# Medical Infrared Imaging

## REHABCO

RehabCo is a wholly owned subsidiary of American HealthChoice
Corporate Offices 7350 Hawk Road Flower Mound, Texas 75022
Tel: (817) 837-8000

www.americanhealthchoice.com
www.rehabco.com
www.omnibodyscan.com

# Cancer and early diagnosis

- The key to beating cancer is early diagnosis.
- *"I think I need to start at the beginning of my whole health crisis and catch you up to the day I finally got diagnosed. I say 'finally' because it took forever -- more than two years and eight doctors…"* Fran Drescher, ***Cancer Schmancer***
- Advanced imaging techniques, molecular and protein biomarkers, and multimodal approaches are at the forefront of promising strategies for detecting and diagnosing cancer at its earliest, most treatable stages.

# One cancer problem: Breast Cancer

- 88 million women, annually, have a mammogram in the USA.
- Costs are in excess of $13B.
- Breast cancer is the second-leading cause of “cancer related death” among women in the United States, according to the American Cancer Society.
- 25% percent of all diagnosed cases are among women younger than age 50.
- Physicians and medical groups have for years debated the merits of screening mammography for women in their 40s.

# Women in their 40s and radiation

- The American College of Physicians' Clinical Efficacy Assessment Subcommittee decided to take its own look at the evidence related to screening in women in their 40s. After their review, the group concluded that screening mammography for women in this age group likely provides a modest reduction in breast cancer mortality but - as with any screening intervention - it also comes with the risk of potential harms.

- Based on this, it recommended that clinicians inform women ages 40 to 49 of the potential benefits and harms of screening mammography.

- "A recent report in the UK says the women who are genetically susceptible to breast cancer can greatly increase their risks by getting chest X-rays. The report states:
  - a chest X-ray could increase the risk of getting breast cancer,
  - more than 1 in 500 women, with the susceptible gene, face a dramatic rise in threat,
  - women with the BRCA1 and 2 mutation should opt for MRI scans,
  - tens of thousands of women have increased their chances for breast cancer thru chest X-rays in the past."
    (X-rays and Breast Cancer Risks Considered, Lance Winslow, www.ezinearticles.com)

# Inflammatory Breast Cancer (IBC)

- INFLAMMATORY BREAST CANCER (IBC) is an advanced and accelerated form of breast cancer usually not detected by mammograms or ultrasounds. Inflammatory breast cancer requires immediate aggressive treatment with chemotherapy prior to surgery and is treated differently than more common types of breast cancer. African Americans have a higher incidence of IBC than do Caucasians and other ethnic groups. (*http://abcnews.go.com/GMA/OnCall/story?id=2553137&page=1*)

- Some women who have inflammatory breast cancer may remain undiagnosed for long periods even while seeing their doctor. The symptoms are similar to mastitis, a breast infection, and the woman may receive a prescription for antibiotics. Inflammatory breast cancer usually grows in nests or sheets, rather than as a confined, solid tumor. Therefore, it can be spread throughout the breast with no palpable mass. The cancer cells clog the lymphatic system just below the skin.

- **Infrared imaging's advantage is the ability to identify areas of inflammation.**

# The Problem: Mammogram or MRI?

- A study published in a March issue of the New England Journal of Medicine followed 969 women who had a recent diagnosis of breast cancer in one breast. MRI was able to detect breast cancer in the second (contra lateral) breast of some of these women even when mammogram had been read as normal. Specifically, 121 of these women had a suspicious (positive) MRI, even though their mammogram showed no abnormalities. This is equal to 12.5 percent of the women. All of these MRI positive women had biopsies, and 30 were found to be positive for cancer. (Dr. Judith Reichman, April, 2007.)

- MRI is currently a very special tool that is indeed extremely sensitive in detecting early cancer. Unfortunately, it is "too" sensitive and also picks up many breast changes that are not cancer, leading to a high incidence of negative biopsies. (Dr. Judith Reichman, April, 2007.)

- Recent data shows that MRIs are significantly more effective – and significantly more expensive - than mammograms.

# The Solution: OmniBody Scan

- Digital Infrared Imaging
- Revolutionary technology
- Easy to use, auto adjusting and FDA approved
- Complements mammography as a diagnostic tool – truly multimodal
- No intrusive physical contact or compression
- No radiation
- Safe, painless and cost effective
- Licensed “thermographers” read the scans and highlight areas of abnormality with the eventual goal of pointing the patient and clinician in the right direction.

# The Solution: Infrared Imaging

- The use of Digital Infrared Imaging is based on the principle that metabolic activity and vascular circulation in both pre-cancerous tissue and the area surrounding a developing breast cancer is almost always higher than in normal breast tissue. In an ever-increasing need for nutrients, cancerous tumors increase circulation to their cells by holding open existing blood vessels, opening dormant vessels, and creating new ones (**neoangiogenesis**). This process frequently results in an increase in regional surface temperatures of the breast. Digital Infrared Imaging uses ultra-sensitive medical infrared cameras and sophisticated computers to detect, analyze, and produce high-resolution diagnostic images of these temperature variations. These variations can indicate a pre-cancerous state (www.breastthermography.com).

- Over 800 peer-reviewed studies on breast thermography exist in the index-medicus literature. An abnormal infrared image is 10 times more significant as an indicator and warning than family history.*

# The Solution: Thermography

- Breast thermography is a screening diagnostic procedure which uses highly specialized infra red cameras to measure the heat coming from the body.
- Because of Digital Infrared Imaging's extreme sensitivity, these temperature variations may be among the earliest signs of breast cancer and/or a pre-cancerous state (www.breastthermography.com).
- **Breast thermography has the ability to warn women, up to 10 years before any other procedure, that a cancer may be forming.**
- Thermography has been approved for many years by the FDA.*
- Breast thermography is very accurate, but only in the hands of trained personnel using the correct type of thermography cameras. The accuracy of the examination varies around the world but varies from 87%-96%. The 96% reference is from 1999, the most recent published approved study. (USC Norris Cancer Center, Parisky, MD et al)*

# Case Study: Christina Applegate

**EXCLUSIVE: Applegate Underwent Breast Removal to Stop Cancer**

- **Actress Christina Applegate Had Double Mastectomy, Is Now 'Free' of Cancer - By BRIAN O'KEEFE and LEE FERRAN**
  **Aug. 19, 2008**

- A month after being diagnosed with breast cancer, actress Christina Applegate, 36, is "100 percent" cancer-free, she told "Good Morning America's" Robin Roberts in an exclusive interview.

- Christina Applegate's cancer revelation is generating a lot of discussion.

- "I'm clear. Absolutely 100 percent clear and clean," the star of ABC TV's "Samantha Who?" said. "It did not spread -- they got everything out, so I'm definitely not going to die from breast cancer.“

- But the price she paid for that peace of mind was high.

# Case Study: Christina Applegate

- Applegate is also going to be OK due to her own vigilance. She started getting mammograms six years ago, after she turned 30, and said the cancer was found through the second of two MRI tests as a follow-up from a biopsy she had last year.

- "If this had been caught a year from now, or when I was 40, I probably wouldn't be able to live through this," Applegate said.

- The MRI Applegate underwent, she said, is capable of “seeing” cells, meaning it can detect cancerous cells even before a tumor forms (ABC News – Good Morning America - 8/19/2008).

# Problem: The need for a diagnostic tool to identify the spread of cancer cells

- "Deaths from breast cancer have increased throughout the last century and modern medical care has done little to halt this trend … those in the know realize that there is no such thing as early detection and all cancers diagnosed with radiographic techniques must be large enough to be visualized with the human eye, so they have been there more than 10 years already." – Disease Proof (www.diseaseproof.com)

- "When Christina Applegate's publicist reports 'it was not serious and caught in the early stage,' we know that is not factual. Present medical science has no way of determining whether cells have spread outside the breast. A stage zero cancer means that it less than 2 centimeters and no cancer was found in the lymph nodes. However, that still does not tell us that it was caught before cancer cells have spread. **Most invasive breast cancers have seeded the body with cells by the time a mammogram or MRI can detect it. Negative lymph nodes on a biopsy does not tell us the cancer is still localized to the breast because a small number of cells are, for practical purposes, invisible**." – Disease Proof (www.diseaseproof.com)

# Problem: MRI is expensive

- The problem for many other women, though, is that this type of MRI is expensive and often health insurance does not cover it. So Applegate is starting a foundation to help high-risk women meet the costs.
- "It's incredibly expensive," she said. "So, for me, one of the things that when this is all happened, was that I'm putting together a program that's going to raise money to pay for MRIs for women who are at high risk."
- Applegate defines "high-risk" as anyone who has had breast cancer in their family, or are "gene positive" for the BRCA1 gene that is linked to breast cancer (ABC News – Good Morning America - 8/19/2008).

# Do mammograms cause cancer?

- The American Cancer Society recommends an annual mammogram after age 40.

- “Since mammographic screening was introduced, the incidence of a form of breast cancer, called ductal carcinoma in situ (DCIS), has increased by 328 percent. Two hundred percent (200%) of this increase is allegedly due to mammography. In addition to harmful radiation, mammography may also help spread existing cancer cells due to the considerable pressure placed on the woman's breast during the procedure. According to some health practitioners, this compression could cause existing cancer cells to metastasize from the breast tissue.” (Mammograms Cause Breast Cancer - and other cancer facts you probably never knew: Dawn Prate, 4-29-2007, http://www.rense.com)

- “The female breast is two to three times more sensitive to radiation than any other organ. Yet, highly reputed authorities like the American Cancer Society and the National Cancer Institute downplay any environmental connection, especially radiation, focusing instead on ‘risk factors’ within the woman's control. A recent report, 'State of the Evidence, What is the connection between the Environment and Breast Cancer?' states that ***radiation is the best-established cause of breast cancer.”*** (www.boloji.com – Stephanie Hiller - February 13, 2005)

# Solution: OmniBody Scan

- The OmniBody Scan (OBS) can detect abnormalities long before standard mammograms and expensive MRIs and solves the problem of detecting cancers and tumors not visible with the human eye.
- The costs for a comprehensive OmniBody Scan image and "read" are approximately 1/10$^{th}$ the costs of the expensive MRI.
- There is no harmful radiation.
- Since the OBS and digital infrared imaging cannot cause cancer, full body images can be taken yearly and at any age.
- The applications of the OmniBody Scan and Digital Infrared Imaging are just beginning to emerge.

# Notes

- Text marked with an asterisk (*) were quoted verbatim from numerous medical sources that are available upon request.
- This is an emerging product and technology.
- The key to success lies in the high quality camera and also in the high quality and accurate “readings” of the images.
- The OmniBody Scan highlights areas of abnormality and is not a standalone diagnostic tool.
- Diagnostic screening for breast cancer is just one of the many applications of the OmniBody Scan.