for ‘dehydrated’ hard stools and constipation. In conjunction with dietary fibre, adequate fluid intake can increase stool frequency and improve stool consistency, making bowel motions easier for the older person (Ruxton 2012).

**Blood pressure:** Many older people upon sitting or standing, experience lowered blood pressure (postural hypotension) which may cause a fall and loss of consciousness. Lu et al (2003) suggests drinking a glass of water before sitting or standing helps to prevent this change in blood pressure and reduces the risk of fainting. There are many other causes of postural hypotension, these include blood pressure medications, diuretic therapy, diabetic neuropathy and adrenal dysfunction.

**Cognitive function:** Cognitive function progressively deteriorates as the level of dehydration increases. Common symptoms of mild dehydration include headache, irritability, poor concentration and reduced alertness (Wilson and Morley 2003; Rogers, Kainth and Smit 2001). Once thirst is felt cognitive performance may be affected by up to 10% (Rogers, Kainth and Smit 2001). In an older person this loss of cognitive function impacts on any existing functional impairments and increases their levels of dependency, reducing their quality of life (Wilson and Morley 2003).

**Skin and tissues:** Well hydrated skin and tissue is more resilient to tears and to the effects of pressure, thus reduces the risk of pressure ulcers (Little 2012; Ruxton 2012). Good hydration may also improve healing (Benelam and Wyness 2010).

**Falls prevention:** Older people have an increased risk of falls. Tzeng and Yin (2012) found that dehydration was one of the major preventable risk factors for falls in acute care settings. The cognitive changes (poor concentration and reduced alertness) and lower blood pressure (fainting and feeling dizzy) increases the person’s risk of a fall (Mentes and Culp 2003).
DEHYDRATION
Many frail older people living in residential aged care and also those living within the community do not maintain a fluid intake adequate to avoid dehydration (Bennet, Thomas and Riegel 2004; Shimizu et al 2012).

Dehydration results when more fluid is lost from the body than is taken in. The consequence of not drinking sufficient fluid can cause rapid deterioration in the health of the older person, resulting in hospitalisation. However, the majority of frail older people drink just enough fluid to prevent acute dehydration but not sufficient to meet all their body’s needs (Bennett, Thomas and Riegel 2004).

**SIGNS OF DEHYDRATION**

In the absence of a clinical definition for dehydration, the most accepted definition is the ‘rapid weight loss of greater than 3% body weight’. Other definitions state dehydration as a water and/or electrolyte imbalance, either with water depletion only or with sodium depletion with an associated loss of water (Hodgkinson, Evans and Wood 2003).

Detectable clinical and physical signs of dehydration include appearance of a dry tongue and mucous membranes, sunken eyes, poor cognition, speech difficulty, confusion, upper body muscle weakness, raised body temperature, low fluid intake, dry armpits and palms, slow capillary refill, low urine volume and usually dark or concentrated urine. These signs have the strongest correlation with dehydration. The severity of dehydration is determined by biochemical markers (Hooper et al 2013; Hodgkinson, Evans and Wood 2003).

Sequential biochemical markers have an important role in monitoring for possible dehydration and in any assessment. The relevant markers often performed as part of ‘routine’ monitoring are plasma urea/creatinine ratio and serum osmolality, sodium and tonicity (Hooper et al 2013). Other measurements including urine concentration such as specific gravity may be needed for diagnosis and management when dehydration is suspected.

At one end of the scale, mild dehydration may cause someone to feel only a little thirsty. At the other end, severe dehydration can result in death.

**WHY THE OLDER PERSON IS AT RISK OF DEHYDRATION**

Older people have similar fluid requirements to those of younger adults. However, some age related changes and problems put older people at increased risk of not drinking sufficient fluid to meet their daily requirements.

**Thirst signal and appetite:** The body is provided with a thirst signal to indicate when we need to drink more fluid. Most people drink sufficient water or other fluids and so infrequently feel thirsty. In older people, the thirst signal is often impaired, so they do not feel the sensation to drink (Scales 2011). As a result, older people will often refuse drinks when they are dehydrated because they do not feel thirsty. Furthermore, a diminished appetite or poor nutrition may result in the older person not eating or drinking adequately.

**Social setting:** Many of our social interactions revolve around eating and drinking. For some older people either living alone or having moved into a residential care facility, their life routines have significantly changed. Opportunities to have a cup of tea with friends or family may no longer be a prompt to have a drink. In addition, some people have never developed good drinking habits and resist the offers of fluid particularly if they do not have a good thirst mechanism.

**Health problems:** A number of health problems put older people at risk of dehydration and some examples are listed below:

- **Dementia** - the person may forget to drink or not be able to interpret the thirst sensation.
- **Neurological disorders** - such as Parkinson’s disease, stroke and Motor Neurone disease may result in the person having difficulties in swallowing or impair their ability to get fluids independently.
- **Incontinence or poor bladder control** – many people with bladder problems reduce their fluid intake hoping to minimise episodes of incontinence and reduce the number of trips to the toilet, especially at night.
- **Increasing frailty** - everyday tasks become more difficult with increased age, resulting in greater dependence on others for assistance with drinking and eating.
WATER MYTHS AND FACTS
**MYTH** DRINK EIGHT GLASSES OF WATER EACH DAY

**FACT** There is no clear benefit from drinking this amount of water each day and the origin of this claim is not based on research evidence (Rush 2013). Of the 2 to 3 litres of water a day your body needs, about one litre is obtained from the food we eat, and your body produces another 250mL when it metabolises the food. This leaves about 1.25-1.75 litres to actually drink. This is equal to about six cups, each 250mL. More importantly, this fluid can be obtained from a number of sources, not just water.

**MYTH** IF YOU HAVE A BLADDER CONTROL PROBLEM, DRINKING LESS WATER HELPS

**FACT** People who have bladder control problems often reduce their fluid intake so they don’t need to go to the toilet as often. However, less fluid intake has the effect of concentrating the urine, which can irritate the bladder causing more frequent visits to the toilet.

**MYTH** OLDER PEOPLE ARE AT GREAT RISK OF OVERHYDRATION

**FACT** Whilst some older people are on fluid restrictions due to specific health conditions such as congestive heart failure or renal disease, the risk of dehydration is greater for the majority of older people and is far more common.

**MYTH** TEA AND COFFEE HAVE A DIURETIC EFFECT SO DON’T COUNT TOWARDS DAILY FLUID INTAKE

**FACT** There is still debate on whether caffeine, found in tea, coffee and some carbonated soft drinks have a diuretic effect. A recent review suggests that caffeine has a mild diuretic effect and may increase urine output; however, the fluid consumed in the beverage counteracts this short-term effect and contributes towards fluid intake (Benelam and Wyness 2010).

**MYTH** BY THE TIME YOU GET THIRSTY, YOU ARE ALREADY DEHYDRATED

**FACT** The body’s thirst signal sets in well before the threshold for dehydration. However, the sensitivity to this signal decreases with age, so that if an older person is thirsty, they may already be dehydrated.

**MYTH** IF YOUR URINE IS DARK, YOU’RE DEHYDRATED

**FACT** Urine colour alone does not signal dehydration. If less urine volume is also present and/or desire to urinate is less than twice a day, then dehydration is possible. Some medications, vitamins and foods are also known to alter the colour of urine.

**MYTH** BOTTLED WATER IS BETTER THAN TAP WATER

**FACT** Not necessarily. Australia has access to some of the safest, best quality tap water which adheres to guidelines set by the National Health and Medical Research Council. A Choice (2013) article found that bottled water costs almost 2000 times more than tap water, with no health benefits. If poor tasting tap water is an issue, consider using a filter cartridge to help modify taste.

**MYTH** DRINKING LOTS OF WATER HELPS CLEAR OUT TOXINS FROM THE BODY

**FACT** A key function of the kidneys is to remove waste and excess material in urine. Kidney function, namely filtration, is not enhanced by a greater water intake. Kidney filtration is reduced in severe dehydration.

**MYTH** DRINKING EXTRA WATER LEADS TO WEIGHT LOSS

**FACT** There is some evidence that water consumed before or during a meal does promote satiety or feeling ‘full’ and slightly increases energy expenditure, however, due to a lack of good-quality studies, further research is required (Muckelbauer et al 2013).
In residential aged care, it has been estimated that a third of residents are dehydrated (Mentes and Wang 2010). In conjunction with existing practices, the following research-based strategies may be effective in increasing and maintaining adequate fluid intake among older people.

**FLUID INTAKE PATTERNS**

Older people should be offered drinks and encouraged to drink regularly throughout the day. Taking small sips often assists fluid absorption by the body rather than drinking large amounts at once (Schols et al 2009). Furthermore, overhydration can result from consuming very large quantities of fluid if the older person has a diminished ability to excrete water as seen in severe cardiac, liver or renal failure. (Benelam and Wyness 2010; Heneghan et al 2012).

In residential care, staff should offer or encourage the older person to drink fluid during meals, with snacks and regularly in between meals. Daily activities such as brushing teeth, taking medication, during social activities and therapy are key opportunities to encourage fluid consumption (Schols et al 2009; Godfrey et al 2012).

For people with an overactive bladder, urge incontinence or severe cognitive impairment, fluid limitations two hours before sleep and ensuring a trip to the toilet before bedtime can be considered (Stewart 2010).

**SUPPORTIVE ENVIRONMENT**

As people age, physical and cognitive function declines, which may result in the need for assistance to drink fluid. It is important to create a supportive environment for drinking by making older people comfortable, placing drinks within reach, pouring out their drinks, placing the drinks in their hands and using drinking aids when required. For older people that are unable to ask for a drink, regular offerings throughout the day may be a simple solution (Godfrey et al 2012).

Godfrey et al (2012) highlights the importance of making drinking a pleasurable experience by encouraging staff and relatives to sit with the older person, engage in a conversation and have a drink with the person.

**TYPES OF FLUID**

**Preferred drinks**

Older people should be encouraged to drink water as well as being provided with their preferred drinks. This has been shown to increase fluid intake (Simmons, Alessi and Schnelle 2001). Certain drinks, such as tea and coffee, may trigger fond memories and be associated with socialising with friends and family. Godfrey et al (2012) suggests that in conjunction with a supportive environment, the presentation of appealing drinks should promote enjoyment and respect the dignity of the older person. This includes not only offering a person’s preferred drink, but also the preferred temperature of the fluid and type of drink vessel (Hooper et al 2013).
There are often claims made about the diuretic effects of caffeine, which is thought to cause a loss of fluid from the body as a result of a stimulation urine output. As mentioned, in the myths and facts section of this resource, a recent review suggests that caffeine has a mild diuretic effect and may increase urine output. However, the fluid consumed in the beverage counteracts this short-term effect (Benelam and Wyness 2010). Also, the link between high caffeine intake and urinary incontinence remains controversial as studies have found either no association or limited association (Karon 2009).

In the case of the older person who habitually drinks tea and coffee, these fluids should not be restricted, as it may lead to dehydration. However, tea and coffee should not provide the only source of fluid intake.

Alcohol has a diuretic effect; however water and alcohol content is variable depending on the type of alcoholic beverage consumed. A standard drink of beer will have more water and less alcohol than a standard drink of wine and even more so than in a standard drink of spirits. Without additional fluids, alcoholic drinks may cause dehydration and should be limited (Benelam and Wyness 2010; Schols et al 2009). The National Health and Medical Research Council recommends no more than two standard drinks a day for men and women.

For older people that have swallowing difficulties (dysphagia), the use of fluid thickeners can assist with fluid intake. When using thickened fluids, care needs to be taken when preparing the correct viscosity. Fluid entering the lungs (aspiration) may result if fluids are too thin. Fluids that are too thick may cause a person to choke or deliver less water than the measured volume, increasing the risk of dehydration. Staff training in the preparation and administration of thickened fluids is recommended (Hines et al 2010).

Further research is required to determine the effectiveness of oral hydration supplements. In one study, hydration was found to have been significantly improved when an oral hydration solution was supplied to supplement fluid intake up to the client’s pre-determined total fluid goal. The study was however, not randomised or controlled and included a small number of experimental subjects (Hodgkinson, Evans and Wood 2001).
MONITORING HYDRATION STATUS AND FLUID INTAKE

Individuals should be screened and monitored for hydration problems. General monitoring should include any signs or symptoms of dehydration, the onset of complications, and the impact of treatments including any undesired effects of treatments. Monitoring of vital signs, general strength, function and cognition should be conducted.

If an individual is determined to be at risk of dehydration, monitoring fluid intake and urine output should be performed. This is usually only feasible or needed for short-term fluid monitoring and for people in whom acute changes in fluid balance are clinically important. Daily weighing using accurate scales is another method of monitoring fluid balance (Scales 2011). This can be followed with further laboratory assessments for dehydration to confirm a diagnosis (Ruxton 2012).

A dehydration risk appraisal checklist (DRAC) can also be used to identify individuals at risk of dehydration (see appendix for checklist).

URINE COLOUR

Urine colour has been promoted as an effective method for monitoring fluid intake. Urine that is plentiful, odourless and pale in colour (pale straw) generally indicates that a person is well hydrated. Dark (like apple juice), strong-smelling urine in small amounts could be a sign of dehydration.

However, there are medications, vitamins and foods which change urine colour and urine passed when dehydrated can still be pale (e.g. urine passed with high outputs of sugar is usually pale). Also, incontinence pads which are commonly used in aged care makes it difficult to assess urine colour. Decisions about fluid status based just on urine colour may be incorrect for several reasons but the interpretation of colour change in urine may be a useful alert to a need for more fluid intake or to investigate further.

The best results are obtained in older adults with adequate renal function once the effect of discolouration by food and medications has been ruled out. This method is most effective when the average urine colour baseline is calculated over several days (Mentes, Wakefield and Culp 2006).
**RECOMMENDATIONS FOR HYDRATION**

The following are recommendations for improving adequate fluid intake among the older person for use in residential aged care and HACC:

1. Frail older people should drink at least 1500mL of fluid a day, unless advised otherwise by their doctor
2. Provide or encourage small amounts of fluid to be taken consistently throughout the day
3. Offer fluids at 1.5 hourly intervals to bedridden residents through the day
4. Offer preferred fluids
5. Caffeinated beverages (e.g. tea and coffee) are a source of fluid and can be counted towards the daily fluid intake goal. Tea and coffee should not be the only source of fluid intake
6. Alcoholic beverages should be limited to no more than two standards drinks a day for men and women
7. Identify and monitor at risk individuals; fully dependent for dehydration and semi-dependent for adequate fluid intake
8. Monitor fluid intake and or output
9. Educate carers and older people on the volumes of containers to serve fluids
10. Promote fluid intake at the beginning and end of organised activities and also during the activity


The following is a brief summary of the resources to be found on the CD-ROM which is included in the kit. These resources are available in pdf format. Note some of these resources are only available electronically on the CD and not included in the printed booklet.

You will need Adobe Acrobat Reader installed in your computer to download and view these files. This program can be obtained free at the following web address: www.adobe.com.

### Standard 2.10 Nutrition and Hydration Recommendations for Hydration

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**Category: Care provision tools for staff**

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