



# Old Solutions May Be the New Answer: How the Use of Modern Superficial Radiation Therapy Might Address Disparities in Dermatologic Care

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## Article Info

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Dear Editor:

It is well-known that people of lower socioeconomic status (SES) are more likely to have poorer health outcomes. According to the United States Census Bureau, the poverty rate was 11.4% in 2020, up from 10.5% in 2019; Blacks/African Americans had the highest poverty rate (19.5%), followed by Hispanics (17%)<sup>1</sup>. Further, non-metropolitan Blacks/African Americans had the highest incidence of poverty (30.7%), followed by non-metropolitan American Indians/Alaska Natives (29.6%)<sup>2</sup>. Healthcare disparities are the inequity in access to healthcare, quality of care, or outcomes that vary based on a multitude of factors: sex, race/ethnicity, age, and SES<sup>3</sup>, which often determines spatial distribution of areas concentrated with low-income or impoverished (concentrated poverty) individuals and families, and consequently, resources available.

Skin cancer is the most common cancer in the United States (US), and the incidence of melanoma and non-melanoma skin cancer (NMSC) continues to rise<sup>4</sup>. It is estimated that the overall incidence of Basal Cell Carcinoma (BCC) increased by 145% between 1976-1984 and 2000-2010, and the overall incidence of Squamous Cell Carcinoma (SCC) increased 263% over that same period<sup>5</sup>. BCC is the most common form of skin cancer contributing to 65-75% of skin cancer in whites, but SCC is the most common skin malignancy among African Americans and Asian Indians<sup>6</sup>. Although skin cancer is less common in patients with skin of color, it is associated with greater morbidity and mortality, which may be related to delayed diagnosis<sup>7</sup>. Patients living in non-metropolitan counties have poorer outcomes due to reduced access to cancer treatment and substantially longer travel times<sup>8</sup>; this extends to dermatologic care<sup>9</sup>.

Quality of care has reportedly improved throughout the years, but access to care has not<sup>3</sup>. Dermatologists currently make up 1.3% of the total active US physician workforce<sup>10</sup>, which will unlikely significantly increase due to insufficient funding<sup>9</sup>. Yet, the projected increase in dermatology visits between 2013 and 2025 is 16%, among the highest of all specialties<sup>9</sup>. Further, most counties with African, Hispanic, and Native American majorities lack dermatologists<sup>11</sup>. Currently, there is an average 29-day wait time for new patients<sup>9</sup>. However, this may be longer in rural areas/ areas lacking a dermatologist, likely even longer for dermatologists who perform Mohs micrographic surgery (MMS) (~1.8% of all dermatologists)<sup>12</sup>.

Radiation for skin cancer has been available since the advent of X-ray radiation in the late 19th century, which was limited in energy and thus targeted superficial cutaneous neoplasms<sup>13</sup>. Over 100 years ago, superficial radiation therapy (SRT) was developed. By 1975, 55.5% of dermatology offices in North America either had SRT or Grey Renz Devices available for use, and 44.3% of dermatologists reported regularly using them in the outpatient setting<sup>14</sup>. Despite the technological advancements (high-resolution ultrasound guidance) over the years and ample evidence demonstrating its efficacy for treating NMSC, it has declined in use and is not taught in dermatology residency programs since surgical intervention became the gold standard. Recently, there has been resurfacing interest in SRT, with several studies<sup>15,16</sup> coupled with clinical trial data showing excellent cosmetic results and comparable local control and cure rates to surgery<sup>14</sup>. Our recent study shows an absolute lesion control that is comparable to MMS (99.7%) after an average of 7.5 weeks of treatment, with a stable control rate of 99.6% when the follow-up duration was over 12 months and 99.4% at 5 years follow-up<sup>16</sup>. By subtype, local control for BCC, SCC and squamous cell carcinoma in situ (SCCIS) at 5-years follow-up was 99.2%, 99.2% and 100%<sup>16</sup>. The treatment was well tolerated with a Radiation Treatment Oncology Group (RTOG) grades of 1 and 2 in 95% of lesions<sup>16</sup>, which is reflective of the extant literature indicating that radiotherapy for NMSC is generally well tolerated with most commonly reported symptoms that are transient, localized and self-limited<sup>15</sup>. Further, it is often covered by insurance and can be administered by radiation therapists across many settings: general medical/surgical/specialty hospitals, outpatient care/cancer centers, radiation therapy facilities, outpatient dermatology/physician offices, and medical and diagnostic laboratories. Additionally, although melanoma is primarily considered a surgical disease, radiotherapy has been shown to be useful palliatively as it may help sensitize melanotic lesions to immunotherapy and provide symptom palliation in metastatic cases<sup>17</sup>. Despite it being deemed radioresistant or responding atypically to radiotherapy due to it having a wide “shoulder” in cell survival curves (high repair efficacy at low doses), doses given with higher fractionations overcomes this “shoulder” as it responds better to larger radiation fractions<sup>17</sup>. The etiology of healthcare disparities is multifactorial, and one treatment modality cannot completely eradicate this longstanding and pervasive issue. However, disparities in access to oncodermatologic care may be addressed through effortful/collaborative care involving dermatologists, general or specialized providers dealing with skin cancer (i.e., surgeons /ENT specialists), radiation oncologists, and radiation therapists.

### Data availability

All data generated or analyzed during this study are included in this published article.

### Conflicts of Interests

Dr. Alison Tran has no conflicts of interest to disclose. Dr. Lio Yu is the National Radiation Oncologist for SkinCure Oncology and has received research, speaking and/or consulting support from SkinCure Oncology.

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### Author Contributions

The authors whose names appear on the submission have contributed sufficiently to the manuscript and approved the final submitted version of the manuscript.

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