EXECUTIVE SUMMARY
NASOPHARYNGEAL RADIUM IRRADIATION: CURRENT MEDICAL ISSUES VIDEOCONFERENCE OF 5 SEPTEMBER 1996

1.0 GENERAL

In response to recommendations made by panel members of the September 1995 workshop, *The Public Health Response to Nasopharyngeal Radium Irradiation,* the Centers for Disease Control and Prevention (CDC) sponsored a videoconference on current medical issues associated with the past use of nasopharyngeal radium irradiation (NRI). The Department of Defense (DoD) and the Department of Veterans Affairs (DVA) co-sponsored the conference. On 5 September 1996, the videoconference was broadcast live via satellite from the CDC headquarters in Atlanta, Georgia to county extension offices, schools, medical institutions, universities, all VA hospitals, and some local and regional cable television stations. The videoconference was intended as both a public health outreach effort for the CDC and as a continuing education opportunity for physicians to learn proper means of evaluation and treatment of individuals who report having been treated with NRI.

The videoconference was divided into two parts and was moderated by a CDC delegate. The first part consisted of a brief introduction by two CDC representatives and a CDC-produced informational video. The second part was a question and answer session in which a panel of three experts answered questions from the moderator and from viewers who called in via telephone.

2.0 PART ONE: INTRODUCTION AND VIDEO

2.1 Dr. David Satcher, Director of the CDC, provided opening remarks on the importance of understanding the history of NRI and the magnitude of public concern over possible health effects.

2.2 Richard Jackson, M.D., M. P.H., from the National Center for Environmental Health at the CDC introduced the videoconference as a production of the CDC's Public Health Training Network. Dr. Jackson stated that primary discussion points included: 1) the history of the procedure, 2) the doses of radium used, 3) any possible dangers associated with the treatment, 4) the potentiality of resulting health effects and 5) physician evaluation and care of patients with a history of NRI.

2.3 The moderator introduced the panel members as Anne Mellinger-Birdsong, M.D., M.P.H., of the Radiation Studies Branch, National Center for Environmental Health at the CDC; Douglas A. Ross, M.D., Assistant Professor of Surgery at Yale University Medical Center and Chief of Otolaryngology at the West Haven Veterans Administration Medical Center; and Susan Mather, M.D., M.P.H., Assistant Chief Medical Director for Environmental Medicine and Public Health at the DVA.

2.4 The video presented a comprehensive report on the development and usage of NRI, and information on current guidelines for medical follow-up. It combined narration and historical footage, interviews with experts, and technical diagrams to illustrate the importance of understanding the past use of NRI treatment .

2.4.1 Donald Proctor, M.D., from the Johns Hopkins University School of Medicine spoke on the history of NRI. He assisted in the design of the Crowe radium applicator and worked with Dr. Crowe at the Hagerstown, Maryland clinic in the 1930's. Dr. Proctor discussed the development of the applicator and its dramatic success with children suffering from hearing loss due to eustachian tube blockage by lymphoid tissue.

2.4.2 In addition to her participation as an in-studio panel member, Dr. Mellinger-Birdsong discussed the civilian exposure estimates. She spoke of the results of a study that she had done which involved a theoretical formula. The study involved calculating the number of individuals treated by assuming how long an applicator would be in use, how many applicators would be used per patient for three sessions, and then estimating the number of physicians employing the treatment and how many patients would be seen per week by those physicians. Dr. Mellinger-Birdsong estimated that between 1946 and 1961 500,000 to 2.5 million civilians were treated with NRI.

2.4.3 Captain Steven R. Warlick, M.D., of the Portsmouth Naval Medical Center, spoke about the dose, method of treatment and effectiveness of the military use of NRI during World War II. He stressed that the Army Air Forces discontinued routine use of NRI due to the advent of pressurized cabins and that the Navy discontinued NRI in the 1950's as other preferred methods of treatment were identified. Dr. Warlick added that in the 1940's, physicians at the Submarine Medical Research Laboratory in New London Connecticut surveyed the efficacy of the NRI by observing submariners who had received the treatment.

2.4.4 Henry Royal, M.D., of the Mallinckrodt Institute of Radiology, Washington University and a member of the Presidential Advisory Committee on Human Radiation Experiments (ACHRE) stated that the introduction of tympanostomy tubes (T-tubes) in 1954 and the discovery of new antibiotics in the early 1950's were two treatments that gained favor over NRI.

2.4.5 Dr. Royal presented an overview of the effect of the radiation on NRI patients and gave basic definitions of terms associated with the treatment. He indicted that most tissue absorption occurred within ten millimeters of the radium rod and that the standard treatment, which involved a 0.5 millimeter applicator and fifty milligrams of radium in place for twelve minutes, would provide an absorbed dose of 2,000 rads to the nasopharynx . Dr. Royal added that the dose would be twenty-four rads to the pituitary gland, thirteen rads to the salivary glands, four rads to the brain and two rads to the thyroid.

2.5.1 With respect to risk, Dr. Royal asserted that there is little, if any, risk of developing thyroid disease for individuals who were adults when they received NRI treatment and that the risk is only slightly greater for individuals who had the treatment as children. He estimated that the peak use of NRI occurred in children born between 1940 and 1955.

2.4.6 Dale Sandler, Ph.D., of the National Institute of Environmental Health Sciences in Research Triangle, North Carolina, studied NRI for her doctoral dissertation at the Johns Hopkins University in 1982 when little was known of the possible long term effects of the treatment. Dr. Sandler concluded that NRI treatment may lead to increased incidence of head/neck cancers, and that the advantageous effects of the treatment were not long lasting. She added that caveats accompanied the findings and that a doctoral student from Johns Hopkins is currently conducting a follow-up study to further ascertain the possible long term effects of the treatment.

2.4.7 Panel member Dr. Mather also appeared in the video and discussed veteran's issues. She commented that while registry in the Ionizing Radiation Registry is presently not an option for veterans having received NRI, it is an issue of current legislative debate. Dr. Mather stated that the DVA operates a priority treatment program for those seeking help and that compensation is determined on a case by case basis only. She emphasized that the ACHRE did not recommend surveillance for those having received NRI treatment.

2.5 The final part of the video addressed the proper procedure for conducting an examination of a patient who suspects that he or she received NRI treatment. Intended mostly for physicians, this portion of the videoconference detailed the proper methods of patient examination. Panel member Dr. Ross performed a sample physical examination which included oral history taking, oropharyngeal examination and inspection by pharyngoscope.

2.5.1 In closing, the video informed viewers that neither the CDC or the ACHRE recommend screening for all patients who have been treated with NRI.

3.0 QUESTION AND ANSWER PERIOD

3.1 In response to a question from the moderator concerning the location of the Navy Nasopharyngeal Log Book, Dr. Mather responded that the finding increases the possibility of an epidemiological study. She stated that the DVA has identified 600 names of treated individuals, and that for the 600 names, 500 personnel records have been found, of which only eight contain treatment information. She added that physical examination cannot discern whether an individual actually had the treatment.

3.2 A viewer questioned whether all Ear, Nose and Throat physicians (ENTs) were aware of historical NRI practices. Dr. Ross answered that he knew NRI history was not taught in the 1980's when he was doing his ENT residency and that he is sure that physicians need to be brought up to date on the issue. He noted that the journal *Otolaryngology, Head and Neck Surgery* will have a feature article on NRI in its November issue.

3.3 An inquiry from a viewer prompted Dr. Ross to state that not even at high doses could radiation cause hearing loss induced by nerve damage. He remarked that there is too great a distance between the radiation source and the nerve that controls hearing.

3.4 In response to a question concerning dependent eligibility for DVA benefits, Dr. Mather replied that dependents do not qualify for DVA benefits and if a dependent has a question concerning NRI that he or she should consult a primary care practitioner or an ENT.

3.5 The moderator asked if NRI was considered experimental and each panel member responded.

3.5.1 Dr. Mellinger-Birdsong commented that the procedure was not experimental because it was done with therapeutic intent.

3.5.2 Dr. Ross stated that NRI was an effective method of treatment which prevented further problems and that at the time, there were little known risks associated with radiation. He also remarked that NRI enabled many submariners and aviators to continue on active combat status during World War II, and may have made a considerable difference in the overall effectiveness of the American fighting forces.

3.5.3 Dr. Mather maintained that NRI was a well-accepted, established medical procedure. She added that the Navy's use of NRI at the Submarine Research Laboratory in New London should be considered a clinical trial, not an experiment.

3.6 A caller questioned the radiation doses utilized in discussion at the New Haven Workshop of September 1995 and the doses given in the CDC's informational videotape shown earlier in the videoconference. The caller stated that the doses were erroneous, contradicted those found in published studies and did not take children into consideration. Dr. Mellinger-Birdsong assured the caller that the figures are accurate, but that she would re-check her numbers and would respond to the caller if there appeared to be any discrepancies.

3.7 In response to a question concerning when NRI was last used, Dr. Mellinger-Birdsong answered that although she has seen evidence of its use until 1961, she spoke with an individual who had undergone the treatment in 1965. Dr. Ross added that it is obviously very difficult to determine when the last treatment occurred due to its widespread use in private practice as well as military and civilian facilities.

3.8 A caller asked if there had been any incidences of applicator leakage during NRI use. Although another caller commented that early aluminum applicators leaked, Dr. Mellinger-Birdsong replied that she was not aware of any instances of leakage. Dr. George Comstock, Professor of Epidemiology at the Johns Hopkins University and advisor on the Sandler study, called in to state that because radium is a metal, he doubts that any leakage would have occurred. He added that if the applicators broke often or were inefficient, they would not have been useful.

3.9 A question concerning the use of external irradiation prompted Dr. Mather to say that for veterans who had received external irradiation, the treatment was probably experimental. She commented that although she thinks that the numbers are significant, they have yet to be identified. Dr. Mather added that veterans who have received external irradiation treatment should contact a benefits officer at the DVA.

3.10 The moderator stated that a videotape of the conference would be available in the Fall of 1996 and that those interested in obtaining a copy should contact the appropriate CDC office.

COMMENTS:

The exact context of Dr. Mather's comments cin section 3.9, concerning external irradiation, was unclear. RECC Research Staff viewed the videoconference at the National Naval Medical Center. A distribution packet is attached (Attachment 1).

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