

Generational Dermatology: Model for Prevention and Multi Decade Approach Toward the Evolving, Aging Patient

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ABSTRACT

The proposed terminology Generational Dermatology encompasses prevention and involves medical, cosmetic, surgical and oncologic strategies over the decades to optimize skin performance throughout the course of a lifetime. Organ failure is the inability of the organ to perform its determined function as a part of normal physiology and it may be possible to take a Generational preventive approach toward reducing morbidities associated with the failure of our largest organ, the skin. Outside of skin cancer prevention efforts we have as a specialty primarily worked on the tertiary prevention realm. I advocate that we can increase our focus on the primary and secondary tiers where we as Dermatologists have the training and education to identify risk factors and detect early symptoms of skin disease. I appeal to the house of Dermatology to embrace this concept of Generational Dermatology as preventive medicine for the evolving aging patient. The practice of Generational Dermatology will decrease patient morbidity and bring down the cost of healthcare. Our global increased longevity increases the number of elderly worldwide. Longer lifespan means dermatologic needs will increase as the skin must perform its basic function longer. There are also new unknowns and skin issues which arise from large numbers of people in the 9th and 10th decades. Generational Dermatology is well suited to be a model for prevention as our patient's age and we can intervene at any decade. I believe the specialty will increasingly focus on how the skin can optimally perform for a longer period. Lastly, the practice of Generational Dermatology unifies the house of Dermatology as we need the innovations and input of every subspecialty to contribute to the health of the people we serve.

J Drugs Dermatol. 2013;12(12):1396-1399.

DRUGS • DEVICES • METHODS

INTRODUCTION

The aging of our largest organ, the integument, results from both intrinsic and extrinsic factors. This proposed terminology Generational Dermatology encompasses prevention and involves medical, cosmetic, surgical and oncologic strategies over the decades to optimize skin performance throughout the course of a lifetime.¹ Generational Dermatology also coined "GDerm" and "Gendermatology" was a term the author developed in 2009, introduced in 2011 as Founder of the Generational Dermatology (GDerm) Summit held in NYC, presented internationally at the 2011 World Congress of Dermatology in Seoul and most recently presented at the American Dermatological Association annual meeting in Scottsdale Arizona 2013. It is based upon observations over an almost 20 year practice period in a stable southern California community where I was able to clinically follow my aging patients.

Establishing a private practice in 1994, I had patients who became 50 years old in 2004. I observed that the skin of these patients had changed in ten years. The sixth decade brought on more skin problems, and it continues. I saw a pattern in the skin aging, many related to skin barrier breakdown and started to intervene where I could. I began to tease out the idea of looking at the aging process as an evolving process. My 65 plus Geriatric patients did not turn 65 overnight. It happened one day at a time and one decade at a time. We are, and specifically our skin is, the sum of all of our decades of health or disease. For example,

extensive unprotected sun exposure on a child eventuates in adult skin with clinical signs of photodamage. While the original intention of this concept was targeted to interrupt the extrinsic and intrinsic aging process to "turn back the clock"; I soon discovered that by understanding evolving process of aging I could begin intervening in the aging process in hopes of prevention. I began injecting fillers and neurotoxins a little earlier based on evolving rhytids that could be seen on the horizon, peeling slightly photodamaged skin hoping to reduce future pathology and skin cancers; advocating for pedicures and foot massage for my elderly male patients who seemed to have a lot of dry foot, nail disorders and foot rigidity related to aging.

In one lecture at CosdermIndia I gave on generational dermatology I analogized it to the popular 80's movie "Back to the Future™" The analogy is knowing what course the patient's skin is going in via genetic predisposition, indicators and environment; we can begin preventive medicine strategies early on to effect a different outcome than they would experience with no skin care intervention. The goal being to optimize skin health over the course of a lifetime and decade by decade, which defines it as a generational approach to prevention.

Generational Preventive Approach

Organ failure is the inability of the organ to perform its determined function as a part of normal physiology and it may be

possible to take a Generational preventive approach toward reducing skin morbidities. Skin health is related to skin disease and the skin is the largest organ of the body. Outside of skin cancer prevention efforts we have as a specialty primarily worked on the tertiary prevention realm. I advocate that we can work more on the primary and secondary tiers where we as Dermatologists have the training and education to identify risk factors and detect early symptoms of skin disease.

Modeling after the Internal Medicine based specialty of Preventive Medicine, every area of Dermatology lends itself to a generational or preventative approach. I appeal to the house of Dermatology to embrace this concept of Generational Dermatology as Preventive medicine for the evolving aging patient.

The practice of Generational Dermatology will:

1. Decrease patient morbidity.
2. Bring down the cost of healthcare in a country with an increasing focus on rapidly escalating health care costs.

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In 2004 The American Academy of Dermatology and Society of Investigative Dermatology determined the estimated annual cost of the 21 skin-disease categories estimated at over \$39.3 billion in US dollars.² This included the value of medical costs and lost productivity. The total burden of skin disorders was estimated to be 96 billion when the authors included Quality of life and economic burden issues. There are more than 3,000 identified varieties of skin disease that can cause symptoms ranging from simple burning and itch, to severe emotional and social effects, to physical disfigurement and/or death. The total direct and indirect costs for each of these categories range from \$157 million for cutaneous drug eruptions to \$12 billion for skin ulcers and wounds.²

The burden on the US healthcare system has no sign of ending given these numbers because the age group who are utilizing these resources is exploding. The Total US 65 plus population is 40.2 million (12.5 of total US). This group grew at a faster rate

than the total US population between 2000 and 2010,³ "Baby Boomers" (1946-1964) turned 65 in 2011 and they will continue to expand the need of Dermatologic services as they acquire skin cancers, leg ulcers and other disorders of aged skin. By 2050, 1 in 5 people will be 65 or older (88.6 million).³

Dermatology at 39 billion per year is a significant utilizer of healthcare funds and accounts for a substantial portion of health care costs to the nation. Skin disease is one of the top 15 groups of medical conditions for which prevalence and health care spending grew the most between 1987 and 2000, exceeding spending rate increases for diabetes, cerebrovascular disease, and cancer.⁴ Given these escalating costs we as a Specialty are under scrutiny by the Federal government, Insurance Companies and greater house of medicine.

TABLE 1.

Preventive Medicine Levels of Care⁵

Primary prevention - Reduction of risk factors before a disease or condition has occurred

Secondary prevention - Early detection of disease, potentially while still asymptomatic, to allow positive interference to prevent, postpone, or attenuate the symptomatic clinical condition.

Tertiary prevention - Treatment of an existing symptomatic disease process to ameliorate its effects or delay its progress and classified in a manner similar to other medical interventions based on the type of clinical evidence used to demonstrate their efficacy.

Quaternary prevention methods to mitigate or avoid results of unnecessary or excessive interventions in the health system.

Incorporating the levels of care primary prevention model⁵ through the practice of generational preventive strategies we may be able to decrease our utilization. This would result in reduced health care costs directly through the use of early detection methods utilizing education, screening, imaging, and genomics. This would be similar to our Cardiology colleagues who in the 1970 and 1980's instituted guidelines after risk factors for coronary artery disease were well identified.

In the specialty of Dermatology we tend to work on the tertiary level for example a patient will present to our office for a rash. We diagnose it as Psoriasis and then treat it from progressing and then try to manage it. Other than Sun Safety Education, we do not routinely educate our patients regarding preventive strategies. There are opportunities for Dermatologists to create guideposts for the specialty regarding optimal skin care. Similar to other types of organ failure, it is the delay in diagnoses that leads to the greatest cost as more resources are used to correct the disorder. This is especially true with skin cancer, which gets more invasive for the patient and the insurance resources with each stage of Mohs surgery.

TABLE 2.

Generational Decade Approach to Patient Care							
Levels of Care	Age and Disorder						
	0-10	10-20	20-30	30-40	40 -50	50-60 plus	60 plus
Primary	SPF Education	Sun Safety Tips	Skin Care	Cosmetic Consults	Full Body Skin Exam (FBSE)	Full Body Skin Examination	Foot care Programs
<i>Reduction of risk factors</i>	Wart education			Rosacea education	Cosmetic Consults	Lower extremity Care Nailcare	
Secondary	Eczema education	Acne visit to review skin care	Melasma RX	Rhytids Imaging	Actinic Keratosis Rx	FBSE Imaging	Full Body Skin Exam
<i>Early Detection</i>							
Tertiary	Eczema rx	Acne Rx	Melasma Rx	Sclerotherapy for Veins	Skin Cancer Surgery	Skin Cancer Treatment	Full Body Skin Exam
<i>Treatment of Disease</i>							
Quaternary	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Primer points in Generational Dermatology

- The Integument is the largest organ of the body.
- The Aging process of skin, hair and nails evolves over multiple decades.
- Intervention by education and risk factor assessment may decrease evolving pathology.
- Organ collapse is evident by common disorders seen in the elderly that result from barrier dysfunction such as Xerosis, Pruritus, Purpura.
- Lower extremity care needs to begin in the decades 4 -6 to prevent 7-8th decade pathology of ulcers, wounds Ulcers (30% of foot ulcers are from eroded hyperkeratosis⁶)
- Primary care early detection coupled with Dermatologic assessment and treatment can influence patients at an early age which will reduce morbidities associated with aging skin
- As the experts in skin hair and nails, the practice of Generational Dermatology unites the specialty and positions the Dermatologist as the leader of skin care.

Table 2 shows examples of how Generational Dermatology as practiced by decade could be a model for prevention with positive impact on our patients, physician, community and house of medicine by reducing overall costs associated with skin disorders

We are gaining an increased understanding of barrier physiology abnormalities, which may proactively help an at-risk atopic

child. We understand the pathophysiology of acne to intervene and prevent acne scarring and QOL disturbances in our acne patients. We are harnessing the power of imaging, photography and genomics to identify precancerous moles that can be removed early before they cause morbidity.

DRUGS • DEVICES • METHODS

Our global increased longevity will increase the number of elderly worldwide affecting all cultures. As people live longer their dermatologic needs will increase as their skin must perform its basic functions longer. There are new unknowns however because when people routinely are living into to 9 plus decades, we will be faced with an increasing list of skin issues that have yet to be identified. Increased lifespan and associated high healthcare costs cannot be underestimated. Our current life expectancy in the United States is 74 years of age. This increased longevity gives rise to emerging dermatologic needs at every decade. These needs will be associated with climbing healthcare costs. Dermatology is well suited to be a model for prevention as our patient's age and we can intervene at any decade, This is the tenant of Generational dermatology. I believe the specialty will increasingly focus on how the skin can optimally perform for a longer period. Skin health campaigns focused on sun safety and moisturization have already begun. As we can unlock the keys and technology to improve skin barrier, we will make headway on common but problematic disorders of aging such as atopic dermatitis, rosacea, PIH, purpura, leg ulcers, slow healing wounds and asteatosis. The evolving aging patient from 1 year old to 100 year old has a variety of disorders of skin hair and nails at every decade. The practice of Generational Dermatology unifies the house of Dermatology as we need the innovations and input of every subspecialty to contribute to the health of the people we serve.

DISCLOSURES

W.R. has no relevant conflicts of interest for this paper and has consulted for, received honoraria, or spoken for Allergan, L’Oreal/La Roche Posay, Kythera, MelaScience, Neostrata, Skin Medica, Theraplex, Top MD, and Valeant.

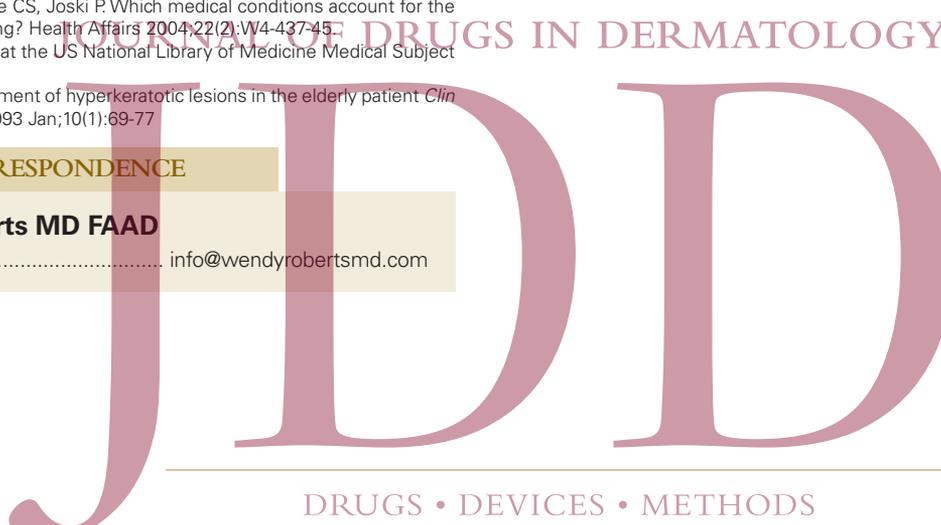
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