



overview

Women's Health Overview

Adapting Our Homes for Our Changing Lives

Rehabilitation concerns improving the function of individuals in their home and work environments. As we age in our homes, there are many ways we can adapt our environment to allow us to remain functional in our homes for our lifespan.

For persons with a disability, one source of good advice can be an occupational therapist. I have asked one of our occupational therapists who specializes in home modifications to provide some examples of how to make one's home more accessible for those with physical challenges, such as the use of an assistive device (walker) or mobility device (wheelchair).

An occupational therapist (OT) assesses and makes recommendations for the home environment if an individual has experienced an injury, illness, and/or desires to age in place. Areas of the home are measured and assessed to ensure the individual can access their home and complete bathing, toileting, cooking, and more.

The OT assesses the exterior and interior of the home to make recommendations for the individual to access the home and to be as independent and safe as possible and provide education for prevention of falls.

Following are questions to ask yourself about the exterior of your home:

- *Is there an entrance through the front door or garage?*
- *Are there stairs? If so, how many and what is the height?*

see ADAPTING pg 4

Options for renting and buying ramps and durable medical equipment

Resources:

Home Repairs/Safety Modifications: Rebuilding Together Omaha; Kohl's Home Modifications; League of Human Dignity; Midwest Respiratory & Rehab

Purchase Equipment:

Total Respiratory & Rehab; Kohl's Pharmacy & Homecare; general stores (ex: Walmart, CVS, Target, Lowe's, Menards, Amazon, Bed Bath & Beyond)

Medical Equipment

Loan Program (Rent):

Health Equipment Loan Program (HELP) Adult Services

Mobility Solutions:

Kohl's Pharmacy & Homecare; Heartland Mobility



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From the chairman

As a member of the Baby Boomer generation, the lead article in this edition of our newsletter catches my personal attention. For those of you in my generation or who have loved ones in it, it may catch yours as well. Boomers have done some things well and been less than completely successful in others. One thing is very clear. We have no intention of aging gracefully and will fight it every step of the way. As cancer and other chronic illnesses are being treated more successfully we are living longer. The numbers of Boomers as a percentage of the population are increasing and the cost of providing health care continues to escalate. Expansion of acute rehabilitative services will become increasingly necessary but so will long term care. The decision to create a Department of Physical Medicine and Rehabilitation has indeed been timely at UNMC.

A second article regarding the association of Human Papilloma Virus (HPV) and head and neck cancers is also important. Most of us caring for women have long been aware of the association with female genital cancers and this ubiquitous virus. From a population health viewpoint we are already armed with an important preventative tool. HPV vaccination remains an embarrassingly underutilized method for our children. There is no evidence that it causes harm to our children and there is no evidence that it promotes sexual promiscuity in those vaccinated. If the vaccine sparks a parent-child conversation about sexual matters it is probably a good thing. I would encourage parents to have a thoughtful discussion with their child's provider about this important and effective method of reducing cervical and other HPV related cancers.

Carl V. Smith, MD, FACOG

Chairman

Department of Obstetrics & Gynecology

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research news

Bioengineering: The Future in Reproductive Medicine

Improving reproductive health and fertility in women continues to be a major challenge. Understanding how tissues interact within the reproductive system is difficult, especially when changes in hormone levels are responsible for controlling the processes of ovulation, fertilization, and embryonic development. Understanding the relationship between tissues of the reproductive system with tissues of other systems (ex: heart, brain, and liver) is equally challenging. Currently there is a combined effort to incorporate reproductive biology with bioengineering and materials science to help make advances in fertility research. Current technology, called 'organ-on-a chip', is an example of the different disciplines working together.

The organ-on-a-chip is a small device made of glass, silicon or polymers that is lined with human cells. This device contains small tubes, or microchannels, etched within the chip that allows for extremely small amounts of fluid and air to be distributed throughout the chip. The chip is designed to mimic specific organs and can allow researchers to predict drug treatment outcomes for specific human diseases while saving time and money. "Evatar" is the newest chip for studying reproductive biology, linking the ovary, fallopian tubes, uterus, cervix, and liver, into one dynamic tissue culture system. It is the first of its kind and has proven beneficial for studies involving the female menstrual cycle. Advancements, such as Evatar, provide a

powerful tool for studying how different organs interact in response to hormones. Devices like Evatar may allow for the discovery of new treatments for reproductive diseases, such as polycystic ovary syndrome.

For the past decade, 3-D printing, another bioengineered approach, has provided advances in various areas of biomedical science. Recent breakthroughs in 3-D printing have opened new avenues in reproductive research. Using this technology, Dr. Woodruff and Dr. Shah at Northwestern University in Chicago have pioneered fertility treatments, allowing for the development of "ovaries of the future". They developed a method utilizing gelatin and 3-D printers to restore fertility and the production of healthy offspring in sterile mice. This technique uses gelatin as the ink platform, which prints a scaffold or extracellular matrix similar to the design of human ovarian tissue. Pores created by the 3-D gelatin matrix hold the many different cell types found within ovarian tissue. These advancements in 3-D printing and bio-prosthetic (artificial) ovaries are anticipated to aide in restoration of fertility and endocrine health in young women as well as to boost hormone production in menopausal females.

Improving fertility in women continues to be a major challenge, yet the combination of reproductive medicine with biotechnology and bioengineering has paved the way for cutting-edge advancements which may establish a new foundation for women's health research.



Contributed by
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ADAPTING *continued from pg 1*

If the individual is not able to walk up the stairs, a ramp will need to be installed.



The specifications for entrance recommendations are determined by Americans with Disabilities Act guidelines. For every inch of the stair height, a foot is required for ramp length. If the individual is entering the home from the garage and there are 3 stairs and a threshold, each measuring at 6", the ramp required is 24 feet (3 stairs + 1 threshold = 4 x 6" = 24).

The individual will need to consult with a contractor regarding their options for ramp placement and space needed for configuration of a ramp.

The interior of the home consists of the bathroom, bedroom, kitchen, laundry room, etc. Following are questions to ask yourself about the interior of your home:

- Does the bathroom have a walk-in shower or tub/shower?
- What is the height of the toilet?
- Can the individual navigate doorways using their wheelchair or walker? 36-inch doors are recommended.

Durable medical equipment (DME), which includes shower chairs, tub benches, hand-held shower heads, grab bars, toilet safety frame, toilet riser, etc. and can be obtained to accommodate changing physical needs.

Payment for DME varies with the insurance source. Certain groups may have additional benefits available, such as if you are a disabled veteran or if your injury is covered by worker's compensation. DME must be prescribed by your physician as medically necessary for your health problem in order to be potentially covered by your insurance plan. We recommend checking with your health plan beforehand. However, there are options to rent or buy a ramp and/or DME.



Contributed by Samuel Bierner, MD

UNMC Department of Physical Medicine and Rehabilitation

Cheryl Frickel, OTD, OTR/L

Madonna Rehabilitation Specialty Hospital - Occupational Therapy

Mission Statement

The Mission of the Olson Center for Women's Health is to provide a national comprehensive health science center at the University of Nebraska Medical Center. Based in the Department of Obstetrics and Gynecology, the center enables UNMC to make distinctive strides in education, research, and service through innovative approaches to women's health issues.

Want More Information?

Visit our website: **OlsonCenter.com**

Learn more about our healthcare providers, services, and programs available at the Olson Center for Women's Health. Our website also offers women's health information.

Here are a few topics:

- Breastfeeding
- Breast Health & Disease
- Cardiovascular Health
- Gastrointestinal Health
- Gynecologic Health
- Reproductive Endocrinology/Infertility
- Pregnancy
- Wellness
- Incontinence

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HPV: A Viral Story

Human papilloma virus (HPV) is a type of DNA virus. There are more than 200 known HPV virus types, which commonly infect the skin and cell layer called the epithelium.

Areas commonly infected are the tonsil, oral cavity and pharyngeal (throat) cavity in the head and neck area. This is the same virus which affects the similar lining found in the cervix and anal regions. There are more than a dozen well-known HPV viruses that cause noncancerous lesions of the oral and genital regions, however the HPV 16 and 18 types have the highest risk for causing cancer.

HPV transmission and risk factors

The majority of the HPV virus is transmitted by sexual contact. Other transmission methods, like exposure to warts, aerosols (air and virus mixture), and mother-to-child are all common exposures. There is an increased incidence with an increase in the number of sexual partners, earlier onset of sexual debut, oral-anal sexual activity, history of sexual infections, poor nutrition, poor dental health, as well as tobacco and marijuana smoking.

HPV vaccination

Currently there are three different types of HPV vaccinations. The type is defined by the number of subtypes of HPV vaccine it will target. It is termed Bi (2), Quadri (4), and 9 valent. There is a huge stigma against vaccination due to the misconception that HPV infection is solely acquired through sexual activity. The Journal of Otolaryngology – Head & Neck Surgery reported a systematic review in January 2018, which concluded that there is a prevalence of up to 21% HPV virus found in pediatric tonsils. This certainly suggests that transmission of HPV may also occur in other methods than sexual activity. A large-scale WHO study published in 2014 did not show any risk of vaccination in females and males. Anecdotal reports of autoimmune disease (ex: multiple sclerosis) in vaccinated girls were compared with girls who were not vaccinated. No risks were credible in large reviews. Vaccination prior

to sexual debut is well advised and prevents oral, pharyngeal, laryngeal, cervical, vaginal, vulvar, anal and penis cancers. Vaccinations elicit an immune response in males as well as females.

HPV in oral-head and neck cancers

HPV is found in 25-30% of head and neck cancers, and in 2/3 of throat cancers. The majority of these HPV related cancer patients may not be tobacco smokers and alcoholics, but HPV and smoking-related cancers are commonly seen in coexistence. The patient population tends to be younger, white, male, married and educated. The non-smoking patients with HPV associated cancer currently are known to have better outcomes. There are some studies currently under review relating oral hygiene, gum disease and especially jaw bone loss, with the risk of HPV associated head and neck cancer. But on an encouraging note, five-year survival rate for HPV-positive head and neck squamous cell cancers is as high as 60%–90% as compared with 20%–70% in non HPV associated cancers.

HPV's role in cervical, penile, vaginal and anal cancers

Other than head and neck cancers in males and females, HPV is associated with the majority of the cervical cancers, more than 2/3 of anal cancers, approximately 2/3 of vaginal cancers, 1/2 of penile cancers, and 1/3 the vulvar cancers. HPV infection is more prevalent in tobacco and marijuana smokers and heavy alcohol users. In fact, in the past 10 years there are various studies linking cervical cancer prevalence to women who smoke. Additional risk factors for developing these HPV related cancers are ultraviolet radiation, pregnancy, folate deficiency, immune suppression and poor oral hygiene.

Following a head and neck biopsy, p16 protein testing is the common method for testing for HPV infection.

Conclusion

Vaccination positively impacts incidence of HPV associated head and neck cancers and other types of genital tumors. Just the presence of HPV should not be confused with the risk of cancer as HPV infection can be cleared from the throat/oral areas in a few years if no subsequent exposure occurs.

Contributed by Srinivasa Chandra, MD

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Cervical Cancer Screening Notes:

How often do I need pap smears?

- If a pap alone is negative, every 3 years
- If the pap and HPV were both negative, every 5 years.
- If a woman has a medical condition or takes medications that affect her immune system, then Pap screening should be done every year

Have you reviewed your own pap smear result?

- Get engaged with your own health care by signing up for our secure patient portal: **onchartpatient.com**

Contributed by Sonja Kinney, MD

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Women's health programs recognized nationally

Nebraska Medicine was named to the 2017 edition of "100 hospitals and health systems with great women's health programs" by Becker's Hospital Review for its award-winning programs in women's health, breast cancer diagnosis and treatment, gynecology and women's heart care. Nebraska Medicine is the only health care system in Nebraska to be included on the list.

"Women from all over Nebraska and the region rely on our comprehensive team of board-certified specialists," says Carl V. Smith, MD, chairman of Obstetrics and Gynecology. "From gynecologic issues to high-risk pregnancies, mental health



and cancer screenings, we have the most advanced and compassionate medical care. Patients can be confident they're in good hands."

U.S. News & World Report also named Nebraska Medicine – Nebraska Medical Center as the No. 1 rated hospital in Nebraska for 2017 and ranked its gynecology program among the 50-top scoring programs in the country.

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