

# **How Personal Emergency Response Systems (PERS) Empower Seniors to Age in Place Longer**

*While Providing Vital Support to  
Professional and Family Caregivers*

A Whitepaper for Caregivers  
and Other Healthcare Providers

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## Introduction

Approximately 90 percent of older adults wish to stay in their homes as they age. Many want to maintain connections they have with friends and their community. They find the familiarity comforting and stabilizing. Some don't want to part with the possessions they spent a lifetime collecting and which hold sentimental value. Often, older adults see aging in place as a way to maintain control over their lives.

Most older adults would likely agree that by aging in place, they are preserving their independence.

Yet one tool that would greatly increase their chances at success in doing this is underutilized. In fact, less than 5 percent of adults over the age of 65 and living in [Switzerland](#) use a medical alert system.

This paper is intended to demonstrate how medical alert systems save lives and enable older adults to age in place. It begins by explaining why these systems will become more and more useful for caregivers in coming years. It explores which subgroups of the older adult population stand to benefit most from medical alerts, why some older adults dismiss their use, and what healthcare professionals and other caregivers can do to change their mindset. Finally, it documents the positive outcomes that result when medical alerts are used.

## Why Now?

***During a time of demographic shifts, technological progress and medical advances, Personal Emergency Response Systems offer effective assistance to elder care providers.***

To help understand the increasing needs of older adults, it is helpful to begin with a discussion of the growth in this subset of the population. Simply put, people are living longer due to developments in therapeutic treatment and medical technology. In the European Union (EU), [life expectancy](#) has risen by more than two years per decade on average since the 1960s. If predictions are correct, by 2050 nearly a half million centenarians will be living in the EU. In the group of “oldest old” (those aged 85 and older), women are the dominant gender. In 2019, the EU was home to twice as many women, aged 85 and older, as men.

(One anomaly to this growth pattern is the past 18 months, during which time, growth has stagnated and possibly declined due to COVID-19.)

From these statistics it is easy to see that people are living longer, but it is also important to recognize that they are not necessarily living healthier. The media likes to indulge in stories about older adults who accomplish remarkable things like running a marathon or journeying into space. While these stories provide hope, the truth is that the majority of the oldest old live with chronic disease, need assistance with activities of daily living (ADLs) and are dependent on health care services. Increasingly, medical treatments are prolonging the lives of those living with cancer, heart disease or other maladies. However, the ability of many of these individuals to age in place, unassisted is often compromised.

While life longevity has increased, fertility has dropped. So as the baby boom generation reaches old age, younger generations are smaller in number. Thus, an imbalance exists between older adults and working-age adults (adults aged 20 to 64 years). Referred to as the [old-age dependency ratio](#), this number reflects the size of the older population relative to the working age population. Over the past two decades the ratio has steadily increased in the EU. In 2001, the ratio was 25.9%. Put another way, there were four people of working age for every older adult. By 2019, this ratio increased to 34.1%, or fewer than 3 working people for every older adult. Predictions

show that the ratio will climb to 56.7% by 2050, or fewer than two persons for every older adult.

One consequence in this shift in demographics is a reduced labor force, including in healthcare and other elder care services. Fewer elder care providers will be available to support older adults dependent upon their care. Those who are working in elder care will likely have increased responsibilities. Assistive technology, then, may have an ever-growing role in the care provided to older adults.

In some cases, relatives pick up caregiving responsibilities due to the labor shortage. In 2018, [21 percent](#) of the Swiss provided informal care to loved ones. Many of these family caregivers have full or part-time jobs and are raising a family. Providing care for an older loved one can place great stress on the caregiver and can take a toll on their physical and emotional health. Assistive technology including PERS can help ease the burden.

It is within this framework that the value of PERS becomes evident. The first PERS were developed in the 1970s as a tool for older adults to quickly connect with emergency services during a health crisis. While PERS continue to provide this critical function, they are now able to do much, much more.

The need for caregiving assistance has led to a recently developed niche in the market called [telehomecare](#), technology-based interventions that benefit older adults and their caregivers. It enables remote monitoring of older adults and better communication among caregivers and between caregivers and care recipients. Some products also provide information on trends in an older adult's living habits or risky behaviors and detect when additional interventions are necessary. PERS providers have moved into this market, incorporating high-level capabilities into their systems.

For example, within the past five years, automatic fall detection has become a standard add-on feature, ensuring that even if someone were to fall and be unable to communicate, sensors would detect the fall and an alert would be sent to the monitoring center. The use of GPS and cellular technology has also led to the addition of mobile devices that enable the monitoring center to track a user's location during an emergency.

In addition, complementary apps are commonly offered with PERS, enabling caregivers to receive real-time feedback through the use of location tracking from a mobile device or activity tracking within the home. They can also store and share healthcare information among other caregivers. Bluetooth is another technology now being utilized by some companies. With this advance, smart appliances and medical equipment can

be synced to the medical alert and centrally managed by a caregiver. Other features offered by providers include medication reminders, heart-rate monitors and on-demand telehealth services.

Advanced PERS can be integrated with other elder care products and services to assist professional caregivers, provide peace of mind to family members and deliver comprehensive care to older adults.

## Why Me?

***Every older adult is a good candidate for a PERS, but some are great candidates.***

The best time to buy a home security system is *before* a burglary is ever attempted. Likewise, the best time to invest in a PERS is before a medical emergency occurs. No one knows when a health crisis will strike. (What we do know is that older adults are more likely to experience health crises than the general population.) Having protection in place ensures that if or when that event occurs, emergency help is easy to access and quick to respond.

At the same time, some older adults run a higher risk for a medical emergency and a poor outcome as a result of it. Older adults who live alone are especially vulnerable to poor outcomes. Though difficult to quantify, finding deceased older adults in their homes days or even weeks after they died is not uncommon. In Japan, the country with the world's fastest-aging population, there is even a word for dying alone and remaining undiscovered for a long period of time - kodokushi, or [lonely death](#). The Japanese believe that 30,000 people throughout their nation die this way every year.

Another group that would benefit from PERS is older adults who are at a high risk of falls. This includes individuals who have already fallen at least once, which doubles their risk for falling again. Certain physical conditions also increase [the risk](#). Severe difficulty seeing impacts 9.3% of adults 75 and older in the EU. Severe difficulty hearing impacts 19.1% of this same population. Severe difficulty walking impacts 32.3%. In addition, 87% of older adults use prescribed medications, which sometimes cause dizziness and fatigue.

Another condition that can lead to a fall is syncope, a faint that often occurs due to low blood pressure and a reduction in blood supply to the brain. The [prevalence of syncope](#) increases with age, surpassing 20% in adults aged 75 or older and has a two-year mortality rate of over 25%.

Other diseases that place older adults at a high risk for falls include diabetes, Parkinson's disease, depression, incontinence, cognitive impairment, foot problems and COPD.

Certainly, those who live with chronic disease would benefit from PERS. This includes the 85% of adults 65 and older who live with at least one chronic disease and the 60% who live with two or more. Diseases of the circulatory system cause the [highest rate of death](#) for both men (36.8%) and women (43.3%) who are aged 75 or older. If alone and suffering a heart attack or stroke, a PERS could mean the difference between life and death.

## Why Not?

***The reasons that some older adults decide not to purchase a PERS (or use the one they own), and why they might want to rethink this.***

While PERS have led to saved lives and the ability to live independently longer, some older adults resist purchasing PERS or do not consistently use the PERS they own. A 2016 [research article](#), based on a systematic review of 33 peer-reviewed articles from academic journals published between 1987 and 2014, provides insight into the purchase and use of PERS.

First, the researchers found that the main reasons for acquiring a system included living in isolation, poor mobility, hospitalization following a fall and "long lie," and concern for personal safety. Users tend to be older and have more difficulty with activities of daily living. This seems to suggest that many invest in PERS reactively rather than proactively and that there is room to incorporate PERS in the lives of relatively healthy older adults before an adverse event occurs.

In a second cohort [study](#), 157 purchasers and 65 non-purchasers of PERS were followed for one year in Australia. Over 80 percent of purchasers reported that one of the most important reasons for investing in a PERS was because family members wanted them to have one. The researchers found that non-purchasers tended to have less family support. Therefore, they likely experienced less pressure or encouragement to purchase a system. Those with a lack of family support are also less likely to receive financial support, and 77 percent of the non-purchasers reported cost as one of the greatest barriers to purchasing a system.

And yet, long-term as well as short-term costs need to be an important factor in the decision-making process. Not only do the majority of older adults want to age in place, in Switzerland, living at home while perhaps receiving home health services is the most affordable way to live. While a portion of the cost of health care that one receives while in a long-term care community is covered by insurance and municipalities, other costs like room and board are not, and these costs can get pricey. The overall out-of-pocket monthly cost for long-term care in Zurich was estimated to be [CHF 6,900](#) in 2018. Because the cost of home health care is covered by mandatory health insurance (the statutory health insurance system), it is in the financial best interest of Swiss residents to age in place and to proactively use available technology so that they can improve their odds for remaining at home rather than moving into a nursing home.

The systematic review supported the findings in the Australian study, stating that in many cases the motivation to invest in a PERS came from family and health care providers rather than the older adults themselves. Importantly, older adults were more likely to *use* the PERS if it was the health care providers rather than the family that made the suggestion.

In fact, using the system can be as challenging as purchasing the system itself. A “significant proportion of the elderly” are unlikely to use their PERS during an emergency, according to the systematic review researchers. The reasons include an inability to press the help button, forgetting that they are wearing the device or being unable to let emergency assistance inside their homes. The first two reasons might be partially alleviated through recent technological advancements with the PERS including fall detection, voice activation and motion sensors. Many PERS providers have also addressed an inability to answer/unlock a door by offering key lockboxes as an optional add-on or even providing them free of charge.

Stigma is another barrier to use. In the United States, LifeCall, a PERS provider now out of business, became a household name in the late 1980s due to a TV commercial which comically depicted older adults as frail, dependent and silly. Comedians and



cartoonists even parodied its famous line: “I’ve fallen, and I can’t get up!” The stigma from this commercial lingers. The systematic review reported that most PERS users were fragile, dependent older adults with complicated medical histories, who often lived alone. Some of the non-users expressed a disdain to being lumped together with this older, sicker subset of seniors. They believed that using a medical alert would do just that.

These same older adults may not realize that the PERS of 2021 are not the same devices as those from the 1970s and 80s. The industry has advanced in many ways and one of these is the appearance of the devices and variety of types of devices available. For example, many providers offer smartwatches that look nearly identical to the trendy smartwatch on many wrists of young people. Several providers offer tablets and smartphones, again techy in appearance, but with senior-friendly adaptations and safety capabilities. Some providers of more traditional-looking systems offer jewelry pendants that the help buttons can be encased within. Many options exist for the older adult sensitive to stigma.

In addition to stigma, some users did not feel that they needed the PERS. In the cohort study, just over a third of the non-purchasers did not believe that they needed a medical alert. However, these younger and less dependent non-purchasers encountered the same rate of emergencies as the older and more dependent purchasers of PERS. “The types of emergencies were also indistinguishable and an alarm would have been as useful to the non-purchasers as it was to the purchasers,” the researchers reported. “General practitioners could well play an important role in assisting their patients to recognize their risk profile and their capabilities and in encouraging them to adopt strategies, such as using a personal alarm, that will enable them to optimise their independence.”

## **That’s Why!**

***Using a PERS contributes to improved health, psychological and behavioral outcomes.***

One sign that PERS are successful in helping older adults age safely in place is better health outcomes. Hospitalization rates among those who use PERS is one unit of

measurement. The systematic review discussed in the previous section revealed that some of the studies found a decrease in hospital stays and medical complications due to a decrease in “long lies” following falls. Lie time refers to the amount of time that an older adult who has fallen and cannot get up on their own lies waiting for help. A short lie time is critical to a person’s recovery.

[One study](#) analyzed the outcomes of older adults in San Francisco who were found dead or helpless in their homes over the course of 12 weeks. Researchers found that a lie time of 72 hours or more increased mortality by 67 percent compared to a 12 percent mortality rate for those who had been helpless for less than one hour.

Of the 297 individuals found alive, 88 percent were transported to the hospital, and 74 percent of this group were admitted to the hospital. The average hospital stay was eight days, and 52 percent of those admitted required intensive care. The inpatient mortality rate was 10 percent. Of the survivors, 62 percent were unable to return to living independently. This study demonstrates that an inability to get help following a fall or medical emergency leads to a high rate of death and long hospitalizations or moves to long-term care communities among survivors. PERS are designed to prevent such catastrophes.

In their analysis, published in the *New England Journal of Medicine*, the researchers concluded: “For elderly people who live alone, becoming incapacitated and unable to get help is a common event, which usually marks the end of their ability to live independently.”

[Another study](#) focused more directly on the relationship between PERS and hospitalization rates. The study evaluated 106 older adults for one year prior to receiving and using a PERS and one year after. The study found “a statistically significant decrease in per person hospital admissions and inpatient days.” However, the number of emergency department visits did not significantly decrease. Again, a likely conclusion is that with a PERS a person in an emergent situation will receive care quicker, leading to a decreased need for extended hospitalization. In short, PERS do not prevent medical emergencies, they lead to better health outcomes following the emergency.

Both of these studies, conducted in the 1990s, are further reinforced through a [subsequent article](#) published in *Managed Care Quarterly*. In it, the author asserts that PERS usage reduces mortality rates by almost four times and reduces hospitalizations by 59 percent. In addition, every dollar spent on PERS saves \$7.19 in health care costs.<sup>1</sup>

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<sup>1</sup> According to the article abstract, its author, M Bernstein, is affiliated with Knoxville, Tennessee-based SecureAlert, LLC.

A second means of measuring the effectiveness of PERS is through the overall well-being of older adults who use them. Some evidence supports that using PERS provides older adults with confidence to live independently. Knowing that help is available at the push of a button also enables some to venture out more often. Remaining physically active helps maintain weight, bone and heart health, and more. Staying social helps prevent depression, which we know places older adults at a higher risk for physical decline and falls. The following studies illustrate this point.

[One study](#) of 55 older adults in Michigan reported that after 12 months of using PERS, the stress and anxiety that older adults felt over their personal safety declined. Participants, who had been given a free medical alert to use for one year, were interviewed by telephone before, during and after the year of use. They were evaluated for reduced feelings of restlessness, fearfulness and tenseness, which overall, decreased by 15 percent.<sup>2</sup>

In addition, during [a study](#) (using focused study groups) of 30 older adults living alone in Canada, many users revealed that they had purchased PERS following a past medical emergency such as a fall or heart attack, or had heard about someone else experiencing a long lie. The unpredictability of life and health was a theme that emerged among the older adults in the study and caused them fear. The study found that after purchasing the PERS, the majority of the users had an increased sense of security or peace of mind just knowing that they could quickly receive help if they needed it.

The systematic study cited earlier reported mixed findings among the 33 studies reviewed. While some users reported anxiety about activating an alarm by accident, or having strangers (emergency responders) entering their home, others found that users became more active because they knew they had a layer of protection in place. The study also reported a benefit among caregivers who relayed that they no longer needed to disturb patients at night because they knew if there was a need, users could use the alarm.

And closer to home, the Department of Emergency Medicine in Bern conducted [a survey](#) of 620 medical alert watch users in Switzerland, 85 percent of whom lived alone. An overwhelming 98 percent of users reported feeling more secure in their everyday lives as a result of knowing that they could quickly and easily call for help in the case of an emergency.

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<sup>2</sup> Financial support for this study was provided by Wilmington, Delaware-based Medical Guardian.

As one of the researchers of the Canadian study noted: “These psychological effects can contribute to improved self-efficacy for self-care and improve clinical outcomes in chronic diseases management.”

Clearly, PERS contribute to an enhanced quality of life for older adults as evidenced by improved outcomes after a fall, decreased rates of hospitalization, reduced feelings of insecurity and anxiety, increased levels of activity and socialization, and extended length of independent living.

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