



Modifying the Home After Stroke

Grey Bruce District Stroke Centre

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Introduction

The environment can significantly influence the abilities of an individual who has had a stroke. To function at an optimal level the environment must be suitable. By changing the environment we can optimize function and participation for the individual.

The purpose of this guide is to assist the stroke survivor and caregivers to adapt the home environment after stroke. The *Modification of the Home* section is adapted from the Internet Stroke Center at Washington University. Thank you to Adam Istas, Managing Editor of the Internet Stroke Center for allowing us to use this material. The format has been slightly adapted to include tips from the Heart and Stroke Foundation of Ontario's *Tips and Tools for Everyday Living*.

Following *Modification for the Home* is a section of resources. These are suggested from an Internet search and are for your information only. We have not investigated these sites for quality especially the commercial sites. Financial resources are also included.

The section, *Resource Information on Assistance for Adaptations*, describes resources that are available provincially. You may want to consider adding local resources to this section, for example, Stroke Recovery Network, CCACs, Home and Community Services and accessibility groups, etc.

The Appendix focuses on concepts about environment and disability.

Acknowledgements

Thanks to Ken Boe, our Long Term Care (LTC) representative on the Grey Bruce District Stroke Centre Working Group for suggesting that we compile information on environment and stroke. Unfortunately we did not find specific information for LTC but we feel the information presented is applicable. Thank you to Greg Ott, Occupational Therapist, Grey Bruce Health Services Rehabilitation Unit for his assistance.



Modifying the Home After a Stroke

The changes following a stroke can impact one's ability to perform typical daily activities. When a stroke survivor returns home, the home environment itself can also impact their performance. While the home environment includes physical features such as the housing materials, structures, and special equipment, it also includes the social and cultural environment as well as the customs and preferences of individuals. It is important that the environment support continuing recovery and safety for the survivor. This guide is intended to provide very basic information to stroke survivors and their families about potential problems with the physical aspects of the home.

"Remember that adjusting to the effects of stroke takes time. Appreciate each small gain as you discover better ways of doing things."

The effects of a stroke are different for everyone, depending on the part of the brain injured, how bad the injury is, and the person's general health. Effects such as weakness, paralysis, problems with balance or coordination, pain or numbness, problems with memory or thinking, tiredness, and problems with bladder or bowel control can all change the way a person functions in the home. It is a good idea for the survivor to have a trial visit at home before they are discharged so that changes and corrections can be made before returning home. Some disabilities may not be noticed until the stroke survivor returns to daily tasks. Since each person is unique, changes to the home are most effective when they meet one's specific needs. An occupational therapist can help to determine the best home modifications to suit your situation. The suggestions and options presented here are very general and are intended to guide you in seeking professional assistance.

"Experiment. Until you find what works for you, try new ways of doing activities of daily living, communicating with each other, scheduling the day, and organizing your social life."

The information in this guide is organized by room. Although many of the suggestions seem simple, the effects of such alterations have the potential to greatly increase the safety, independence, and general comfort level of the stroke survivor.

WHAT IS A HOME ASSESSMENT?

To answer this question, Julie Westre, OT, Program Director for the Washington University's Stroke Caregiver Support Program (www.neuro.wustl.edu/smart/scsp.html) was contacted by the Internet Stroke Centre. Julie says most of her recommendations are common sense—they are most often safety issues that the caregivers and survivors may not have considered. "Preventing falls is very important," she explained. Simple solutions such as adding lighting, removing floor clutter, and improving shower entry can make a big difference. Julie finds that survivors often need reminders to take their time getting up and to always use their assistive devices (such as walkers or canes) around the house.

Although the Stroke Caregiver Support Program is unique to the St. Louis community, Julie recommends that stroke survivors and caregivers talk to their hospital, doctor, or local stroke advocacy group to find out about similar programs in their area. If stroke survivors are ineligible for such a program, she suggests that before returning home, they take time to consider their everyday activities in order to come up with possible solutions for potential problem areas before they occur. Julie emphasizes the importance of emergency phone number posted throughout the home as well as a specific plan to have people check in regularly to help with unexpected concerns or problems. She also suggests coming up with a safety checklist before the stroke survivor returns home. Health professionals, friends, and family members can all be involved in this planning process. In addition, the support of friends and family can help alleviate stress by doing things such as running errands, helping with cleaning, encouraging rehabilitation activities and supporting therapists' training, as well as communicating with friends and family to help delegate responsibilities if possible, depending on the severity of the situation.



THE BATHROOM

"The bathroom is the only place where I've fallen since my stroke. However, after talking to my occupational therapist about how to most safely get into and out of the shower, I feel a lot better about taking showers on my own."

The bathroom is the most dangerous part of the house for anyone with physical disabilities. It is difficult to move about on small, slippery surfaces, and falls onto hard tile can cause significant injury. Stroke survivors may need considerable personal assistance to complete the most basic activities of daily living.

Fortunately, there are many approaches that make it easier and safer to use the bath, sink or toilet. Your occupational and physical therapists can provide training in personal care techniques. Some home modifications and devices are described below. Many simple items, such as non-slip flooring and scrub brushes, are easy to purchase and install. Important safety devices like tub benches and toilet chairs are available from medical supply stores and home health services by prescription, and may be covered by your insurance. Professional installation will be required for major bathroom modifications, such as sturdy handrails and replacement fixtures. Please be sure to discuss bathroom safety with your stroke care team before moving to any new home environment.

Bathing

Balance and Stability

- When getting into a shower or tub, the use of a cane, walker, wheelchair, or scooter can be supplemented by grab bars secured to the walls. Grab bars assist with stability when one is getting into or out of the bathtub or shower as well as balance while standing in a bathtub or shower. A person with good upper body strength can hold on to the grab bars while moving or standing to provide more support to the body.
- A bathmat or non-skid bath decals on the floor of a shower or tub can help a person feel more stable while getting into and out of wet and often slick area. Flooring outside the bathtub or shower should be a non-buckling and non-slick surface, which can be obtained by the use of rugs with non-slip backing.
- The transfer tub bench is a seating device in the tub that extends beyond the side of the tub. The extended part of the bench is used for sitting and sliding across into the tub without having to step into the tub. The person must lift their legs over the side of the tub instead. This device is often used with a hand-held shower, since the person remains seated while showering. A shower chair provides a place to sit in either a shower or bathtub. This bath device usually has rubber tips on the legs to prevent sliding. A shower chair can provide stability for someone with difficulty balancing and a place to rest for those who have difficulty standing for long periods of time. When used with an adjustable showerhead, the person can remain seated for bathing.



- The foldout bath bench can be used in either a walk-in or roll-in shower to enable easy transfers from a wheelchair or a walker. This provides a place to sit rather than stand, which lessens the likelihood of a fall.



- A roll-in shower eliminates the hazard of stepping over the side of a conventional tub. A person can safely enter the shower with her walker or wheelchair as needed.



Water Control

- Being unable to control water while bathing is a potential safety hazard for stroke survivors. To prevent burning, water control knobs and handles should be easy to operate. Levers on controls have long handles that can be easily operated using the whole arm. To allow a person to turn on the water before entering the tub, one can use offset faucet handles, which are controls placed closer to the side of entry. This reduces the distance a person must reach to turn on the water.
- For stroke survivors with impaired vision, adjustments may need to be made to allow them to read the heat settings on a water control knob. Knobs with high color contrast and large words are easier to read. It may be helpful to mark desired settings with colored stickers to ensure that the individual can set the control to the correct temperature. The use of a thermometer to prevent burning may be necessary for individuals whose sense of touch is less sensitive due to their stroke.
- An adjustable showerhead or a hand held shower allows the stream of water to be raised or lowered. This is especially useful when using a bath chair or bench, as a person who is seated is much lower than one who is standing in the shower.



Washing and Drying

- When an individual has limited movement, it may be difficult for him to wash some parts of his body. To aid in this process, one can use a long handled sponge. The sponge holds soap and water and releases it with little needed pressure. A large sponge may be used to wash large areas such as the back, legs, and feet. A small sponge with a brush may be used for getting between body spaces such as under nails and between toes.



- It may also be difficult for a stroke survivor to access soap. Squeeze bottles and soap pumps may be easier to use than bar soap, which is slick and can easily be dropped. These containers can be secured with suction pads or Velcro, or, in some cases, mounted directly to the walls. Once these containers are stabilized, the soap can be dispensed using only one hand.



- In order to ensure that towels can be easily accessed, they should be located at heights that are best suited for the individual. A lower bar & additional hooks may be necessary.

Using the Toilet

- Many of the same problems a stroke survivor may face when entering the bathtub or shower are associated with using the toilet. Therefore, the similar use of a cane, walker, wheelchair, scooter, handrails, or grab bars can help an individual to stabilize herself when sitting on and getting up from the toilet. In addition, the floor surrounding the toilet should not be slick. If bath rugs are in front of a toilet, they should have some sort of backing to prevent sliding, such as non-skid tape.



- Changing the height of the toilet may make using the toilet less difficult. A raised toilet seat or a toilet seat riser reduces the distance from a standing to sitting position so a person does not have to squat or bend down as far to reach the seat. Risers are usually made of plastic and can be placed on top of the toilet seat or between the seat and toilet rim. Some have grab bars attached or are part of a commode chair.



- A three in one commode chair has three features: a raised seat, grab bars on both sides of the chair, and a removable bucket. This proves to be very useful for an individual who has difficulty getting to the bathroom, as it can be kept nearby the bed or sitting area. The grab bars on either side can prevent a person from falling and also can be used to push up on or lower the body down to the seat. This combination chair can also be used over an existing toilet with the bucket removed.



- Because accidents are often unavoidable, it is a good idea to keep a pair of clean garments in all bathrooms. Stroke survivors may also feel more comfortable if they wear disposable under-garments.

Grooming

Using the Bathroom Sink

- Faucets are often easier to use when the handles are lever handles, which allow a person to turn water on and off with a fist or arm movement. Finger movements and grasping is often difficult for stroke survivors, so handles that require these types of movements may need to be replaced.



- A person in a wheelchair will find it difficult to reach the sink unless the sink is a cut-out or roll under sink, which provides room for legs underneath the seat while in a seated position. Someone who uses a walker or cane may find it helpful to use a roll under sink so they can sit on a chair while at the bathroom sink. A cabinet under a sink may be removed to provide the space. In addition, pipes should be covered or insulated to avoid leg burns.



- Someone who is forced to use only one hand will find it difficult to use items such as nail brushes and soap bottles. Suction pads can be used to hold tools in place on a counter top. Using the suction pad as a stabilizer reduces the need for using a hand to hold the object. Squeeze bottles and soap pumps may be easier to use than products' original containers.



- Brushing teeth can be made easier by increasing the size of the toothbrush handle and using a flip-top for dispensing toothpaste. A toothpaste squeezer may also be helpful for people with limited grasping ability.



- To ensure that the individual is able to set the water to the correct temperature, it may be useful to mark the desired settings just as one with limited vision or feeling would do for their bath faucet.
- When shaving, an electric razor may be easier to handle and safer than a regular razor.

TIPS ON GROOMING, BATHING AND TOILETING

(From Tips and Tools for Everyday Living, Heart and Stroke Foundation of Ontario)

Grooming After Stroke

Setting Up Grooming Items

- Does the survivor have neglect on his affected side?
- You may have to point out the items on the survivor's affected side.
- Provide hand-over-hand guidance and/or cueing.
- Encourage use of the affected limb.
- Encourage survivor to use affected hand to assist with grooming tasks.
- Proper positioning at the sink reduces strain and fatigue.
- Properly support and position the affected arm.
- Recognize and encourage completion of tasks.

Bathing After Stroke

Assisting a Survivor Who Uses a Tub Transfer Bench

Set-Up

- Non-skid bath mat, decals and wall grab bars can reduce risk of slipping.
- Avoid bath mats or rugs on the bathroom floor.

- Ensure water is at an appropriate temperature.

Procedure

- Transfer onto the part of the bench that sits over the side of the tub.
- Assist the survivor to move buttocks back onto the bench.
- Assist the survivor to turn and get legs over the side of the tub.
- Ensure the survivor is well-positioned on the tub transfer bench.
- Encourage the survivor to do as much of own washing as possible.
- To get off the transfer bench, assist the survivor to lift legs out of the tub.
- Position the survivor to sit on the edge of the bench.
- Dry the survivor off as much as possible.

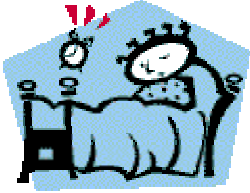
Managing Continence After Stroke

Symptoms of Bladder Dysfunction

- Loss of urine with coughing, sneezing, movement or no movement.
- Difficult to stop urine stream.
- Dribbling between voids.
- Unsuccessful rushes to the bathroom.
- Voiding more than 8 times during the day or 2 times at night.
- Weak or interrupted urine stream.
- Sensation of bladder fullness, even after voiding.
- Frequent bladder infections.
- Awareness of the need to void seconds before the bladder empties.
- Periodic agitation or changes may signal infection.

How to Help

- Commode or toilet preferred to a bedpan.
- If a bedpan is used, raise head of bed upright.
- Make call for assistance easy.
- Keep urinal in easy reach.
- Try fixed schedule to void.



THE BEDROOM

“After the stroke, like everything else, dressing myself takes a lot longer -- especially when my clothes have buttons.”

Of all the rooms in the house, it seems most important that your bedroom be a place where you can feel comfortable and safe. Because this is a private area of the home for you, it should be catered to meet your needs.

To increase your independence in your bedroom, you may need to reorganize your clothing and personal items so that they are accessible by you, the stroke survivor. To increase your safety, you need to be sure that help is within reach if needed. It is also important to consider the room from a nighttime perspective: adequate lighting, clear pathways, and access to a toilet are essential in order to avoid accidents in the dark.

Storing and Accessing Clothes

- When a stroke survivor returns home, he may find himself unable to access his clothes due to where or how they are stored. By changing the type of handle from one that requires fine finger movements to open the door or drawer to one such as a cabinet handle or d-loop, which can be opened with a fist, the person may again be able to access his clothing with little or no assistance.
- The height of clothes in a closet or drawers in a dresser may also be a problem for stroke survivors. This problem can often be solved or lessened by lowering the closet bar or organizing the dresser so that frequently used clothes are in the most easily accessible drawers.



Dressing

- To eliminate the difficulties in getting dressed, stroke survivors can avoid clothing that may be difficult to put on. The National Stroke Association suggests to “avoid tight-fitting sleeves, armholes, pant legs and waistlines; as well as clothes which must be put on over the head.” Clothes should have fasteners in the front. To make fastening clothes easier, Velcro fasteners or elastic can be used in place of buttons, zippers and shoe laces.
- Dressing aids are also available. A reacher, button hook, dressing stick (for putting on clothing and socks and reaching items from a closet), mirror that hangs around the neck, sock aid (which is used to put on socks when someone has difficulty reaching his feet), long handled shoe horn, and elastic shoe strings can all be used in this process. See web links section for Internet sites at which you can purchase such items.



Sleeping

- To avoid accidents in the night due to being unable to get to the bathroom soon enough, a stroke survivor may want to keep a commode chair near the bed. A three in one commode chair has three features: a raised seat, grab bars on both sides of the chair, and a removable bucket. During the day or when it is not needed, the commode chair can be kept in a nearby closet.
- Stroke survivors must also understand that accidents are often unavoidable. To make accidents easier, blue pads can be placed underneath sheets on the bed. Blue pads are pads, often washable and reusable, with a cloth and waterproof side to prevent staining on furniture.
- Keep bedspread clear of walking paths.
- Keep a telephone and light switch or lamp within easy reach of the bed.



TIPS ON MOBILITY, PERCEPTION AND COGNITION

(From *Tips and Tools for Everyday Living*, Heart and Stroke Foundation of Ontario)

Principles for Assisting the Stroke Survivor

The goals of assistance are to:

- Ensure survivor safety and comfort.
- Improve quality of movement.
- Attain highest level of independence possible.
- Treat each person as different and unique.

Tips

- Avoid overtiring the survivor.
- Move slowly and gently.
- Talk with the survivor.
- Encourage the survivor to participate as much as possible.
- Use good body mechanics.
- Never pull on the affected arm or under the shoulders.

Assisting A Survivor Who Has A Low-Tone Shoulder

- When the survivor is sitting, support the affected arm at all times, using a lap tray or arm trough.
- Always be careful when handling the limb or repositioning the survivor.
- Seek the advice of a professional if needed.
- Avoid using passive range of motion exercises on the limb.
- Never pull on a limb during a transfer, when assisting the survivor to move in bed, or to walk.

Assisting A Survivor Who Has A High-Tone Shoulder

- Supported positioning of the limb in good alignment can help reduce pain and muscle imbalance.
- Avoid passive range of motion.
- Report joint or tissue pain to the appropriate person for follow-up.
- Follow the recommendations of the therapist or other health professional involved.

Principles for Positioning

Preserve normal body alignment.

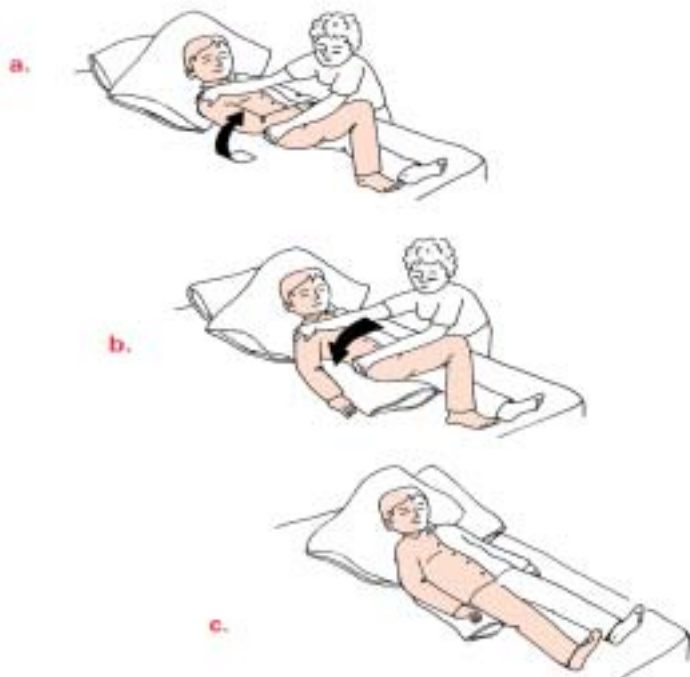
Alter the abnormal tone patterns that can be associated with hemiplegia.

Increase awareness of the affected side.

Lying on the Back

Head is in a neutral position (not moved forward or backward).

Pillows are used to support the head, the affected arm and affected hip.



Side-Lying

Tell the survivor what you are going to do and make sure they are ready.

Turn the survivor onto the affected side.

Place a pillow under the head.

Position the affected leg straight and slightly behind the trunk.

Position the affected shoulder slightly forward of the body and straight at the elbow.

Place a pillow under the uppermost arm and in front of the survivor's stomach to prevent him from falling forward.

Place a pillow between the legs.

Moving From Lying to Sitting

Ask the survivor to:

- Bend both knees up.
- Lift and turn their head to look in the direction of the roll.
- Roll completely over onto the side, without forgetting the affected arm.
- Bend hips up (draw knees toward chest).
- Slip both feet over the edge of the bed.
- Push up with the arm(s), while looking up.
- Sit up tall.

Sitting in a Chair

- Remember the 90° rule—hips flexed at 90°, ankles at 90°, elbows at 90°.
- Regularly remind/assist survivor to reposition hips back in the chair.
- Use a lap tray to support the affected arm.

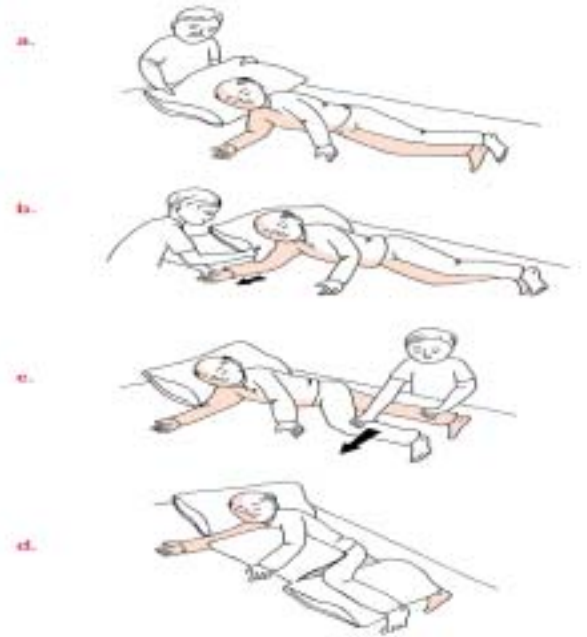
Principles of Safe Transfer

- Prepare for the transfer
- Make sure wheelchair brakes are applied, armrests removed, footrests are up/out of way
- Bring buttocks closer to the edge of the wheelchair, shifting one side forward at a time
- If the survivor overuses the unaffected side, do not start the transfer
- Position yourself as close to the survivor as possible, without blocking their movement or vision
- When assisting the upper body, place hands around upper back and shoulder blades
- Bend your knees when assisting the survivor with the transfer
- Shift weight from front foot to back foot as you assist with transfer
- Avoid pulling the person's affected arm
- Do not lift the survivor by placing your hands under their arms or armpits

Cognitive and Perceptual Problems After Stroke

Approaches for Lack of Focus

- No distractions.
- Short and simple instructions.



- Direct eye contact.
- Allow more time to think.

Approaches for Memory Impairment

- Memory aids (day planner, calendar).
- Consistent routine and environment.
- Store items in the same place.
- Short and simple instructions.
- New information one step at a time.
- Signs, pictures, familiar items.

Approaches for Impulsivity

Encourage survivor to:

- Slow down.
- Think about the task and break it into small steps.
- Stop and perform a specific task.

Approaches for Lack of Insight and Judgment

- Watch to see what the survivor can safely do, rather than take their word for it.
- Keep situations simple.
- Make the environment safe.
- Consistency is very important.

Approaches for Impaired Abstract Thinking Skills

- Step-by-step instructions.
- One thing at a time.
- Direct messages.
- Don't take comments personally.
- Help with problem-solving.
- Discuss changes in advance.
- Train new tasks in actual settings.

Approaches for Perseveration ('Getting Stuck'), Inability to Sequence, and Problem-Solve

- Difficulty starting a task is not a sign of laziness.
- Clear, step-by-step instructions.
- Help plan out the task.
- Give time to practice the sequences.

Approaches for Time Awareness

- Link events to other events, not to time.
- Review the daily schedule.
- Reduce anxiety about an appointment.
- Acknowledge perception, but also present the reality.
- Maintain a consistent schedule.
- Use digital or talking clock.

Approaches for Visual and Auditory Neglect

- Create activity/stimulation on the affected side.
- Approach from the unaffected side.
- Positive approach.
- Visual cues.

Approaches for Body Neglect

- Position the affected arm within survivor's view.
- Gently stroke the affected arm (but make sure it doesn't cause tightness).
- Use cues as required.

Approaches for Apraxia

(Difficulty planning or performing specific movements)

- Physical cues (e.g., label on the back of a shirt).
- Short and simple instructions.
- Verbal cues/instructions instead of demonstration.
- Break the task down.
- Consistent routine.
- Provide positive feedback after each step.
- Hand-over-hand guidance when needed.

Approaches for Impaired Depth and Distance Perception

- Assistive strategies and devices.
- Practise and repeat activities.

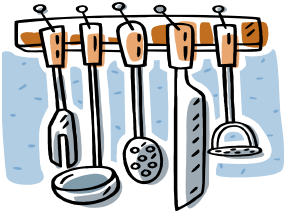
Approaches for Vision Problems

Encourage survivor to:

- Use recommended techniques.
- Turn head to the affected side for visual field deficit.
- Wear an eye patch or prism glasses, if prescribed.

Approaches for Sensory Deprivation

- At night, soft radio or TV, night light.
- Provide stimulation to environment.
- Present information clearly.
- Remove unnecessary distractions.
- Reorient survivor to their location, date, time etc., throughout the day.
- Explain/clarify misperceptions clearly and calmly.
- If confusion continues, change the topic.
- Glasses and hearing aids, if prescribed.



THE KITCHEN

“Since I started working with my speech therapist, swallowing has slowly been getting less difficult. She showed me how to hold my chin differently so I don’t feel like I am going to choke.”

Being unable to enjoy activities that you once did because of recent disabilities can be extremely frustrating. For many stroke survivors, dining is one such activity. Using utensils, sitting up to the table, and swallowing are often difficult following a stroke.

In addition to help from health professionals such as a speech therapist and a nutritionist, specialized utensils and dishes are available that may make dining less frustrating and more enjoyable. Whatever the obstacle, patience plays a key role in improving your dining experience.

- A plate guard or scooped plate can be used to scoop food onto a utensil. The guard attaches to most plates and is commonly used by people who have controlled movement with only one hand. Food can be pushed by a utensil against this wall-like device that curves along the edge of one side of the plate. A damp washcloth or rubber product can be used to stabilize the dish to make dining easier as well.
- Stroke survivors often find it difficult to control their food. This can be made easier by using utensils with built-up, bendable, or weighted handles. Built up handles increase the surface area of the utensils to reduce the need for a fine pinch to hold the utensil, instead only requiring a gross motor grasp. Rubberized handles prevent the grip from slipping. Weighted handles are useful for a person who has tremors or uncontrolled movements that cause spilling. The heavy weight of the handle can reduce the amount of movement in a shaking hand.
- Swivel forks or spoons keep food in the same position while the handle of the utensil moves. This is useful for a person with unwanted hand movements to decrease spilling food before it reaches her mouth. People who have difficulty holding utensils can also use universal cuff utensils. The cuff fits around the hand and the utensils are attached to the cuff, requiring only arm movements to control the food. It is often necessary for people with limited or compromised hand movements, such as being unable to pinch or grasp, to use these utensils.
- Drinking can be made easier by using a cup with a lid and straw. This replaces sipping from the side of a cup, which is important for a person with reduced muscle control at the mouth. This reduces the risk of spilling or dribbling. A weighted cup is similar to weighted handles on utensils. This weighs down a hand with tremors or uncontrolled movement, reducing spills.



- For a person who is not in a wheelchair but has trouble controlling their body posture, it is important for them to have a chair that supports their posture while at the dining room table. It is also important for them to have adequate cushioning that properly fits the chair. To make dining as comfortable as possible, a person in a wheelchair should have access to a table that is of a proper height for the wheelchair.



- In addition to using specialized utensils and tools, survivors of severe strokes may need to have their food chopped, ground, or pureed. Sometimes, liquids need to be thickened. A speech therapist can give advice on how to avoid swallowing or choking problems. The survivor's physician or a nutritionist can help to develop a specialized diet and fluid intake amount to lessen the chance of additional strokes.



"I still like to do my own cooking in the kitchen. It's more difficult than it used to be, but it's getting easier, as I keep finding ways to do things differently."

The kitchen can be a dangerous place for stroke survivors with movement limitations or decreased sensation. Kitchens are often small spaces with counters and appliances that are difficult to access from a seated position. Hot or sharp objects as well as any type of object that is difficult to reach can pose serious safety hazards for anyone, but often more serious for people with disabilities.

In order to prevent accidents, it is important to consider every aspect of the kitchen that you will come into contact with on a daily basis. With some thoughtful planning, you may be able to feel safe enough to prepare your own food or at least be able to do things in the kitchen with some help. Some of the suggestions below involve major construction changes; others are simple organizational ideas that may make kitchen activities more feasible.

Using the Stove

- When stove controls are placed at the front of the stove, one does not have to reach over the burners to adjust the temperature. Push button controls eliminate the need to turn the hand or wrist if this movement is difficult for the person, but, on the other hand, these controls may be more cognitively demanding. Controls arranged in the same location as burners simplify the thought processes needed to turn on the correct burner. Automatic shut off controls can be installed to stoves to increase the safety for people who may forget to turn off the stove.
- An over-the-stove mirror can be used to reflect the contents inside of pots and pans on the stovetop so that someone in a seated position can see despite the height of the stove.
- A person with decreased mobility will most likely encounter obstacles when trying to use a stove—obstacles that could be safety hazards if not addressed. Just as one may turn their bath-room sink into a roll-under sink, one can create a roll-under stove by removing cupboards or moving the oven so the stove can be accessed from a wheelchair or other chair.



- People with reduced sensation or less ability to detect temperature change are at a greater risk for burning themselves. Oven mittens or hot pads should have a place near the oven and stove for easy access. Although oven mitts and hot pads can protect the skin from burns, they may also make it more difficult to hold a pot or pan.
- A clear space near the stove or oven also needs to be available to place the dish quickly to prevent spills, which could lead to burns. A nearby cart with a heat resistant cutting board or a heat resistant cutting board to hold in one's lap are possible solutions.
- A fire extinguisher should be within easy reach.



Using the Kitchen Sink and Countertops

- The height and depth of normal kitchen sinks often prove to be obstacles for stroke survivors with limited movement. A roll-under sink allows a person in a wheelchair to approach the sink with the chair facing the sink, as it provides room for one's knees to fit underneath. Covered or insulated pipes are needed to prevent leg burns. Lowering the height of the sink can also increase the accessibility of the sink for a person in a wheelchair, but must be high enough for the person's knees to fit under the sink. In addition, a shallow sink can be helpful for a person in a wheelchair, as it does not require the person to reach down too far. If the sink has a roll-under space, the shallow sink may also allow for more legroom underneath the sink. Lever handles allow a person to turn water on and off with the use of a fist or arm movement rather than finger movements or grasping.
- The height of countertops can be modified for a person in a wheelchair as well, as the standard countertop height of 36 inches is usually too high for a person to reach from a seated position. Counters of different heights may provide spaces for all household members to use in the kitchen. Roll-under countertops, like roll-under sinks, allow for a person in a wheelchair or standard chair to more easily work at the countertop in a seated position.



Storing and Accessing Food

- When it comes to food storage and access, organization is the key.

- A side-by-side refrigerator, which has the freezer on one side and the refrigerator on the other, allows a person in a seated position the ability to access both the freezer and the refrigerator. When the freezer is stacked on top of the refrigerator, frozen foods can be difficult to reach and may even fall on a person's head as they are pulling down items.



- A person with impaired vision may be unable to read some of the labels on food and spice containers. Labeling containers with black bold letters in all caps on a white background may help to make identifying foods easier. Plenty of spacing between bottles makes for easy identification and removal from the shelf or rack. Switching some foods or spices to containers with larger-sized lids may help to make the containers easier to open.



- Cutting food can be dangerous if the stroke survivor has trouble using their hands. Purchasing pre-sliced foods may be the safest solution to this problem. Weighted handles or built up handles make utensils and cooking tools easier to handle. A spiked cutting board or a non-skid surface holding the cutting board can also decrease the chance of being cut.



- To avoid outdated or spoiled food, leftover food should be dated and perishable foods should be disposed when expired.

Household tasks such as cleaning and doing laundry may be impossible or difficult for stroke survivors with severe disabilities. However, some modifications may make these or some of these tasks possible or less difficult. Before you return home, a plan should be in place for ensuring that regular home cleaning will be taken care of, as an unclean environment in any room of the house is a health and safety hazard for anyone.

TIPS ON EATING

(From Tips and Tools for Everyday Living, Ontario Heart and Stroke Foundation)

Assisting A Survivor Who Has Swallowing Problems

In General

- Ensure safe feeding practices.
- Observe for signs and symptoms of swallowing problems.
- Refer for assessment.

Set-Up

- Minimize distractions.
- Proper positioning is essential.

Problems in the Mouth/Problems You Can See

- Coughing/choking.
- Drooling/poor lip closure.
- Pocketing of food.
- Difficulty swallowing pills.
- Poor intake.

- Rate of eating.

Feeding Suggestions

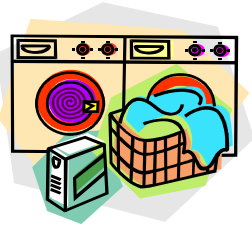
- Monitor/cue rate.
- Small amounts of 1 tsp.
- Remain upright at least 30 minutes after meal.
- Napkin/cloth for drooling.
- One to two pills at a time (apple sauce/thick drink).
- One food item at a time.

Proper Mouth and Dental Care

- Proper cleaning of the mouth, teeth and dentures is essential especially after last meal and before bed
- Check for pocketing of food.
- Link between gum disease and heart disease, pneumonia and stroke.
- Need to remove plaque from teeth, dentures, roof of mouth, tongue and cheeks.
- Assist the survivor to brush mouth, teeth and dentures.

Tools

- Soft bristle toothbrush.
- Do not use toothettes.
- Alcohol-free mouthwash.
- Electric toothbrush.
- Enlarged handle, denture brush.



DOING LAUNDRY

- Even if the stroke survivor is limited to a wheelchair, with a few changes, he may still be able to do his own laundry. In order for this to work, the machines may need to be relocated to the main floor of the home if they were previously on a different floor and it is difficult or not possible for the person to climb stairs. To provide enough space, stackable washing machines may need to be used. Front loading washing machines are usually more reachable for someone doing laundry while seated. The arm movements required for loading the front of the machine differ from the arm movements for loading into the top of a machine; in general, front loading requires a smaller range of motion.
- Visible markings for wash settings, such as colored stickers, can provide cueing for people with low vision or with memory or problem solving difficulties. Furthermore, the larger the dial or knob, the easier it will be for the person to change the wash setting. Buttons rather than knobs may be necessary for stroke survivors who are unable to produce a turning motion with their hand or wrist.
- A nearby table or cart of adequate height can make doing laundry easier, as wet clothing is heavy and often difficult for someone with low endurance and decreased strength to transport. This way, fewer items can be removed at a time and placed nearby, saving time and energy.
- A fold down ironing board may take up less space and requires less energy and fewer movements to assemble and disassemble.
- Well-organized supplies in easily accessible containers such as clearly labeled squeeze bottles and soap pumps can ease the laundry process as well.





CLEANING

After a stroke, when the survivor has less energy and endurance, everyday cleaning tasks such as sweeping, mopping, washing counters, walls and other surfaces, garbage disposal, and general tidying may need to be done while seated. Working in small areas and taking frequent breaks can make these tasks more manageable. Products are available to simplify steps in cleaning processes, such as disposable wipes presoaked in cleaning solutions or multipurpose solutions for cleaning multiple objects.

- The weight of items such as garbage and buckets of cleaning water may be too heavy for someone with decreased strength. Smaller containers, wheeled push carts, and lightweight mops and brooms require less energy and strength to handle.
- Cleaning supplies may need to be switched to more easily handled containers such as sprayers or soap pumps, depending on the limitations of the individual's movement. Long handled brushes and sponges and vacuums with extensions can be useful aids for hard-to-reach places. All frequently needed items should be placed on shelves or in drawers at optimal heights.





DOORWAYS, FLOORING, STAIRWELLS AND OTHER SUGGESTIONS

Below are suggestions about considerations that you should make throughout your home before you return following your stroke. Especially if you are in a wheelchair, you may need to make modifications that require professional installation. Other pieces of advice apply to homeowners in any situation.

Doorways

- Entryways and hallways should have a 32-inch clearance to accommodate people in wheelchairs. When doors do not open as wide as hinges were designed, application of a lubricant allows the hinges to work as they were designed. This extra space can allow a person using a wheelchair or walker to fit through the doorway. The edges of a swelled door may need to be shaved to allow for extra space as well.
- Stroke survivors who are unable to grasp with their fingers or twist their wrists to open doors can use a downward movement of their fist to open lever door handles more easily than regular doorknobs. The location of the knob may need to be moved as well.
- Swing away hinges, folding doors, or pocket doors can make passage through doors less difficult. To provide more space or clearance in doorways, doors between rooms can be removed.
- Uneven threshold should be fixed or changed to prevent tripping and allow easier wheelchair access. A portable ramp is often an affordable solution.
- It may be necessary or helpful to place blue pads on chairs that the stroke survivor sits in for long periods of time. Blue pads are pads, often washable and reusable, with a cloth and waterproof side to prevent staining on furniture. They can be covered with a blanket or cloth to be made unnoticeable.
- To allow for movement in a wheelchair, furniture may need to be moved and thick rugs may need to be replaced. Rugs should be moved unless they are sufficiently secured to the floor with some sort of non-skid tape. Electrical cords should be free from pathways as well.



Flooring and Stairways

“Furniture should be positioned in low-traffic areas such as corners and sections of the room, out of the range of mobility. Individuals with sight impairments or mobility problems may run into furniture more easily.”

--New York State Office for the Aging

While slick surfaces should be avoided when possible, wearing non-skid shoes can prevent slipping. Secure carpets or runners can be installed in hallways or stairwells for traction.

- Handrails provide support while going up and down stairs. They may be attached to reinforced walls or the floor or ground. Outdoor handrails need to withstand weather conditions. A ramp may need to be added as well.



- A stair glide or stair lift is way to transport a person up or down stairs while the person is seated. A person transfers to the seat and rides up or down the stairs on a track. This electrical technology may cost several thousand dollars to install. A platform lift, on the other hand, is similar to a small elevator. This lift transports a person up or down stairs. The person can step onto the platform or roll a wheelchair onto the platform and then the platform electrically moves the person to a different level. Platform lifts are available for indoors or outdoors.



- Rugs should be taped down with non-skid tape or removed. Thick carpet should be replaced when it makes movement in a wheelchair difficult.
- To allow for movement in a wheelchair, furniture may need to be moved and thick rugs may need to be replaced. Rugs should be moved unless they are sufficiently secured to the floor with some sort of non-skid tape. Electrical cords should be free from pathways as well.
- Pathways should be clear of clutter and electrical cords. Extension cords can be used to reroute cords along walls, and cords should be secured to the floor or walls when possible. Cords with frayed ends should be discarded and replaced.

Other Suggestions

- Individuals who do not require a wheelchair but find it difficult to move from place to place on their own may need to use a cane, walker, or scooter, or they may feel more comfortable if handrails or grab bars are mounted to the walls of the home.



- Phones should be easily accessible for the stroke survivor in every room of the house. A cordless phone or a wearable call button may be necessary and would prevent tripping on a phone cord. Emergency phone numbers should be posted in a highly visible area.



- A large button phone is easier to read and use for survivors with limited movement or vision problems. High contrast such as dark on light or light on dark also helps people with vision problems to read the numbers and words on phones. A picture phone reduces the need to remember phone numbers or to press several buttons to make a call. The phone can be programmed to fit a person's individual needs. A symbol, drawing, or photograph corresponds to emergency numbers and numbers of family or friends.



- Install smoke detectors and carbon monoxide detectors and check them regularly. Have a well-thought-out and posted fire escape plan.



- If a person is likely to wander, home security may need to be increased or updated.

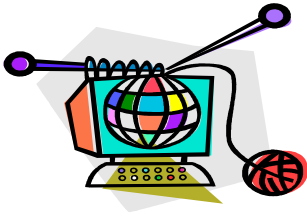


- To keep up with filling out necessary forms, using computerized programs, specialized filing systems, or human assistance can help to alleviate the stress associated with overwhelming paper work. Automatic monthly payments, web, phone, or mail payments, may ease the paying of bills. Enlarged checks and registers and writing guides are available for people who have trouble seeing or writing.

- It is important that trash be removed regularly and that flammable materials (including paper) be away from electrical outlets and cooking areas.

- Poor lighting poses a safety hazard and should be avoided, especially over stairwells. This can be avoided by increasing natural lighting, adding additional lamps, or changing the type of lighting. Replace light bulbs regularly.

- Especially in a large home, it may be helpful to increase the number of available chairs or places to sit, especially for stroke survivors with decreased energy and endurance.



Websites

Stroke and Home Accessibility Internet Stroke Centre

www.strokecenter.org/pat/ot

Division of Aging and Seniors, Government of Canada Publications

Go for It. A Guide to Choosing and Using Assistive Devices

www.phac-aspc.gc.ca/seniors-aines/pubs/injury_prevention/go_for_it/pdf/goforit%20_e.pdf

The Safe Living Guide—A Guide to Home Safety for Seniors

www.phac-aspc.gc.ca/seniors-aines/pubs/safelive/pdf/safelive_e.pdf

Kitchen

www.designlinc.com

Layout

www.cs.wright.edu/bie/rehabengr/Kitchens/floor.htm

Counter Heights

www.cs.wright.edu/bie/rehabengr/Kitchens/counter.htm

Cabinets

www.cs.wright.edu/bie/rehabengr/Kitchens/storage.htm

Sinks

www.cs.wright.edu/bie/rehabengr/Kitchens/sink.htm

Range/Cooktop

www.cs.wright.edu/bie/rehabengr/Kitchens/range.htm

Oven

www.cs.wright.edu/bie/rehabengr/Kitchens/oven.htm

Microwave

www.cs.wright.edu/bie/rehabengr/Kitchens/micro.htm

Dishwasher

www.cs.wright.edu/bie/rehabengr/Kitchens/dishwasher.htm

Refrigerator/Freezer

www.cs.wright.edu/bie/rehabengr/Kitchens/fridge.htm

Electrical Design

www.cs.wright.edu/bie/rehabengr/Kitchens/electric.htm

Accessible Kitchen Appliances

www.dynamic-living.com/news-kitchen-appliances.htm

Products for Singlehanded People (Commercial Site)

www.dynamic-living.com/singlehanded.htm

Hardware and Tools

www.dynamic-living.com/hardware.htm

Accessible Furniture

www.dynamic-living.com/accessible_furniture.htm

Aides for the Car

www.dynamic-living.com/for_the_car.htm

Design for Easy Access to Buildings by Physically Disabled Persons Lars Reuterward. Building Issues, 7 (4), 1995.

Housing for Persons with Disabilities available from Canada Mortgage and Housing

www.cmhc-schl.gc.ca

The Design Linc – Exterior

www.designlinc.com

Bathroom Design

www.designlinc.com

Bedroom Design

www.designlinc.com

Laundry

www.designlinc.com

Aids to Independent Living: Breaking Through the Barriers (Government of Canada)

www.sdc.gc.ca/asp/gateway.asp?hr=en/hip/odi/documents/independentLiving/00_toc.shtml&hs=pyp

Resource Information on Assistance for Adaptations

PROPERTY TAX PROVISIONS

Property tax relief and enhancements for people with disabilities and seniors were enacted under Bill 140, The Continued Protection for Property Taxpayers Act, in December 2000.

Bill 140 included changes to the Assessment Act:

- To exempt from taxation 10% of the property assessment for a new residence that accommodates a person with a disability or a senior and that helps them remain in their own home.
This is an expansion to what is allowed under section 3(1) 22 of the Act which permits a homeowner to make alterations, improvements and additions to an existing residential unit without an increase in property assessment, as long as the addition accommodates a person with a disability or a person who is elderly and prevents that individual from going into an institution for care.

Bill 140 also included changes to the Municipal Act:

- To require municipalities to provide tax relief on a permanent basis to low-income seniors and people with disabilities for all types of property tax increases. Previously, municipalities could provide relief only for tax increases due to reassessments.
- To allow municipalities to pass bylaws to cancel, reduce, or refund property taxes that are considered burdensome.

For additional information about the process for submitting an application for tax relief for a home that has been built or renovated to accommodate a senior or a person with a disability, please contact the tax department of your local municipality.

For general information about this tax relief program, contact the Ministry of Finance:

Tel: 1-800-263-7965

TTY: 1-800-263-7776

RETAIL SALES TAX REBATE FOR EXEMPT ITEMS FOR PEOPLE WITH PHYSICAL DISABILITIES

Provides an exemption from retail sales tax for purchases of equipment designed solely for chronic invalids or persons with physical disabilities. Equipment allowed includes service animals, bath and shower equipment, mobility aids, communications devices, diabetic items and other types of medical equipment, as well as transportation aids.

For more information, contact the nearest Ministry of Finance tax office listed under *Taxes—Provincial (Retail) Sales Tax* in the blue pages of your telephone directory, or find the nearest office at the Ministry of Finance:

www.trd.fin.gov.on.ca/userfiles/HTML/cma_3_1945_1.html

Or, contact the TAX FAX service at 1-877-482-9329 or

www.trd.fin.gov.on.ca/userfiles/HTML/cma_3_6727_1.html

HOME ADAPTATIONS FOR SENIORS' INDEPENDENCE (HASI)

This program helps homeowners and landlords pay for minor home adaptations to extend the time low-income seniors can live in their own homes independently.

Who is Eligible?

Homeowners and landlords may qualify for assistance as long as the occupant of the dwelling where the adaptations will be made meets the following eligibility criteria:

- Is 65 and over.
- Has difficulty with daily living activities brought on by ageing.
- Total household income is at or below a specified limit for your area.
- Dwelling unit is a permanent residence.

What Financial Assistance is Available?

Assistance is a forgivable loan of up to \$3,500. The loan does not have to be repaid as long as the homeowner agrees to continue to occupy the unit for the loan forgiveness period, which is six months. If the adaptation work is being done on a rental unit, the landlord must agree that rents will not increase as a result.

What Sorts of Adaptations Can be Done?

The adaptations should be minor items that meet the needs of seniors with an age-related disability. They could be:

- Handrails.
- Easy-to-reach work and storage areas in the kitchen.
- Lever handles on doors.
- Walk-in showers with grab bars.
- Bathtub grab bars and seats.

All adaptations should be permanent and fixed to the dwelling.

IMPORTANT: Work carried out before the loan is approved in writing is not eligible for funding under this program.

FLEXHOUSING™

FlexHousing is a practical approach to designing and building houses that allow residents to convert space to meet their changing needs. For more information, contact www.cmhc.ca

OTHER FINANCIAL ASSISTANCE FROM CMHC

If your home requires extensive modifications, such as wider doorways and increased space for wheelchair maneuvering, consult the Residential Rehabilitation Assistance Program for Persons with Disabilities.

In some areas of Canada, funding for these or similar programs is provided jointly by the Government of Canada, and the provincial or territorial government. In these areas, the provincial or territorial housing agency may be responsible for delivery of the programs. Program variations may also exist in these areas.

Canada Mortgage and Housing Corporation

Toll-free: 1-800-704-6488

E-mail: rrap_ontario@cmhc-schl.gc.ca

RESIDENTIAL REHABILITATION ASSISTANCE PROGRAM FOR PERSONS WITH DISABILITIES (RRAP-DISABILITIES)

The Residential Rehabilitation Assistance Program (RRAP) for Persons with Disabilities offers financial assistance to homeowners and landlords to undertake accessibility work to modify dwellings occupied or intended for occupancy by low-income persons with disabilities.

Who is Eligible?

Homeowners may apply if:

- The value of their house is below a specified figure.
- Their household income is at or below established ceilings (limits) based on household size and area.

Landlords may apply for modifications to units if:

- The rents are at or below established levels.
- The units are occupied by tenants with incomes at or below the income ceilings.

Assistance is also available to landlords owning rooming houses with rents below established levels. Properties must meet minimum health and safety standards.

What Assistance is Available?

Assistance is in the form of a forgivable loan.

For homeowners, assistance is provided for 100% of the total cost of the modifications up to the maximum loan amount for the area. Homeowners must agree to continue to own and occupy the home for the term of the loan.

For landlords, 100% forgiveness is available for accessibility modifications up to the maximum loan on eligible units. Landlords must agree that:

- The units will continue to be affordable to tenants.
- In the case of rental units, new occupancy be limited to households with incomes at or below established income ceilings.

	Maximum Loan (Rental)	Maximum Loan (Homeowner/Rooming House)
Zone 1 Southern areas of Canada	\$24,000	\$16,000
Zone 2 Northern areas	\$28,000	\$19,000
Zone 3 Far Northern areas	\$36,000	\$24,000

Additional assistance may be available in remote areas.

IMPORTANT: Work carried out before the loan is approved in writing is not eligible for funding under this program.

Other CMHC programs are available to assist eligible Canadians with repairs to substandard housing, accessibility modifications and adaptations for seniors.

In some areas of Canada, funding for these or similar programs is provided jointly by the Government of Canada, and the provincial or territorial government. In these areas, the provincial or territorial housing agency may be responsible for delivery of the programs. Program variations may also exist in these areas.

Canada Mortgage and Housing Corporation

Toll-free: 1-800-704-6488

E-mail: rrap_ontario@cmhc-schl.gc.ca

VETERANS AFFAIRS CANADA

General Enquiries

All questions or comments on VAC services and benefits may be directed to the following toll-free numbers: 1-866-522-2122 (English) or 1-866-522-2022 (French)

Client inquiries related to Canada Remembers, the Bureau of Pension Advocates, the Veterans Review and Appeal Board or other branches/units within the department use the existing toll-free numbers listed below:

- **Bureau of Pensions Advocates: 1-877-228-2250**
Head Office and Appeals Unit
P.O. Box 7700
Charlottetown, PE C1A 8M9
- **Veterans Review and Appeal Board: 1-800-450-8006**
P.O. Box 9900
Charlottetown, PE C1A 8V7
www.vrab-tacra.gc.ca

MARCH OF DIMES

Barrier Free Design Consultation Services

Barrier-Free Design Consultation Services provide design expertise in the development or redesign of commercial, public and residential buildings to accommodate the needs of people with a wide range of disabilities. Using universal design principles, consultants assess existing building sites or design drawings and provide recommendations to ensure that buildings meet the needs of people with physical, sensory or cognitive disabilities, while maintaining the esthetics of the design.

We have two decades of experience advising architects, builders, home-owners and landlords on making their environment more accessible.

Services

- Drawing review, assessments of new/renovation projects.
- On-site consultations and budget estimates.
- Assessments of the work environment, including ergonomic assessments with an occupational therapist.
- Recommendations for all disabilities from concept through construction.

Fee Structure

Barrier-Free Design Consultation Services are available on a fee-for-service basis. As each project is unique in nature, our Access Services Coordinator can provide you with an estimate for your individual requirements. We will partner with you to find unique solutions to meeting the challenges of ensuring safe, accessible environments for everyone.

For more information:

Barrier-Free Design Consultation Services
Ontario March of Dimes
700 Richmond St., Suite 310
London, Ontario
N6A 5C7
Telephone: (519) 642-3999

Fax: (519) 642-7665
E-mail: barrierfree@dimes.on.ca
www.dimes.on.ca

March of Dimes Home and Vehicle Modification Program

On Wednesday, June 23, 2004, the Honourable Sandra Pupatello, Minister of Community and Social Services, and the Honourable Dr. Marie Bountrogianni, announced a \$10,000,000 expansion to the Home & Vehicle Modification Program (HVMP), effective immediately.

This increase will significantly improve access to grants for Ontarians with disabilities/impairments that restrict mobility who require home and vehicle modifications. The key program changes are as follows:

Children's Services Now Available

- The Home & Vehicle Modification Program is now available to all individuals with disabilities/impairments that restrict mobility, regardless of age.

Simplified Application Process

- It will now be easier to apply for assistance to the Home and Vehicle Modification Program. Ontario March of Dimes' HVMP staff will now determine general eligibility based on a minimum amount of submitted paperwork. Applicants will be required to submit a completed application form, financial information relating to the most recent fiscal tax-filing year, and photographs of all entrances and of the area(s) intended for modifications.
- Other information, such as an occupational therapist's prescription and suppliers' price quotations, will be collected only for those individuals determined to be eligible for service.

Improved Access to Vehicle Modifications

- The expanded program will now cover costs for vehicle modifications to support people with disabilities in participating in community life and educational activities, or in attending necessary medical services.

For a complete list of funding and service restrictions and required documents, or if you have any questions, call 1-877-369-4867. If you require further assistance, or would like to learn more about modifications that can be completed through this program, contact:

HVMP/ADP
Ontario March of Dimes
700 Richmond St., Ste. 310
London, ON
N6A 5C7
Tel: 519-642-3999
Toll-free: 1-877-369-4867
Fax: 519-432-4923
E-mail: hvmp@dimes.on.ca
www.dimes.on.ca

Appendix A: Environment- Does It Matter?

Universal Design

Universal Design is defined as “design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.” (Connell et al 1997) Universal design does not discriminate between able-bodied or disabled-bodied. It recognizes that individual’s needs change over time. The principles of Universal Design were developed by the Centre for Universal Design at North Carolina State University with a consortium of Universal Design researchers and practitioners from across the United States.

Principles

1. *Equitable Use.* The design is useful and marketable to people with diverse abilities.
2. *Flexibility in Use.* The design accomodates a wide range of individual preferences and abilities.
3. *Simple and Intuitive Use.* Use of the design is easy to understand, regardless of the user’s experience, knowledge, language skills or current concentration level.
4. *Perceptible Information.* The design communicates necessary information effectively to the user, regardless of ambient conditions or the user’s sensory abilities.
5. *Tolerance of Error.* The design minimizes hazards and the adverse consequences of accidental or unintended actions.
6. *Low Physical Effort.* The design can be used efficiently and comfortably and with a minimum of fatigue.
7. *Size and Space for Approach and Use.* Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user’s body size, posture or mobility.(Connell, 1997)

“Social systems embodying universal design minimize the relevance of impairments at relatively low cost or social or economic cost”
Schriner and Scotch, 2001

Independent Living Movement

As long as we regard our disabilities as tragedies, we will be pitied.
As long as we feel ashamed of whom we are, our lives will be regarded as useless.
As long as we remain silent, we will be told by others what to do.

Adolf Ratzka, 2003

Independent Living Movement began as a reaction to the dehumanizing process inherent in the medical model and the need for civil rights, equal access and equal opportunity. This movement insists that individuals with disability exert control over their own lives. (Independent Living Institute, 2004)

Environment of Care

The goal of environment of care is to provide a safe, accessible, supportive, effective and efficient environment for individuals served, staff members and others in the organization. (Environment of Care, 2004)

Evidence- Based Health Design

The Center for Health Design promotes “life-enhancing health care environments by demonstrating the value of evidence-based design in improving health and quality of life.” (Marberry, 2001) Health design is based on the credo that design can heal (Leib, 1999). In 1991, Derek Parker, an architect wrote an article on “A Better Building’s Benefits” in which he calculated major savings in reduced length of stay, reduced staff turn over and increased staff efficiency as a result of designing survivor-oriented environments. Positive impacts to survivors, staff and the hospital have been noted when design research is used to develop care areas. Access to nature, control of one’s own environment, use of positive distraction, social support and elimination of environmental stressors are supported by design research. Advantages realized by organizations, basing design on evidence, have been:

- Decreased length of stay.
- Increased staff recruitment.
- Increased philanthropic, community and corporate support.
- Increased operational efficiency and productivity.

(Marberry, 2001)

Barrier-Free Design



The aim of barrier-free design is to make the physical environment more accessible and supportive. The integration of individuals with impairments or the ability for individuals to participate has both social and economic gains. It promotes social equality (Reuterswald, 1995)

Therapeutic Environment

The therapeutic is defined as an environment which assists a survivor to reach their functional and health potential. The environment enables an individual by being oriented to the needs of the individual, supporting his uniqueness especially the ability to problem solve and make decisions. Independence is fostered by:

- Encouraging the survivor to participate in his own plan of care.
- Encouraging the survivor to assume responsibility and make life decisions for himself within his limitations.
- Helping the survivors to develop those patterns of response to stressful stimuli that are compatible with physical and psychological health.
- Helping the survivor to function in his sociologically defined roles within his family and community.
- Helping the survivor gain insight into the limitations within which he must function.
- Helping the survivor make realistic plans for the future. (The Therapeutic Environment, 2004)

Goddard (1999) suggests manipulating the environment to allow practice of skills and reinforcement of skills being performed in therapy. The environment becomes the link between directed skill acquisition and independent life skills. The environment sets expectations as it supports individuals in achieving their rehabilitation.

Independence and full social participation of people with disabilities entail important multiple gains to society at large, gains that easily justify investment in systems that promote inclusion.

Bowe 1980

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