



# marijuana & psychosis

WHAT'S THE  
BIG DEAL?



Canadian Mental  
Health Association  
Waterloo Wellington

Association canadienne  
pour la santé mentale  
Waterloo Wellington



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# credits

We would like to thank the 1st Step folks who contributed their personal stories to this work. We admire your courage and your willingness to share your journey with everyone. Thanks also to Cathy Sheahan, MSW Intern, and Dr. Loys Ligate for their knowledge and passion in developing this important booklet.

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# what's the big deal?

**M**any people think that marijuana is a “soft,” or “safe,” drug. However, your doctor and your workers have probably advised you or the one you love to cut back and then stop using marijuana. *So what's the big deal?*

In this booklet, we'll go through some basic information about marijuana for families and 1st Step members and tell you about the role it can play in impacting your mental health.

If you would like more information on psychosis, please speak with your clinician or ask for a copy of/refer to *A Family's Guide to Early Psychosis*.

## TESTIMONY:

### **NOT A SLAVE TO THE WEED**

*I was introduced to marijuana by a group of friends. I had never done it previously. I actually enjoyed the minor feeling of euphoria and lightness. What I did then was swear to never do it again. My friends had used it as a crutch for their self-esteem. I quickly understood that this was not for me or my self-esteem. I don't want to end up like my friends and become a slave to the green. What I found it out to be was a major waster of my time, health and money.*



# 1. learning about marijuana

Understanding the basics of marijuana can help clear up inaccurate information that you may have heard or read. Many reliable sources of information about marijuana are also available through local substance abuse counselling agencies, health care providers and health websites. Further resources may also be found in the reference section below.

## WHAT IS MARIJUANA?

There are many street names for marijuana, such as *ganja*, *dope*, *cannabis*, *green*, *Mary Jane*, *pot*, *weed*.

Marijuana is a dry, shredded, green and brown mix of flowers, stems, seeds and leaves from a species of hemp plant known as *Cannabis sativa*. The more potent types of marijuana (the good stuff) is made up of the female buds. Marijuana smoke has a pungent, distinctive, semi-sweet smell. The marijuana plant produces many things apart from the drug, including hemp for making rope, paper, soap and clothing fabric. Marijuana use is not new; its use has been documented in Chinese records, for instance, as far back as 28 BC.<sup>1</sup>

Marijuana is a controlled substance in Canada. This means that there are circumstances where it is illegal to possess and use marijuana and circumstances where it is legal.

Some components of marijuana have been found to be helpful in the treatment of various medical conditions, such as cancer, HIV/AIDS, multiple sclerosis, severe arthritis, spinal cord injury and disease, and seizures from epilepsy.<sup>2</sup> Uses related to these treatments are legal in Canada. In 2001, Health Canada set out regulations clearly outlining how marijuana can be acquired and for what medical purposes.

Marijuana is the most widely used illegal drug in the world.<sup>3</sup> More than 31 million North Americans use marijuana at least once a year. That is about 10 percent of the population between the ages of 15 and 64.

Marijuana is an addictive substance, meaning that people can become dependent on it. When a person becomes dependent on a substance, they need more to get the same euphoric effect, they crave it





and when they stop using, they have withdrawal symptoms. A person's brain chemistry also changes following use of an addictive substance.<sup>4</sup>

## WHAT ARE THE INGREDIENTS IN MARIJUANA?

In order to know what effect marijuana has on your health, it is important to understand what it is made of.

The main psychoactive ingredient in marijuana is delta-9-tetrahydrocannabinol, commonly called THC.<sup>5</sup> It was isolated in the early 1960s. THC triggers an increase in a brain chemical called dopamine. Dopamine is responsible for controlling our mood, attention, learning and cognition. An increase in dopamine makes us more aware, but too much dopamine can lead to hallucinations.

The levels of THC found in marijuana have increased over time. Health Canada found an average THC level of 4.8 percent in marijuana confiscated in 1988 and an average level of 11.1 percent in 2008.<sup>6</sup> Skunk, a highly potent strain that's available today, is 25 times stronger than resin, which was sold a decade ago. This increase in THC has made today's marijuana a much stronger substance than it was in the past.

Marijuana also contains another substance, called cannabidiol, or CBD. CBD has been found to have antipsychotic effects, meaning that it can offset some of the adverse effects of THC.<sup>7</sup> However, while THC levels in marijuana have increased over the past number of years, the CBD levels have been decreasing.<sup>8</sup> Therefore, today's marijuana contains more of the harmful component (THC) and less of the protective component (CBD). Using marijuana with a higher THC content and lower CBD content might be associated with greater negative consequences.<sup>9</sup>

## WHAT ARE THE DIFFERENT FORMS OF MARIJUANA?

Different forms of marijuana can be used to get high. These different forms have different strengths (or potency), related to the amount of THC they contain. THC (as described in the previous section, "What are the ingredients in marijuana?") is the main active chemical in marijuana and is responsible for the mind-altering effects of the drug.

The following are some forms of marijuana:

- *shake*: the remains that can be found at the bottom of a bag of marijuana.

- *kush*: considered to be a strong form of marijuana due to its high THC content; it also has a distinct smell.
- *hash* (short for *hashish*): a concentrated resin produced from the female flowers of the cannabis plant. Hash can often be more potent than marijuana and can be smoked or chewed. It varies in colour from black to golden brown, depending on its purity.
- *oil*: a mix of essential oils and resins from mature cannabis foliage. It is green/black in appearance. It can also be used to make a variety of foods containing cannabis.

## HOW DOES ONE BUY MARIJUANA?

Marijuana can be bought easily from dealers in parks, malls and coffee shops. It can be bought at school or at work or through friends.

Most people learn where to buy marijuana by word of mouth, and once a connection with a dealer is made, individuals tend to buy from the same dealer, rather than shopping around. Sticking with the same dealer creates some sense of trust and usually ensures that the user continues to receive the same quality of marijuana. (The quality can be determined by the look and smell of the marijuana.) Some individuals like to have multiple dealers so they always have backup. Some risks are



Shake



Kush



Hash



Oil

associated with asking around, however, as this increases the user's risk of being robbed or of unknowingly asking an undercover police officer for the drug.

A user may not need to buy marijuana directly if friends or family members have access to it.

## HOW IS MARIJUANA MEASURED?

Marijuana can be bought in varying amounts (in ounces and grams) with different names, depending on the amount purchased. The price also varies, depending on how much is bought. The prices shown in the table below are current as of 2010 and may change over time.

Name	Amount of Marijuana	Price (2010)
Ten Piece	1 gram	\$10
Half Quarter	3.5 grams	\$25-30
Quarter	7 grams	\$45-50
Half Ounce	14 grams	\$80-\$100
Ounce *	28 grams	\$150-\$240
Quarter Pound (QP) *	112 grams or 4 ounces	\$500-\$650
Half Pound *	224 grams or 8 ounces	\$900-\$1,250

\* These amounts are considered "dealing amounts." For further explanation, please see "Marijuana and the Law" (page 19).

## HOW DO PEOPLE USE MARIJUANA?

Marijuana can be used in many different ways to achieve a high. If equipment is used in the process, this equipment is often referred to as *paraphernalia*.

One common way of using marijuana is to roll it in a *joint*. This can be done without a filtered tip, using rolling papers. Sometimes the tobacco from a cigarette is emptied out and marijuana is inserted in its place. Joints usually contain 1 to 2 grams of marijuana and can be smoked alone or shared with others.

There are a few variations on a joint. A *pinner* is a small joint containing 0.2 to 0.7 grams. A pinner is usually smoked alone. A *blunt* is larger and is rolled in cigar paper. Sometimes more than one paper is used at a time.



Joint



Pinner



Blunt



Pipe



Bong



Knives



Brownies



Parachute

A *pipe* is a handheld smoking device. It usually has a bowl in which the marijuana is placed. To smoke it, a person lights the bowl and inhales from the pipe.

A *bong* is made of a large plastic bottle that is partially filled with water. A small hole is made in the side of the bottle, where a short pipe is inserted. The bottom end of the pipe enters the water and the top end of the pipe has a small basin, where marijuana is placed. The marijuana is lit, and the user inhales the vapour that is created. The vapour is inhaled from the mouth of the bottle.

*Hot knives* can be used, particularly with hash. Two knives can be placed on the heating elements of a stove. When the tips of the knives become red hot, hash is picked up, using the two blades. The hash is squeezed together and the user inhales the smoke.

Marijuana or oil can also be mixed into food and ingested. Foods like this are often referred to as *special* items (for example, *special brownies*). When marijuana is ingested, it takes longer to achieve a high, but the effects last longer.

A *parachute* is made by attaching a plastic bag to a large pop bottle. Smoke is accumulated in the plastic bag and inhaled under pressure.

*Buckets* are used widely in the Kitchener-Waterloo area. Smoke is accumulated in a plastic pop bottle that has been placed in water. By draining the water, smoke is released under pressure into the user's lungs.

## TESTIMONY:

### TO HIDE MYSELF FROM OTHERS

*When taking marijuana, I became very paranoid. I would find myself worrying that neighbours were listening. My grasp on reality was weak. The heightened awareness I experienced had me hearing the faintest sounds, like the crack of a stick. I would find myself feeling like I needed to hide myself from others because I wouldn't be accepted for using marijuana. Things like the scent and the effect of making my eyes red would occur. Now I stay away from marijuana because I want to be healthy and not alter my personality and my decisions.*



## 2. marijuana and psychosis

Now that we have explored some of the characteristics and uses of marijuana, we can focus more on the connection between marijuana use and psychosis, as well as the link between use of this drug and general health. Learning about these connections can help you and your loved ones understand more about why people may use marijuana and about the effects it can have on the brain and on health.

### WHAT DOES A USER EXPERIENCE WHEN THEY SMOKE MARIJUANA?

The usual acute effects of cannabis in humans are described below:

- initial buzz, tingling and lightheadedness
- euphoria and laughter
- enhanced sensitivity to perception; colours seem more vivid
- enhanced appreciation of arts and music
- synaesthesia (such as “seeing music”)
- visual and auditory hallucinations that are transient and ill formed
- fantasies that border on delusions, which are grandiose in nature. For example, “I am much more creative when I am using.”
- feeling of “double consciousness”

### DOES MARIJUANA CAUSE PSYCHOSIS?

Psychosis induced purely by cannabis is rare. However, anyone can have a psychosis on marijuana if they ingest a large enough amount. These are some symptoms of psychosis:

- hallucinations: auditory, visual, olfactory, tactile and taste
- delusions: fixed false beliefs (grandiose, paranoid)
- bizarre behaviours and thoughts

Some scientists believe that psychosis occurs in people who have a vulnerability to develop it.<sup>10</sup> This vulnerability, they say, can be related to genetic, familial, social, environmental and individual factors.<sup>11</sup> For instance, these scientists claim that marijuana does not directly cause the psychosis known as schizophrenia (a chronic illness that affects



brain functions), but they say it can trigger schizophrenia in people who have this vulnerability.<sup>12</sup>

Other scientific researchers say that marijuana does lead to the development of schizophrenia. It is estimated that 25 percent of the cases of schizophrenia result from smoking cannabis. This is the same in diabetes, where risk factors include: genetic, being overweight, native.

According to the scientists who believe that cannabis can cause psychosis, a user is more likely to develop schizophrenia the more they use, the more frequently they use and the younger they were when they started. In fact, some scientists indicate that the risk of developing psychosis doubles for people who use marijuana frequently.<sup>13</sup> It is said that using marijuana at a younger age—particularly at an age younger than 16 years—also increases the risk of developing psychosis.<sup>14</sup> For instance, the risk of developing psychosis increases by four times for a person under 16 who uses marijuana.<sup>15</sup>

Young people between the ages of 11 and 16 might be particularly vulnerable because marijuana use during this time can interfere with the normal processes the brain undergoes at this age, placing these users at increased risk of developing psychotic symptoms.<sup>16</sup> Some scientists

## TESTIMONY:

### POT IS A DOUBLE-EDGED SWORD

*When I was 17, I started smoking marijuana. I thought it was a reason to live because it temporarily relieved me of my depression. It ended up triggering anxiety, and I then took anti-depressants to control my anxiety, but kept smoking pot for my depression. So to me, pot is a double-edged sword. I am now 24 and recently had a psychotic episode where I was extremely paranoid. Since I've been taking medication, my paranoia has eased. I am still trying to quit marijuana. It takes time and willpower, but I'm hoping to eventually be clean from my addictions. The less I smoke, the less anxious I feel, as well as feeling more motivated to do things.*



believe that a substance like marijuana has the potential to trigger long-lasting effects, especially in young people, because these users' brains are still undergoing development.<sup>17</sup> Interrupting this development can increase the risk of psychotic symptoms or it can increase the risk of developing schizophrenia in adulthood.<sup>18</sup>

There are questions about marijuana use that still need to be answered. Does a user's genetic vulnerability increase their use of marijuana or does marijuana interfere somehow with the genes and trigger schizophrenia?

### **CAN MARIJUANA AFFECT A PERSON AFTER PSYCHOSIS?**

Once a person has experienced psychosis, further use of marijuana can have additional negative impacts on their health and well-being. Continuing to use marijuana may cause additional psychotic episodes, also called relapses. Marijuana may also aggravate the frequency and intensity of some symptoms, such as the hallucinations and delusions that can be associated with psychosis.<sup>19</sup>

Relapses and aggravation of symptoms can lead to hospitalizations, so that the user can become stabilized again. An increased number of relapses can be hard on the brain, leaving it unable to heal as well following each psychotic episode. This means that with an increased number of psychotic episodes, there is an increased risk of lasting cognitive impairment, more severe symptoms and less responsiveness to medication.<sup>20</sup> Simply put, the more marijuana is used, the greater the risk that the illness will have permanent effects. That is why doctors recommend that people stop using marijuana if they have had a psychotic episode. Doctors would also recommend that marijuana not be used by anyone because of the risks to health presented by using this drug.

### **DOES MARIJUANA DECREASE ANXIETY?**

People often use marijuana to relax and relieve anxiety, but anxiety and depression are the most common negative effects of using this substance. The immediate effect of smoking is a decrease in anxiety, but about two or three hours later, there can be an increase in anxiety, paranoia, hallucinations and delusions.

## WHY DO PEOPLE USE MARIJUANA?

There are many reasons why people use marijuana, including recreational and medicinal reasons. Some will be discussed in this section, but there are far more reasons than those mentioned here. Every user is unique and will have different reasons for using marijuana. It is important not to assume that everyone will have the same motivations for using this drug.

### Social use

Having contact with marijuana is a common reason for use of this substance among young people. It is a social drug, as it is often used with others in social settings. Many people have the opportunity to experiment with it if they choose to do so.

### Recreational use

Marijuana gives most people a pleasant “buzz,” or high, also called euphoria. This can involve a lot of giggling and laughing, which makes users feel they are in a happier mood. Some people have said that they use marijuana simply because it is fun and enjoyable.<sup>21</sup> Along with euphoria, many people experience a sense that time is passing more slowly than is actually the case.<sup>22</sup>

Marijuana use may occur because of the positive effects people believe it has on their interpersonal relationships.<sup>23</sup> Users may feel that marijuana helps them fit into social groups and connect with others. Some think that marijuana eases their nerves in social settings, allowing them to feel more comfortable. To feel as though you’re able to fit in with others is a pretty important feeling for anyone, particularly for youth. At this time in life, young people are trying to find their own way in the world, often distancing themselves from parents and looking to identify more with their peers.

### Self-medication

Some people, even if they have experienced psychosis, may continue to use marijuana in an attempt to relieve some of their symptoms. This is referred to as self-medicating. People have said that they feel marijuana helps them relax and sleep at night.<sup>24</sup> Some feel that marijuana helps reduce negative symptoms of psychosis and schizophrenia, such as withdrawal and loneliness.<sup>25</sup> The drug may also

be used in an attempt to relieve depression, anxiety or the effects of antipsychotic medication.<sup>26</sup> Even though marijuana is often used to relax and relieve anxiety, anxiety and depression are the most common negative side effects that people experience from the substance.<sup>27</sup>

Such attempts to relieve symptoms can come at the cost of increasing the hallucinatory and delusional symptoms of psychosis and making the illness have a longer-lasting effect.<sup>28</sup> This, in turn, can fuel more marijuana use as the user tries to relieve the increasing symptoms, and on it goes. The attempts to relieve some symptoms will merely increase others and allow the illness to continue.

### Medicinal use

In some circumstances, marijuana use is legal in Canada. In 2001, Health Canada set out regulations clearly outlining how marijuana may be acquired and for what medical purposes. Some components of marijuana have been found to be helpful in the treatment of various medical conditions, including cancer, HIV/AIDS, multiple sclerosis, severe arthritis, spinal cord injury and disease, and seizures brought on by epilepsy.<sup>29</sup> For these conditions, marijuana is used to help lessen the effects of a range of complications. It can help reduce severe pain, persistent muscle spasms, severe nausea and weight loss.

In order to access medical marijuana, a person must apply to Health Canada, and they must have a declaration from their physician to support their application.

For additional information regarding the medical use of marijuana, how to apply for access to it and the related possession regulations in Canada, visit the Health Canada website:

- <http://www.hc-sc.gc.ca/index-eng.php>

### Other uses

People may also use marijuana for reasons such as the following:

- genetic or learned family influences
- as a coping strategy
- lack of insight into their mental illness
- addiction
- boredom
- feeling that marijuana will elevate their mood and alertness and help them think more effectively
- escapism

# 3. marijuana and health

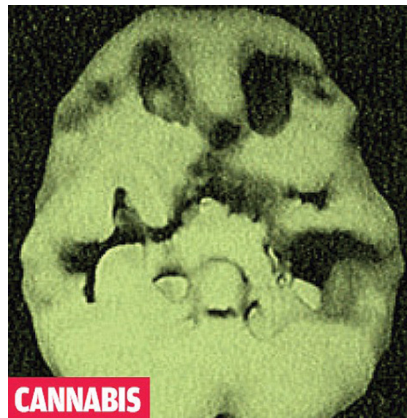
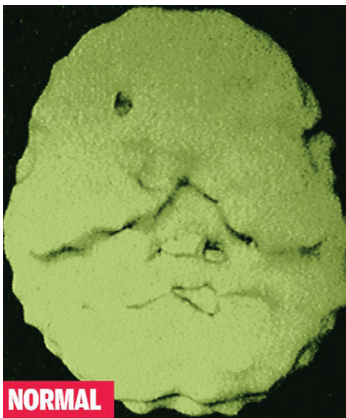
Some risks to health are associated with using marijuana. People often do not pay attention to these when considering whether to use, or continue using, marijuana because they may not even be aware of them. The most obvious risk is that smoking can increase a person’s risk of developing cancer. But there are others as well.

## BRAIN: COGNITION

Marijuana has been found to have an effect on cognition and psychomotor function. Psychomotor function refers to how the brain and body work together in order for a person to have movement and coordination. Marijuana can reduce the speed at which a person is able to process information, leaving them slower to react. For example, a person’s ability to drive a car is impaired while they’re under the influence of marijuana because driving requires quick shifts in attention and marijuana use causes slower reaction times.<sup>30</sup>

Effects on cognition can happen while a person is using, and these effects can also become permanent. MRI studies show that brain structure changes with the use of marijuana.<sup>31</sup> Marijuana use leaves

**Scan of a healthy brain (left) with one from a teenage, daily (for two years) marijuana user (right).** Source: [www.dailymail.co.uk/health/article-1177258](http://www.dailymail.co.uk/health/article-1177258)



less white matter in the brain, the part that is responsible for executive functions. When marijuana is used regularly, it has an irreversible impact on the user's ability to think, understand, learn and remember.<sup>32</sup>

## **BRAIN: PLEASURE CENTRE**

The pleasure centre of the brain controls normal behaviours and the natural high associated with eating, drinking, sex and sense of accomplishment, through neurotransmitters such as dopamine, norepinephrine and serotonin. Drugs can cause a deficiency or an overabundance of normal neurotransmitters, which is responsible for the hallucinations or amotivational syndrome, characterized by:

- loss of desire
- loss of interest
- fatigue and loss of energy
- moodiness and irritability
- impaired concentration
- lack of concern for personal appearance and hygiene
- lifestyle that prioritizes cannabis finding and consumption

Antipsychotic medication balances the neurotransmitters. They are neuroprotective, which means that they help repair the damage that occurs in the brain after a psychotic event and they help protect against further injury.

## **PREGNANCY**

If a woman uses marijuana while pregnant, there can be harmful effects on the fetus she is carrying. Marijuana has been linked to babies having a low birth weight, small head, and poor growth and development.<sup>33</sup>

Researchers have found that the children of mothers who smoked marijuana during pregnancy were more likely to show symptoms of psychosis and that the risk rose in those whose moms smoked more.<sup>34</sup>

THC is transferred into breast milk, and levels there can be up to eight times higher than in the mother's bloodstream. Exposure to THC can delay motor development in babies, causing them to be slower in such things as learning to sit, stand and walk.<sup>35</sup> If you are using marijuana, it is best not to breastfeed, in order to protect your baby's health.

## HEALTH AND SEX DRIVE IN MEN

Marijuana has an effect on male reproductive health. It decreases sex drive in men and also lowers sperm count. When marijuana is used weekly or begins in adolescence, the risk for developing testicular cancer increases by 70 percent—that is, over one in every two men.<sup>36</sup>

## ADDICTION

Marijuana is an addictive substance. Users need more in order to have the same effect. They can experience withdrawal symptoms when discontinuing use, particularly if they use frequently or use larger amounts. Some withdrawal symptoms include the following:

- irritability
- physical tension
- agitation
- anorexia
- impaired attention
- impaired memory

These effects are usually at their worst about a day or two after marijuana is stopped and can last for a week or two afterwards.<sup>37</sup>

### TESTIMONY:

#### **FREAKING OUT IN MY MIND**

*It doesn't make me feel very good. People around me, it made them happy, and since I saw other people happy, I thought I'd try it. My bad experience was mixing it with alcohol. I started acting really crazy, not totally myself. Everyone noticed I was acting weird, and saying things I thought were funny, but others didn't think were funny. All of a sudden, I freaked out, felt really paranoid, and I thought everyone was laughing at me. I was told to go lay down, but I couldn't focus on anything; it felt like my brain was on fast forward. I was thinking thoughts, but I couldn't speak. I felt planted onto the bed. I was freaking out in my mind.*



## 4. marijuana and the law

Possession of marijuana is a criminal offence. However, many courts have been lenient in sentencing under the current law. There are penalties for possession of up to 15 grams and for possession of between 15 and 30 grams.

Penalties for growing are tougher, depending on the age of the offender, the circumstances, the intent to traffic and the amount involved.

- Growing from 1 to 3 plants: summary conviction (criminal), with maximum penalty of \$5,000 fine, 12 months in jail or both
- Growing from 4 to 25 plants: conviction, with maximum penalty of \$25,000 fine, 18 months in jail or both
- Growing 26 to 50 plants: up to 10 years in prison
- Growing more than 50 plants: up to 14 years in prison

There are debates as to whether recreational use of marijuana should be legalized, decriminalized (as in the Netherlands) or kept the same. The Canadian Liberal government drafted a bill in 2005 to decriminalize marijuana. However, it was withdrawn, as evidence linking marijuana use to mental health issues surfaced.





## 5. saying 'no' to marijuana

**I**t can be really difficult for you or your loved one to just say “no” to smoking pot. Here are some suggestions on how to say NO to marijuana.

### WAYS TO SAY “NO”

- I've had far too much tonight.
- Sorry, dude. It screws up my breathing.
- No way, man. It makes my teeth yellow.
- I prefer my brown eyes to your red ones.
- Nah, I have better plans for today (and walk away).
- No thanks. I'm already weird enough.
- No offence, but no thanks.
- No thanks. I like my brain the way it is.
- No way. My parents did it and look how weird they are.

## 6. local treatment resources

**Y**ou or your loved one may wish to consider specialized services for your drug use. Talk to your worker about this and check out the resources listed below:

- **Community Alcohol & Drug Service**  
49 Emma St., Guelph, ON N1E 6X1 519-836-5733
- **St. Mary's Counselling Service**  
600-30 Duke Street West, Kitchener, Ontario N2H 3W5  
519-745-2585
- **Centre for Addiction and Mental Health (CAMH)**  
Regional Services, Waterloo, ON (serving Waterloo Region and Wellington and Dufferin Counties): 519-883-2189,  
[www.camh.net/](http://www.camh.net/) (provides communities with information that will help identify and find community).
- **Drug and Alcohol Treatment Info Line (DART)**  
<http://www.dart.on.ca/> is designed to link callers with suitable treatment options. DART is a toll-free, province-wide treatment information and referral service that is available to professionals and the general public. Funding is provided by the Ontario Ministry of Health and Long-Term Care.  
Toll-free: 1-800-565-8603



# footnotes

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