

Chapter III: Home Design and Adaptations for Use for a Person with Special Needs

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Introduction

Home is the primary choice for all people regardless of age or disability. Home provides the basis for interaction with the rest of the world; it is a starting point for the day, the place where relationships are built, and where long term physical and emotional healing occurs. The primary motivating factor behind the healing work that patients engage in while hospitalized or in rehabilitation facilities is the motivation to return to their home. Parents aim at the home as a goal for their young children, spouses for one another, and adults for themselves. The physicians, nurses, therapists, and other staff also have the goal of their patients' ability to return home as one the major factors that motivates their daily work and gives it meaning. No one chooses to abandon the option of living at home just because their home does not readily accommodate their special needs.

Today, virtually anything care and accessibility related that can be accomplished in an institutional setting can be replicated in the home setting. However, much like homes were not made "cable ready" routinely in earlier decades, they were also not made "care and disability ready". Over recent decades, with the advent of medical technology and people living with disabilities that used to claim lives, combined with the fact that people are living longer in general, an entire field of study on disabilities has emerged. Of note, the University of Illinois at Chicago houses the United States first PhD program in Disability Studies. As the field grows, sub-categories also expand and become areas of professional interest and specialization. One such area of is devoted entirely to the topic of living at home with disabilities.

Now, more frequently than ever, new homes are being built to comply with universal design principles that negate the need to make many of the changes that older homes require, should one of the residents have special needs. In cases where a person has special needs and universal design is not inherent in their home, or in cases were universal design alone is not enough to meet certain needs, then home modifications are often a desirable option. Another

alternative available and sought by some is to contract for a new home to be built, ground up, incorporating universal design and a plan to meet their own unique circumstances.

Universal design, also called “inclusive design”, “life-span design”, or “design for all”, is an emerging field in itself. It is concerned with both the technical aspects of the Individual’s with Disabilities Act (ADA) as well as the practical considerations of usability for the elderly and disabled populations. The underlying concept is to develop spaces and products that accommodate everyone regardless of their age and physical abilities. When it comes to houses, however, the majority of people live in homes where these new concepts were not applied. Public institutions and manufacturers are just catching onto the universal design movement. Although many problems of usability are solved by universal design, there are nevertheless some aspects of certain disabilities that require a special individualized approach.

We will provide an overview of how a person with a disability (or special needs, used interchangeably here) comes to face the transition of “going home” and who is involved in the process. The considerations for evaluating the home will be briefly covered, including how universal design, adaptations, and renovations can be helpful. An abbreviated review of the many different adaptations that you have heard of, and some you may not have heard of, will follow. Attention will be given to common dilemmas and choice points that family’s with disabled members face. The federal government, along with state and local entities, has developed grants, informational portals, and other resources for consumers, families and professionals. There are additionally many privately developed books, websites, and private businesses available. As such, we will conclude this chapter with a list of the most prominent and reliable resources for those who seek more detailed information. Our focus will be on available on-line resources that provide the most ready-access, though this by no means negates the fact that copious amounts of published material are also available.

Assessment of Disability, Programming Available, and Resources

The assessment of an individual’s unique disability and how that disability impacts their functioning in everyday life is begun in the hospital and rehabilitation facility settings. These institutions ideally function with an interdisciplinary team approach that incorporates numerous professional disciplines in the assessment process. The interdisciplinary team usually consists of a physician, nurses, physical therapist, occupational therapist, speech therapist, social worker, and can include other disciplines as well. The purpose of this approach is to assess the impact of the disability and determine what resources are appropriate to address the disability when the individual leaves the institution to re-engage in their life. While assessing and treating the disability the team is always cognizant of and developing the discharge plan. The discharge plan can include access to resources that are both tangible and intangible, for long term use as well as for short term use. Necessary modifications to existing resources, such as adaptations to vehicles and domiciles, should be assessed within the context of the discharge plan. A well thought out discharge plan is the key to making the continuum of care from institution to home setting workable for the individual.

Sometimes the discharge plan from an institution does have home as the next step in treatment. Some conditions, such as brain injuries, strokes, and amputations to name just a few, have a second level institution as a necessary step before a discharge home can be contemplated. This is usually due to a combination of the severity of the disability and the intensity of programming recommended for facilitating ongoing recovery. All of the resources needed may not be accessible at the initial institution, but may be determined necessary for an optimal level of recovery and function. Many families have experienced this path through institutions as a stay in an acute care hospital, followed by a stay in a specialized acute rehab hospital, followed by a stay in a nursing home rehabilitation unit, followed by a discharge home. Others have experienced the treatment of a child with special needs in an acute care hospital, followed by treatment in a specialized children's hospital, followed by a discharge home.

While the interdisciplinary team is working on the discharge plan, they are doing so while being consistently cognizant of the "LOS", which is the industry abbreviation/term for the individual's projected length of stay. Sometime LOS is determined solely by the insurance allocated time for a specific disability. More often the LOS takes into account not only the diagnosed disability, but also what level of recuperation, or progress towards return to functioning, has been achieved. Frequently it is LOS considerations that impact the need for treatment by more than one type of institution before the desired discharge home can be made. When treatment programming is available to be carried out in the home setting, insurance companies and treatment providers often encourage discharge home.

When home is the goal, it becomes important for the interdisciplinary team to know early on in the LOS what resources are available towards this plan. Resources include such things as: the physical home environment; equipment; home based treatment programs; outpatient treatment programs; available help at home; motivational and related characteristics of the patient and family; insurance status; and financial means. The resources required to adapt a small apartment are clearly less than to adapt a large multi-level home. The resources required for a ventilator dependent quadriplegic are usually greater than those for a wheelchair bound amputee. A generous insurance plan offers a better resource than an uninsured status. Home health and outpatient options may abound in the city, but be sparse in rural areas. An open line of communication between the disabled person, involved family members, and the interdisciplinary team is essential in sorting through and assessing the desirable and available resources.

Assessment for Adaptations; Initial Considerations

When a disabled person is actively planning to go "home" the first question to ask is whether or not the home is in the proper location for meeting new needs. Someone who has a "dream home" miles out into the county, up a long hilly gravel drive, with an independent fuel source for power, may not find this not only falls short of meeting their need after incurring a disabling

event, but it may pose threats to basic health and safety. As with most real estate related matters, location is key. The home should be located in a community that offers the health care, educational, vocational, transportation, and utility support necessary.

Parents with disabled children will frequently move to access the best district for their child's special education needs. Approaching the needs and preferences of a disabled teen or adult is no different in that the location of the home should be in practical proximity to the resources required. Examples of other resources to be taken into consideration include: major medical centers; preferred medical providers; paramedics (are they city supported?); fire department (is it volunteer?); adult education; community college; library; vocational workshop; behavioral day training; community supported wheelchair bus/van services; train service; airport; gas/electric power; telephone; internet; cable/satellite.

Neighborhood related issues should not be overlooked. If there are issues related to crime rate, gangs, or unpleasant environmental factors such as airplane approaches or train depots, these should be included in the evaluation of the location. External factors that previously posed no risk may now be hazards for a person with a disability. Examples of this include train track crossings, swimming pools, busy streets, or intersections without crossing lights.

Assessment for Adaptations; Meeting the Needs of the Individual

Activities of Daily Living Considerations:

In assessing the existing home for its ability to meet the disabled person's needs, once the location aspect has been addressed, the individual needs must be assessed. This encompasses a review of both the interior and the exterior of the home, as accessibility into and out of the home cannot be overlooked. Within the home, consideration is given to how the disabled person will go about their daily routine. The daily routine is comprised of the ADLs, which are the activities of daily living that include: walking (or wheeling in a chair), eating, bathing, grooming, dressing, and toileting.

As a point of reference for examining environments in light of ADLs, it is helpful to review the guiding principles of universal design. These principals can be summarized in a number of ways, and the following is from the website of the nonprofit organization *Adaptive Environments*:

Principles of Universal design

1. **Equitable Use:** The design does not disadvantage or stigmatize any group of users.
2. **Flexibility in Use:** The design accommodates a wide range of individual preferences and abilities.
3. **Simple, 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 for 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 & Use:** Appropriate size and space is provided for approach, reach, manipulation, and use, regardless of the user's body size, posture, or mobility.

(Compiled by advocates of Universal design in 1997. Participants are listed in alphabetical order: Bettye Rose Connell, Mike Jones, Ron Mace, Jim Mueller, Abir Mullick, Elaine Ostroff, Jon Sanford, Ed Steinfeld, Molly Story, Gregg Vanderheiden. The Principles are copyrighted to the Center for Universal design, School of Design, State University of North Carolina at Raleigh [USA].)

Access Into and Through the Home:

If a person who used to walk independently now uses a wheelchair or a walker, the doorways may no longer be accommodating. This is especially true for wheelchairs that carry additional equipment on them, such as oxygen, and for wheelchairs that are wide or otherwise custom fitted. A myriad of injuries to arms and legs and episodes of broken equipment are common occurrences when chair and walker users are stressed to navigate too-small doorways. Doorways should have at least 32 inches of "clear width" between each side; wider can be even better. While this example is obvious, there are many other related concerns that are less so. Doors, floors, hallways, walkways, stairs, ramps and elevators are of major concern throughout the home being evaluated. Carpeting, thresholds, and furniture are seemingly minor considerations that can cause major obstacles. Addressing access into and through the house entails examining the front door to the home, the door to the garage, if applicable, and then the access halls and doors to the other areas of the living space.

Stairs into the home, as well as stairs inside the home, present surmountable mobility obstacles. Persons with walkers as well as wheelchairs benefit from ramp installation when access to get into the home is stair-laden. One large step can effectively lock a wheelchair user outside of their own home, unless a ramp is made available. It is important to note that all ramps are not created equal; the material the ramp is made of, the pitch of the ramp, and the ability of the installer to comply with local building codes and ordinances are all important considerations.

If the individual will be coming into the home from a garage area, the amount of clearance in the garage for ramp installation and use must be considered. Garages also function as the primary protectors of special-needs vehicles. Wheelchair accessible lift-vans have greatly improved access to services for individuals living at home and can be customized to accommodate a range of disability issues. Often these vehicles require a significant storage and boarding area that is sheltered from the elements. In theory, the wheelchair user could board the van from the spacious driveway instead of from the garage, but this becomes troublesome in inclement weather. Garage and driveway design requires thoughtful review to address the safety of both the user and the vehicle.

Once inside the home, if the person with disabilities has need to access an upper or lower level of living space, there is more than one option. Home elevators have seen increased technology effectively decrease their cost. More economical and less invasive to install however, are chair lifts. The chair lifts can be difficult for some users, so the one-size-fits-all axiom definitely does not apply. Use of specialized accessibility consultants, who often function as designers and installers as well, can aid in determining which options are appropriate for each individual disability when these types of choices are present.

Assessment of doors, hallways, stairways, and movement through the house will provide insight into the types of issues present. Next, to address the usability of the rooms for completion of the ADLs, one must complete a room-by-room assessment. The rooms where the primary ADLs take place are good to start with, as the needs there are often the most complex and require the greatest modifications.

Room-By-Room ADL Assessment; Kitchens:

In a family where a breakfast bar was the primary meal location, or a table with narrow clearance at every wall, this will not be amenable for wheelchair based dining. It may be an option to remove the breakfast bar, change out a table, or place wheels on an existing table. To what extent the person with special needs will be participating in the working area of the kitchen will have some bearing on the desired usability; however, to simply reach a standard kitchen sink can be impossible from a wheelchair. The full ability to prepare meals, cook, and do kitchen clean up, can be facilitated by changing the customary height of the counters and appliances, and by making provisions for special power outlets, handles, knobs, hinges, shelves, doors, and compartments.

Room-By-Room ADL Assessment; Bathrooms:

Bathrooms are a well known area of the home that usually requires adaptation in older structures, and sometimes in newer ones as well. The important ADL of bathing takes place here, and often some of the ADLs of grooming and toileting do as well. Because of the risks imposed by wet and slippery surfaces, accessibility melds with safety in the best adaptations and universally designed equipment. The American Association of Retired Persons, on their website, additionally recommends installation of a wall-mounted, non-portable telephone in the bathroom to offset the inherent safety risks in this room.

Many people are familiar with raised toilet seats, which provide usability to a very large population that would otherwise be stuck seated on lower toilet. Wall-mounted grab bars also offer safety and assistance in rising from the toilet. Sometimes these additions to the bathroom are all that is needed for successful toileting; sometimes this is combined with a portable commode that moves the toileting function closer to where the individual is in other parts of the home.

Successful grooming can be more difficult to achieve in a standard bathroom. This is most often because of the lack of accessible space for a wheelchair user to fit their knees under the

sink, and the mirror over the sink not always being at a usable height. New sinks, complete with easy to use water and temperature control handles and fixtures, allow for accessibility and easy in use for ADLs. Anti-scald devices installed on the hot water faucets add an additional measure of safety, as do GFI equipped electrical outlets throughout the bathroom.

Walk-in/wheel-in showers have become increasingly common in new construction. However, these pose a challenge for individuals who desire or require in-tub submersed bathing. The use of bath-transfer benches offers the lowest-tech solution to moving into and out of the tub, but it also comes with a greater risk of falls. To answer that quandary, the walk-in bathtub provides one type of solution; this is a tub with a “door” that swings open for access. These types of tubs are particularly helpful for those individuals who can walk, but cannot step into a tub or lift themselves up onto a bench once in the tub. Often the walk-in tubs can be found installed in assisted living type facilities where most of the residents can walk, but are not agile or nimble.

So what if the person can't walk, but wants a tub bath? A ceiling lift device can be installed to hoist an individual from a wheelchair into a tub, and safely back out again. This lift works equally well with old-style and new-style tubs. The lift is designed so that minimal effort is required on the part of the lifter. A push button activates the lift so that it requires absolutely no strength component. The lift is attached to a sling in which the user is positioned, and the sling is attached to a track on the ceiling. With person in sling attached to ceiling lift, a button is pushed that lifts them into the air. The caregiver then propels the suspended person-in-sling along the track, which stops over the bathtub. With the push of a button the person is lowered into the tub, or onto a tub chair or bench, as preferred, for bathing.

The ceiling lift equipment is especially useful since the ceiling mounted track that supports the person in the lift can be of any length. The track can have a drop-off/pick-up point of the person's bed, for example, with the second end-point over the bathtub. The ceiling lift has saved many a caregivers back, and has provided safe and effective completion of many ADL's.

Room-by-Room Assessment; Therapy Areas:

The therapies that were begun in the hospital or rehab setting are very often continued to some extent or another in the home setting. Sometimes the intensity of therapy is similar to that done as an inpatient; often the intensity required is less but is essential to maintaining the prior achieved function. Since physical and occupational therapy can provide support essential to optimal functioning and quality of life, in that way they become as intrinsic as the other ADLs in the life of a person with special needs. There have been numerous benefits sighted regarding persons receiving these therapies at home in addition to those as attained in institutions or outpatient clinic settings, including compliance and outcome focused benefits.

As with other ADLs, physical and occupational therapy (aka, PT and OT) often require specialized space and equipment to meet individual needs. When designing or re-designing spatial layout of a home for a person with special needs, thought should be given to allocating a large enough therapy area. This space should be able to accommodate a therapy mat-table and

individual pieces of therapy equipment, such as those used for standing, weight bearing, walking and range of motion exercises, as appropriate to the individuals needs. The therapy area of the home is most often comfortably situated near the bedroom and bathroom, for ease in completing the daily routine. Such spatial layout is beneficial when using a ceiling-track based lift system as well, as drop off points can be accommodated for easy person transfers between these key areas of the home.

Notes on Specialized Therapies:

Some individual disabilities respond well to specialized therapy modalities in addition. Benefits have been derived from aqua therapy or hydrotherapy, using a bathtub, whirlpool, or swimming pool, depending on the individual circumstances. Although it is necessary to receive medical approval and guidance for all therapies, it is noteworthy that some alternative providers are utilizing massage therapies and infrared sauna therapy with good results. Available space can also prove beneficial for more interactive modalities such as animal assisted therapy and music therapy.

Room-by-Room Assessment; Rest and Recreation:

Having addressed issues of access into the home and the key ADL areas of the kitchens, bathrooms, and therapy, there are still more areas of the home to consider. The person with special needs should be able to equally enjoy private space, such as the bedroom, as well as community or family space, in areas such as the dining room, living room, or family room. In addition to these areas being accessible and safe, they should also be comfortable and inviting for the person with special needs.

The bedroom for the person with special needs should be considered in terms of its proximity to the rest of the family and to other necessary resources of the home. For example, the proximity of the disabled person's bedroom to the bathroom may have become more important with the onset of the disability. Sometimes equipment, such as portable commodes, can make up for distance factors, while in some circumstances access to running water may be more important than access to a toilet. Auditory monitoring of the disabled person may be possible from adjacent bedrooms, but it is possible that an auditory monitor (i.e., "baby monitor") may accomplish the same goal from a greater distance while allowing more overall privacy for all concerned.

After considering the proximity issue, then the issues of the size and function of the bedroom can be addressed. If a specialized bed is required, it may need to be situated a certain way to for access. If personal care equipment will take up space, or if space is required for an available care provider, these factors must also be considered. The bedroom should meet the usual expectations of being a place of rest and repose, while simultaneously accommodating the practical aspects related to the disability.

Similar consideration is also given to the living room and/or family room areas of the home, and any other areas where the disabled person will be participating in family activities. The size of the overall family must be considered to ensure that there is enough space allotted for

everyone to be present and participating, whether for a family meal, movie, or simple quiet time together. Additional 'open space' to accommodate a wheelchair, equipment, or caregiver should not be overlooked when considering these areas. If traditional or anticipated family activities require tables, lamps, or other items, consideration to these furniture items should be given, even if the items are not routinely in place for day-to-day life; for example, if week-end card games are a family tradition. If family activities include outdoor spaces, such as patios or porches, these too should be assessed and addressed as needed.

Care providers and Special Adaptations:

Many times family members do not function as the sole care providers for their disabled loved one, and additional, paid or volunteer respite care is utilized. When taking into account the person with special needs, the additional requirements of the caregivers should not be overlooked. Even if family members are the current sole providers, this may change over time, as often does based on the simple fact of the aging and eventual passing of older parents who care for their special needs adult children. Space allocated for care providers therefore needs to consider both the ability to have proximity to the disabled person as well as the ability to be separate from the greater family. For caregivers, proximity is more of a focus than accessibility.

Finally, special adaptations to the home should be considered that will address individual circumstance and idiosyncratic needs. These involve such things as generators to provide backup power, which would be a key issue for a ventilator dependent or other electrical equipment dependent persons. Other options include "nanny cams/granny cams" installed in care areas, motion sensor alarms on interior or exterior doors, computer/electrical ports for remote-controlled equipment, and intercoms access between different rooms of the home.

Old vs. New; Making the Choice to Adapt and Remodel

Simple adaptations to the home are the first thing that usually comes to mind for a person or family with a newly acquired special need status. However, the thoughts that begins with, "Well, we can just change this part..." often end with thoughts of, "Oh, but then what about...?" The result is often a domino-type effect of thoughts where one leads to the next and then result in- "So if we have to do all that, why don't we just start over completely?" There is sometimes one clear answer, but often the answer is cloudy at the beginning and time is needed to unearth the best choice. When the room-by-room assessment of the existing home is done, it is important to write it down. Writing down all the "ok" and "good" parts of each room as well as all of what would make the room ideal is important to making bigger choices about the whole house.

Always envisioning completion of the actual tasks of the ADLs, the movement, the eating, bathing, is key when doing and documenting the home assessment. It is important to remember that ADLs have many steps, i.e., bathing is not just washing, but rather it is getting undressed, getting to the bathing area, getting to the washing location (in the tub, in the

shower), considering the “helper” if applicable, getting the soap, lathering the front, lathering the back, rinsing, getting the shampoo, washing the hair, rinsing, getting to the drying area- you get the idea. Thinking about actions in pictures and detailed steps when doing the room by room assessment can be very revealing about the strengths and weakness of an environmental space. Architects and designers are pros at this of course, but lay people can do this well with clear intentions and goals established.

Once the room-by-room assessment has been completed and documented, then the required adaptations are revealed and their costs can be calculated. Structural changes are much more costly than minor “functional” changes. Structural changes include items such as moving or removing walls, enlarging rooms, and putting on room additions. These types of changes tend to involve many intricacies of plumbing, electrical, flooring, roofing, and other contractor and sub-contractor related matters. Sometimes the nature of the person with special needs’s estate will dictate that all changes funded by the estate must be for areas of the home that the person will have access to or use of. Therefore, if structural changes do not accommodate accessibility but are nevertheless necessary to the overall plan, problems may follow with approval by the funding entity. Structural changes are also subject to building permits and building code issues and those related costs, and in some cases, associated tax increases.

Changes of a more minor nature, such as changing the number of electrical outlets, moving the height of light switches, changing the type of door handles, are clearly less costly in and of themselves. Some changes are tricky in that they appear minor at first, but upon investigation become more complex and involve structural issues. A prime example is enlarging a bathroom doorway. Often the bathroom doorways are very proximate to electrical wiring and heating/air conditioning ducts. Frequently they abut closet areas and/or load bearing walls. Again, in documenting room-by-room, the number of major, minor, and in-between changes will become clear enough that a cost can be obtained for each one.

In totaling up the costs of the optimal changes to be made in a home modification, frequently families find they have come upon more major remodeling than they had anticipated. If this is the case, the home may not be livable while the remodel is occurring. This then necessitates the additional cost consideration of temporary housing during the remodel time. A time estimate for the remodel will yield the cost estimate of the temporary housing.

Consideration should be given to real estate market issues and property value when contemplating the remodel. It is good to project to what extent the property value may be affected by the changes once they are completed. It is also beneficial to calculate what percentage of the cost of the remodel would be recouped if the home were sold in the current market. If the home is situated in a neighborhood that is changing, the changes should be evaluated in terms of how they may impact the homes desirability to future buyers.

Old vs. New; Making the Choice to Start Over

After the cost factors have been totaled, especially when temporary housing costs are included, it is most often the case that the remodel of the home is more costly than starting over and building from scratch. For a new building venture, families then are well served to go back to the list of evaluation and assessment criteria. The new home site location must meet the needs previously cited in relation to resources and providers. Since ranch style homes are preferred, the site must be able to comfortably accommodate this footprint and appearance. The concepts of universal design, adequate space for family and care providers, and practical spatial arrangement can then be approached fresh. During this time it is invaluable for families to obtain, if they have not already, an architect and possibly an accessibility consultant as well to go over their ideas and plans. These professionals will be able to assist in not only meeting the goals of the dwelling, but also in ensuring that the home's final market value is consistently considered in these determinant stages.

Resources that can Help

It is good to encourage families to start from the perspective of what they know and where they are; after all, they are the experts on how they hope to live their daily lives. Once the ideas get started flowing, externally available resources can be a great help to helping refine, expound on, and enhance the ideas and goals that the family members start with.

It is important to note, however, that when families first come to be faced with a disabled member, the initial information overload is so intense that time is required for the individuals to come to terms with where they are. Having a special needs child, or having your loved one encounter a life-changing accident or life threatening health event, is monumental and can be earth shattering. Time and emotional support can be the most helpful resources at the beginning. The role of the trusted advisor, the supportive shoulder to lean on, is infinitely valuable. Being able to provide supportive reassurance that all the resources are out there, available and awaiting, can help to comfort and enable families as they move forward. When they are ready and able, the following list contains samplings of items offer facts, guidance, and concrete tools.

References and Resources

For information on Interdisciplinary Care and Discharge Planning:

Clark, Daniel, Neale Chumbler, Wendy Nadzem. "Resource Dependency and Discharge Planning in Metropolitan and Nonmetropolitan Hospitals." *Journal of Applied Gerontology* Vol. 13 No. 3 (1994)

The Encephalitis Information Resource; “Discharge from Hospital”;
<http://www.encephalitis.info/TheIllness/DischargeHospital.html>

Mamon, Joyce, Donald Steinwachs, Maureen Fahey, Lee Bone, Julianne Oktak, Lawrence Klein. “Impact of Hospital Discharge Planning on Meeting patient Needs after Returning Home.” *Health Services Research* 27(2) (June 1992),
<http://www.pubmedcentral.nih.gov/picrender.fcgi?artid=1069871&blobtype=pdf>

The University of Iowa Division of Interdisciplinary Programs; Aging Studies; a resource list: <http://www.uiowa.edu/~interdi/aging/video.html>

For Information on Universal Design:

Adaptive Environments, a non-profit organization focused on the benefits of universal design; <http://www.adaptenv.org/index.php?option=Home>

American Association of Retired Persons (AARP), Explanation of universal design is one of many site features; http://www.aarp.org/families/home_design/universaldesign/

Center for Inclusive Design and Environmental Access (IDEAS) at State University of New York at Buffalo; <http://www.ap.buffalo.edu/idea/Home/index.asp>

The Center for Universal Design at North Carolina State University;
http://www.design.ncsu.edu/cud/about_ud/about_ud.htm

Iowa State University Extension Service, “The Home for All Ages” Exhibit;
<http://www.extension.iastate.edu/pages/housing/home-all-ages/overview.html>

Statewide Independent Living Association of Georgia “Concrete Change” project to make all new homes “visitable”; <http://www.concretechange.org/>

Universal Designers and Consultants; a private firm with some free downloadable resources in their online store; <http://www.universaldesign.com/>

For Information on Specific Home Adaptations/Modifications/ Needs Assessments

American Association of Retired Persons (AARP), site features checklists, suggestions, and resources; http://www.aarp.org/families/home_design/

Ball State University “WellCome Home Project”; <http://www.bsu.edu/wellcomehome/>

Jacobs, Jessie, “Design Linc” an interior designer’s site that offers design tips, listings of companies that sell disability products, and other useful links: <http://www.designlinc.com/index.html>

Metropolitan Center for Independent Living; The Home Wheelchair Ramp Project, site features details of wheelchair ramp accessibility: <http://www.wheelchairramp.org/>

United States Department of Health and Human Services; Eldercare Locator Resources; Fact Sheets; Fact Sheet on Home Modifications:
http://www.eldercare.gov/eldercare/Public/resources/fact_sheets/home_mod.asp

University of Southern California/IDEAS; National Resource Center on Supportive Housing and Home Modification; note that the 'links' section is extensive and contains a national compilation of resources in and of itself <http://www.homemods.org/>

For Information about Cost and Funding Issues:

The Council for Disability Rights; An Illinois organization providing data on funding sources as well as other disability information of interest; <http://www.disabilityrights.org/mod3.htm>

The Illinois Housing Development Authority; FAQs on Home Modifications;
<http://www.ihda.org/ViewPage.aspx?PageID=205>

For Information about Specific Therapy Modalities:

Creighton University School of Medicine data on infrared sauna therapy;
<http://altmed.creighton.edu/sauna/>

Mayo Clinic provides an overview of various therapies on their Physical Medicine and Rehabilitation site; <http://www.mayoclinic.org/physicalmedicine-rst/>

University of Iowa; Benefits of aquatic therapy;
<http://www.uihealthcare.com/reports/rehabtherapies/030804aquatictherapy.html>

Wikipedia provides a useful overview of Occupational Therapy for the lay person at;
http://en.wikipedia.org/wiki/Occupational_therapy

Wikipedia provides a useful overview of Physical Therapy for the lay person at;
http://en.wikipedia.org/wiki/Physical_therapy