

Technical Advances in Home Care for Geriatric Chronic Lung Disease Patients

by Brian L. Tiep, MD

The natural process of aging can feel terribly unnatural — particularly when accompanied by an illness such as chronic lung disease. Geriatric-associated illness embodies more than simply slowing down, rather it conjures perceptions of being punished for transgressions of the past. In effect, advancing age and chronic illness conspire to overwhelm the geriatric patient into disability. Even the most basic tasks become unwelcome challenges. Depression and loneliness amplify discouragement and tarnish the golden years.

Caring clinicians counter by offering patients pulmonary rehabilitation. Pulmonary rehabilitation programs achieve remarkable benefits that begin to manifest within the first couple of days of the program. Exercise builds functionality, while mini-

mizing the breathlessness that discourages trying. Self management supports the tools of better living through disease management and by preventing emergencies. Self control builds patient confidence; confident patients are better able to manage their illness. Out of the passion of rehabilitation looms the promise of a better life through enablement.

Patients experiencing pulmonary rehabilitation sometimes express how wonderful it would be if they could become bionic. An artificial lung is probably in our future; but until then, several medical and non-medical devices stand ready to pick up where body mechanics fall short. While rehabilitation programs restore function and teach self management, assistive devices can ease some of the barriers to quality living. No sin-

gle device is likely to overcome every obstacle, but it can help. Chronic illness in the geriatric age group brings a plethora of impediments that can make living seem unworthy of the effort involved. The clinician can ease suffering by identifying devices or techniques to ease an effort; this helps to validate the precious gift of being among the living. Suffering can be alleviated, and some of the luster may be returned to the gold. Lack of desire may then give way to quality living.

Gadgets and widgets

As shown in the accompanying photo, assistive devices span a wide range between clever gadgets located on the supermarket or drug store shelf — including pill crushers, compartmentalized pill boxes, and foam-

widened forks and spoons — to ease getting through the day, and computerized prosthetic devices empowering hearing, vision, or mobility.



The gadget shelf of the local pharmacy is filled with assistive devices.

Somewhere in the middle are an abundance of devices to assist the weak, extend the reach, remind the forgetful, and magnify the unreadable. Medical assistive devices are obtainable from surgical supply houses, mail order catalogues, and the Internet. A raised toilet seat enables independence during the most private of functions, a long-handled brush alleviates dyspnea associated with raising arms above shoulder level, a shower bench and curve-handled scrub brush permit cleanliness without exhaustion, and a speaker phone enhances communication with the outside world. A pedal exerciser allows the patient to exercise both the upper and lower extremities from a chair. Velcro® button tabs may make the difference

between staying home in night clothes versus venturing out to the mall or restaurant. Book stands and magnifying lenses make reading more accessible.

Patients with visual impairment have access to a multitude of devices with magnified displays, magnifiers and projectors, talking clocks, sound augmentation, enlarged physical structures, and the ability to use other senses to assist in an activity. Bed spectacles with prisms empower reading while lying down in bed; full-scale magnifiers on legs enable patients to read newspapers that are lying flat on the table. Good lighting can be most propitious in completing a task. Braille printers can extend communication for people who are blind by embossing easy-to-read Braille letters on standard paper without having to buy costly translation software. Digital memo note takers respond to and record the spoken word. Patients with hearing impairment now have amplifiers, visual augmentation television ear-phone amplifiers, and signing.

Gadgets to enhance quality living

We encourage our patients to be ambulatory. Getting dressed is a first step in getting out of the house. Dressing and grooming aids include button loops, sock and dressing aids, highly portable shavers, and long-handled sponges, brushes, and combs. Meal preparation and cooking are facilitated by jar openers, bagel cutters, adjustable knives, microwave compartmentalized dishes and bowls, and utensil hand clips. Food bumpers can be the perfect solution to keeping the food centered on the plate.

Mobilization is assisted by grab bars in the bathroom, raised commode seat, shower bench, reachers, folding canes, power recliners, raising cushions, ramps, emergency telephone dialers, and motion sensor light switches. Slide transfer boards assist in moving patients from bed to chair. Wheel chairs and motorized scooters add mobility to those who need it to do shopping or keep cabin fever at bay.

Resources for Assistive Devices

Ableware: Independent Living from Maddak Inc
Pequannock, NJ
www.Maddak.com

National Wheel-O-Vator Co
Roanoke IL
www.Wheelovator.com

Aladdin Industries. Telesensory
Sunnyvale, CA
www.Telesensory.com

Independent Living Aids
Plainview, NY
www.Independentliving.com

Life @ Home
Nashville, TN
www.Lifehome.com

Ann Morris Enterprises, Inc.
East Meadow, NY
www.Annmorris.com

Bruno Independent Living Aids
Oconomowoc, WI
www.Bruno.com

Dynamic Living Newsletter
Dynamic Living Inc.
South Windsor CT
www.Dynamic-Living.com

Transporting mobility devices in vehicles has become much easier through trunk lifts and various carriers. The usual design



The smallest liquid system is the HELIOS (Mallinckrod Inc, St. Louis, MO) that weighs 3.5 pounds and lasts 10 hours.

of car seats resists attempts at twisting to get into and out of the car. Alazy Susan in the seat solves that problem. Patients living upstairs who are unable to negotiate steps can now use portable elevators and escalators.

Gadgets for pulmonary rehabilitation

Clinicians encourage their pulmonary rehabilitation patients to live active lives. The exercise component builds strength, endurance, confidence, and functionality. Patients requiring supplemental oxygen must have ambulatory systems that minimize intrusiveness and maximize portability. The all-too-common E cylinder with its cart weighs 24 pounds and is large, bulky, and unwieldy. To have to manage such

a system to leave the house would discourage even the able bodied. Fortunately, through oxygen-conserving technology and smaller miniaturized oxygen containers and liquid oxygen, systems weighing 3.5 to 4.5 pounds last 10 hours at the equivalent of 2 L/m and allow the users to enjoy many activities away from home (see the accompanying photos). This is compared with the performance of E cylinders at the same setting that only last 4.5 hours.

Oxygen technology

Three types of oxygen conserving devices are available to patients that function by improving the efficiency of oxygen delivery: reservoir cannulas, transtracheal catheters, and demand pulsing devices. Each carries its own advantages and drawbacks — a menu of choices for hypoxemic



The smallest gas system is the Oxylite® (CHAD Therapeutics Inc, Chatsworth, CA) that weighs 4.5 pounds, lasts for 10 hours, and can be refilled from an oxygen concentrator.

patients. Transtracheal catheters improve the appearance of oxygen by removing it from the face. Reservoir cannulas oxygenate patients who require high flows and keep the exercising patient well saturated. Demand pulsing devices enable high savings and help to miniaturize both liquid and gas systems.

Oxygen carried in a purse minimizes the burden of carrying an oxygen system since purses are often tolerably heavy. Oxygen can be strapped on the belt or placed in a fanny pack to provide patients with greater freedom. However, many chronically ill patients would find it difficult to mobilize even if they do not require oxygen. For those patients, even the tiniest system would raise the barrier to activity too high. These patients can often benefit from a four-wheel walker with a basket and a seat. The oxygen system would then roll in a cart that transforms a debilitated patient from a weak, two-legged biped into a four-wheeled equivalent of a quadruped.

Concentrators that refill portable oxygen cylinders

For years liquid systems have provided easy and safe reservoir refills for portable oxygen. Recently, two refill systems for gas oxygen have become available and are becoming popular among patients desirous of high portability and mobility. For example, one system (Venture™, manufactured by Invacare) comprises a pump that attaches to the oxygen concentrator to enable the refilling of portable oxygen cylinders. The other system (Total O₂®, made by CHAD Therapeutics) is a fully integrated concentrator that refills

portable oxygen cylinders and comes with the Oxylite[®]. Having the availability of both liquid and compressed oxygen transfilling systems affords the patient unprecedented choices in portable oxygen.

Oxygen conserving device prices are falling as competition increases. Unfortunately, some of the newer devices have not been tested; and so it is very important that the clinician test individual patients on the oxygen delivery device to assure adequate saturation. The clinician as well as the home care supplier are responsible for providing adequate saturation with the device being selected, particularly given the wide differences in oxygen-delivery efficiency.

In summary

The process of aging tends to be accepted by both patient and clinician as being inevitable. Illnesses that frequently accompany aging are likewise accepted — if not reluctantly. However, if the patient truly wants a richer and fuller life and is willing to seek and embrace it, help is available in the form of rehabilitation. Adherence to a prescribed regimen is greatly influenced by the immediate rewards and ease of practice.

For patients who simply wish to be more comfortable and be able to enjoy meals, perform life's necessary tasks, and venture outside the home, a whole range of assistive devices are available to ease any burden. These range from simple gadgets to high-tech gizmos prescribed by caring physicians and therapists.

As always, we must remember that we are working with a preventable disease. Most of these

patients have gotten lung disease as a result of smoking. Thus, smoking should be considered part of the disease and, as such, be vigorously detected, treated, and prevented. 🌱

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ADDITIONAL READING

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EDITOR'S NOTE

While this list is not necessarily all-inclusive, it offers some resources the author believes can be helpful to both clinician and patient.