

The Emerging Identity of the Preventive Medicine Specialty: A Model for the Population Health Transition



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THE NEED FOR A NEW MODEL OF PREVENTIVE MEDICINE'S IDENTITY AS A SPECIALTY

The emergent identity of the specialty area of public health and general preventive medicine (PH-GPM),¹ referred to as preventive medicine (PM) in this paper, spawns from several historical and contemporary trends. The tripartite birth of the specialty, resulting in its three specialty areas with distinct names (i.e., PH and aerospace medicine in 1949, occupational medicine in 1953, GPM in 1957, and its merger with PH in 1983 for examination purposes),² makes any unified branding attempt challenging. Because PM draws from both PH and medicine as distinct fields of knowledge, many long-standing dichotomies exist among its practitioners, including whether to pursue clinical or non-clinical work, emphasize PH or GPM,^{1,3,4} and prioritize community and population medicine or lifestyle and clinical PM.^{3,5,6}

The lack of a unifying vernacular for PM,¹ and the many proposed PM physician designations, including PH physician,^{1,2} preventive medicine physician,⁷ preventionist or preventist,⁸ PM specialist,⁹ and macro-medicine physician,¹⁰ have long confused the public and other health professionals regarding what PM specialists do. Contemporary uncertainty and fragmentation of funding streams for residency programs create a constant existential threat to the specialty's training pipeline.¹¹ Persistent difficulty in branding the specialty's scope of practice, coupled with its small size, has led to an employment gap that non-PM physicians and non-physician PH professionals continue to fill.¹² Lastly, the large number of PM specialty societies, and the persistent assertions of non-PM specialty societies, together dilute the specialty's collective bargaining power and pre-eminence over the medical practice of prevention. A new model to

capture and facilitate description and branding of PM's emergent identity is urgently needed.

Despite the growing mantra of "prevention" and "population health" in medicine and PH, challenges in disease prevention and health promotion persist, leading to an increasingly prevalent and costly burden of chronic diseases worldwide. Beyond the earlier achievements in PH and medicine that led to the epidemiologic transition, whereby population morbidity moved from mostly infectious to mostly chronic conditions, and the mortality transition, whereby population average life expectancy rose dramatically,¹³ substantial population health improvements have not materialized. Simultaneously, the differential pace of the "population health transition,"¹⁴ a more recent phenomenon consisting of the dual compression of morbidity, whereby more people are living a greater number of disease and disability-free years, and rectangularization of mortality, whereby a greater proportion of people are surviving to increasingly older ages, combined with a gradual increase in the population average life span,^{15,16} explains troubling trends in health outcomes and costs (Figure 1). A new model of the identity of PM must be aligned with this transition and systematically include addressing root causes and advocating for health in all policies¹⁷ if PM is to emerge sustainable and vibrant.

A model can be (1) a representation of a person or thing or proposed structure, (2) a simplified description of a system or process to assist in calculations or predictions, or (3) a system or thing used as an excellent

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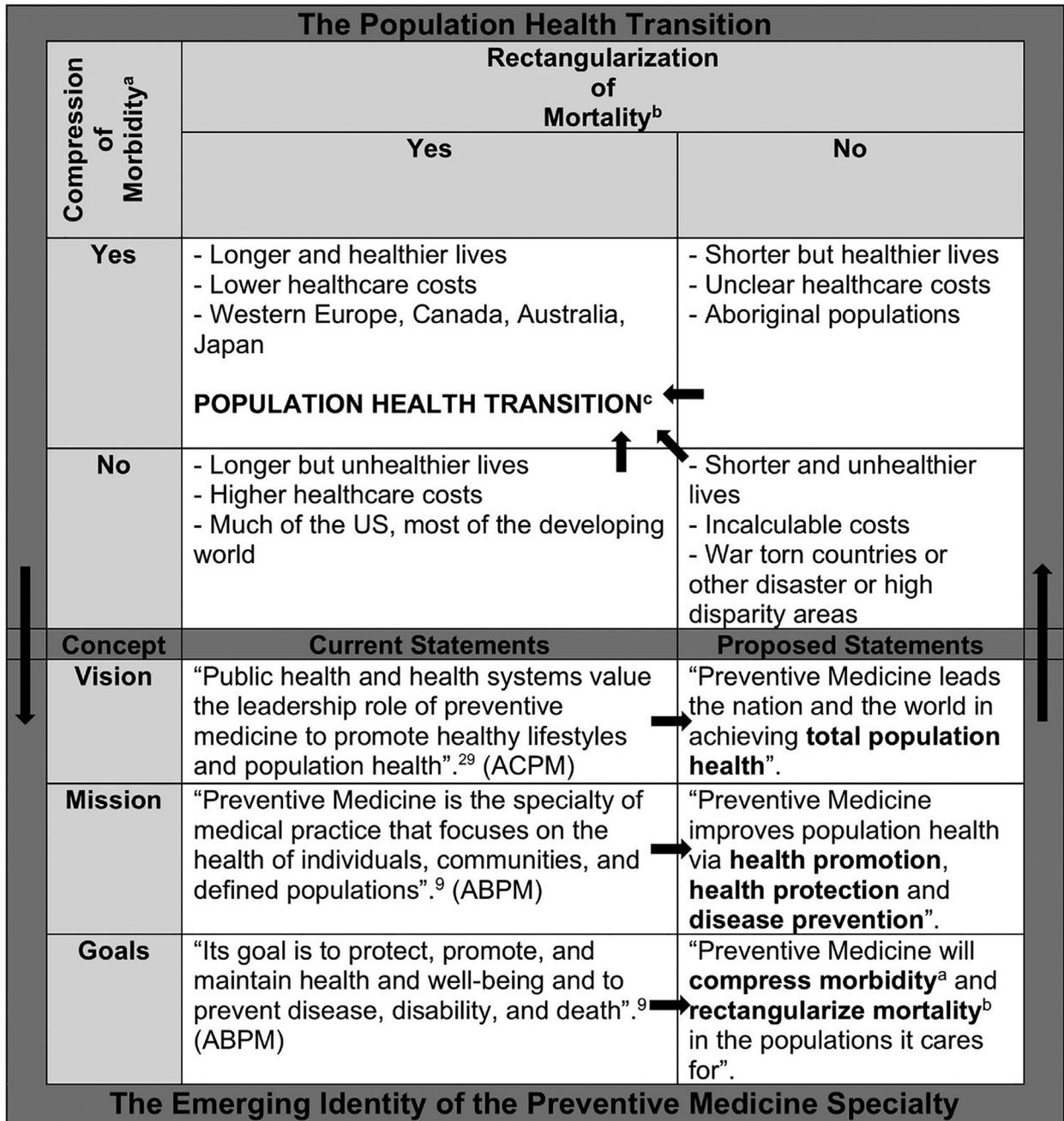


Figure 1. The population health transition and the emerging identity of the preventive medicine specialty.

^aThe *compression of morbidity* signifies that more people are living a greater number of disease- and disability-free years.¹⁵

^bThe *rectangularization of mortality* indicates that a greater proportion of people are surviving to increasingly older ages, combined with a gradual increase in the population average life span.¹⁶

^cThe term *population health transition* as proposed by the authors describes the demographic trend that has emerged after the mortality transition (whereby a greater number of people have survived past infancy/childhood and into adulthood) and the epidemiologic transition (whereby the etiology of population morbidity has become primarily chronic and non-communicable rather than infectious), consisting of the simultaneous rectangularization of mortality and compression of morbidity in populations, defined as either social groups, countries, nations, or entire societies.

ACPM, American College of Preventive Medicine; ABPM, American Board of Preventive Medicine.

example of specific quality to follow or imitate.¹⁸ These definitions helped frame the complex task of defining the identity of PM. This paper presents a version of the specialty’s identity that aligns its vision, mission, and

goals with the population health transition (Model 1), proposes the systematic adoption of a new name and model of health and disease that positions PM to lead this transition (Model 2), and concludes with a

framework summarizing its identity to facilitate recognition of the specialty (Model 3).

MODEL 1: ALIGNING THE VISION, GOALS, AND MISSION WITH THE POPULATION HEALTH TRANSITION

Figure 1 lists the existing and proposed vision, mission, and goal statements of PM. To be consistent with accepted definitions, a vision must be highly aspirational even if never achievable, a goal must be SMART (i.e., specific, measurable, actionable, realistic, and time-sensitive),¹⁹ and a mission must be clear and feasible. Although “population health” is now firmly associated with both the houses of medicine and PH, “total population health” best captures the vision of improving the overall health status and health outcomes of a defined population.²⁰ It is a clear, concise, and easily communicable phrase that can serve as the lasting vision of PM, allowing the specialty to project its collective aim to all stakeholders. To operationalize this renewed vision, the authors propose a refinement of PM’s current goals into SMART goals that are population-based and aligned with the population health transition. The compression of morbidity and the rectangularization of mortality^{15,16} are directly linkable to this vision, because by definition they extend beyond individuals and require a focus on population health outcomes. Paraphrasing from the existing language describing the specialty as stated in Figure 1, the mission of PM can be classified using three concise terms: health promotion, health protection, and disease prevention.

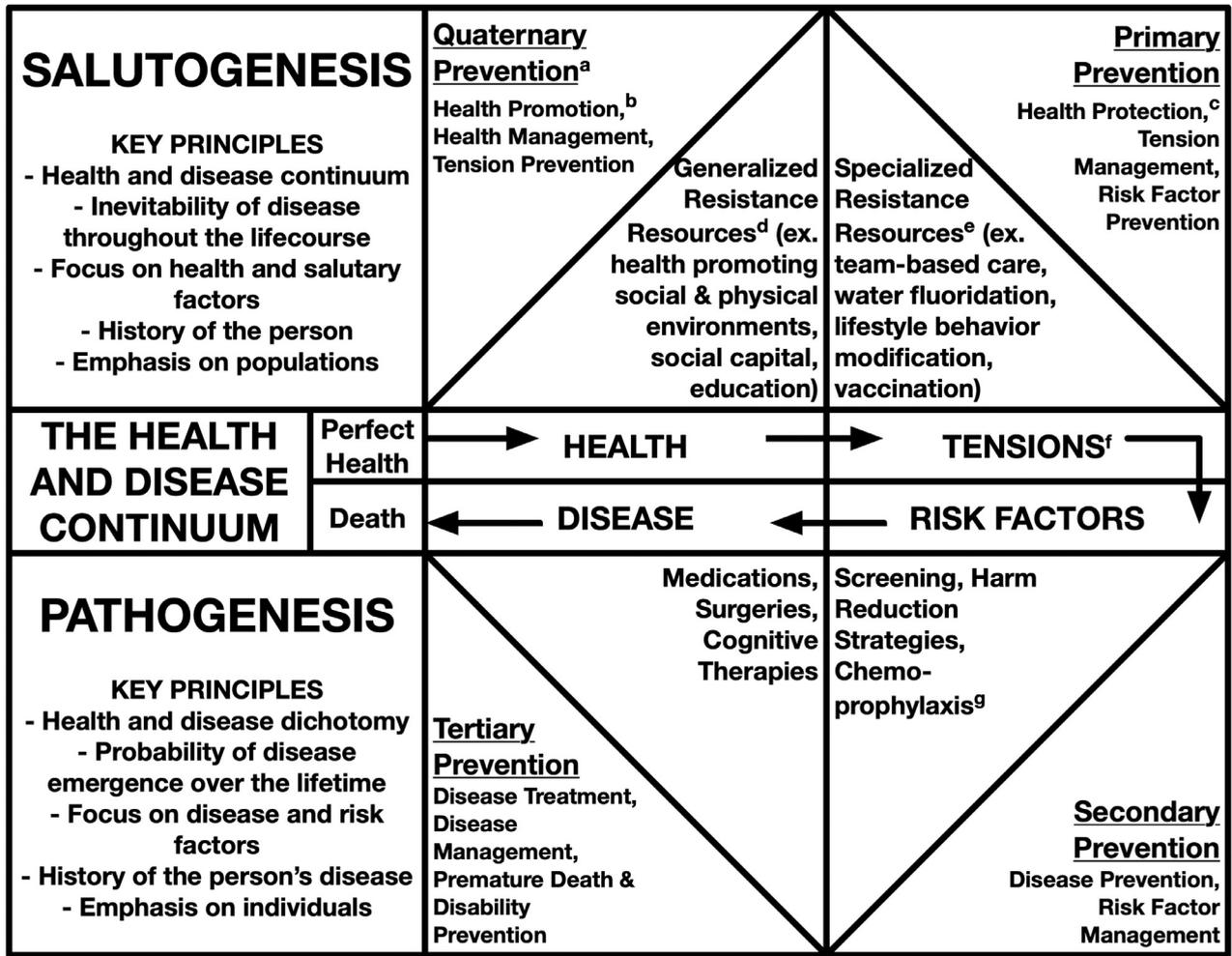
MODEL 2: SALUTOGENESIS, PATHOGENESIS, AND LEADERSHIP OF THE POPULATION HEALTH TRANSITION

Salutogenesis means “the origins of health,”²¹ and salutology denotes “the science or study of the origins of health,”²² as opposed to pathogenesis and pathology, focusing on disease. Figure 2 succinctly contrasts these two paradigms. The fundamental value of salutogenesis lies in that it provides a theoretic framework to examine health and disease that is different than but complementary to pathogenesis.²¹ For example, rather than the dichotomy of health/disease espoused by pathogenesis, salutogenesis posits that health and disease exist on a continuum; perfect health (its proximal end) is a non-existent state; and death (its distal end) is the inevitable state of maximal disease.²¹ As such, it does not concern itself with

either of these extremes and makes early prevention (i.e., health promotion¹⁷ and protection²³) the primary aim, via lifelong individual- and population-level efforts. The prevention of disease, disability, and premature death, though important, is but a secondary gain. Also, rather than assume that individuals and populations are healthy until proven diseased, salutogenesis proposes that the natural law of entropy makes disease inevitable during the lifecourse at both the individual and population levels.²¹ As such, the simultaneous reduction of population (rather than just individual) morbidity and mortality becomes paramount.

Furthermore, salutogenesis broadly defines stressors as factors that push individuals toward the disease end of the continuum, and stress or breakdown as the downstream movement along this continuum.²¹ It recognizes that there is no shortage of stressors, ranging from biological, chemical, and other physical factors in the environment (e.g., microbes, environmental toxins, and solar radiation) to psychosocial dynamics (e.g., the poverty–wealth gap, education or lack thereof, and interpersonal relationships), and that no one is exempt from them. In addition, salutogenesis transcends the pathogenic stressors (i.e., risk factors and diseases) and seeks out their precursors on the health–disease continuum.²¹ Referred to as tensions, these stressors are present in the lives of people otherwise deemed healthy in the pathogenic worldview. For example, in the realm of sexually transmitted infections (the disease), a risky behavior, such as unprotected sex (the risk factor), is preceded by stressors such as inadequate sexual health education (the tension) that may precipitate them. Thus, individual health status differences are explained by the distribution of all these stressors within a given population. This nomenclature also identifies a hidden element on the health–disease continuum (i.e., the precursors to risk factors) that medicine and PH had left unnamed. Finally, beyond the pathogenic focus on risk factors for disease, salutogenesis seeks salutary factors, the individual or population assets to promote and protect health. These have been named generalized resistance resources and specialized (or specific) resistance resources.²¹

The synergistic work of medicine and PH required to advance the population health transition is nothing short of salutology. This work should be informed by salutogenesis, a complement to pathogenesis that supports a unified model of health and disease with a more complete view of all levels of prevention, as conceptualized by the authors in Figure 2. In this model, health promotion equals quaternary prevention—the actions taken to reduce over-medicalization and invasive medical



Definitions of Key Terms

a. **Quaternary prevention:** the actions taken to identify patients or populations at risk of over-medicalization, protect them from invasive medical interventions, and provide ethically acceptable care procedures.²⁴

b. **Health promotion:** the process of enabling people to increase control over their health and improve it, involving the population as a whole in the context of their everyday lives rather than focusing on people at risk for specific diseases and is directed toward action on the determinants or causes of health.¹⁷

c. **Health (or specific) protection:** the interventions that are needed when health-promoting changes in the environment, workplaces, and health-related behaviors are not fully effective, thus necessitating methods of specific protection against a disease or type of injury.²³

d. **Generalized resistance resources (GRR):** the physical, biochemical, material, cognitive, emotional, attitudinal, interpersonal, socio-structural characteristics of an individual, group, subculture or society that are effective in avoiding or combating a wide variety of stressors.²¹

e. **Specialized (or specific) resistance resources (SRR):** the services, infrastructures, facilities, amenities, structures, or activities originating from a government, non-governmental organizations (NGO)/international NGO, help agency, charity, or development authority that are specifically activated to impart control over, avoid, reinterpret or adapt to a specific stressor.²¹

f. **Tensions:** the precursors to risk factors that lead to bio-psycho-social stress if not sufficiently managed via primary prevention/health protection interventions, or prevented via quaternary prevention/health promotion.

g. **Chemo-prophylaxis:** the administration of a chemical to prevent the development of an infectious or noninfectious disease or to slow progression of the disease to a clinically manifest form.¹⁷

Figure 2. The saluto-pathogenic model of health and disease: a conceptual paradigm aligned with the emerging identity of the preventive medicine specialty and the population health transition.

Vision (Why)	Total Population Health		
Goals	Compression of Morbidity^a & Rectangularization of Mortality^b		
Mission (How)	Health Promotion^c	Health Protection^d	Disease Prevention
Worldview (Values & Beliefs)	Salutogenesis & Pathogenesis as Complementary Theories of Health & Disease		
Fields of Knowledge	Public Health	General Preventive Medicine	
Impact Levels	Macro	Meso	Micro
Levels of Prevention	Quaternary Prevention^e	Primary Prevention	Secondary Prevention
Health System Domains	Public Health System	Healthcare System	Clinical Care System
PM^h Professional Practice Nomenclature	Community Medicine^f	Population Medicine^g	Clinical Preventive Medicine
Conceptually Unifying PM Designations	Population Physician, Salutologist		
Common Physician Designations	Public Health Physician, Community Medicine Physician, Global Health Physician	Healthcare Systems Medical Administrator/Researcher, Medical/Clinical Epidemiologist, Medical/Clinical Informatician	General/Clinical Preventive Medicine Physician, Lifestyle Medicine Physician
Definitions of Key Terms			
<p>a. Compression of morbidity: the observation that more people are living a greater number of disease and disability-free years.¹⁵</p> <p>b. Rectangularization of mortality: the observation that a greater proportion of people are surviving to increasingly older ages, combined with a gradual increase in the population average lifespan.¹⁶</p> <p>c. Health promotion: the process of enabling people to increase control over their health and improve it, involving the population as a whole in the context of their everyday lives rather than focusing on people at risk for specific diseases and is directed toward action on the determinants or causes of health.¹⁷</p> <p>d. Health (or specific) protection: the interventions that are needed when health-promoting changes in the environment, workplaces, and health-related behaviors are not fully effective, thus necessitating methods of specific protection against a disease or type of injury.²³</p> <p>e. Quaternary prevention: the actions taken to identify patients or populations at risk of over-medicalization, protect them from invasive medical interventions, and provide ethically acceptable care procedures.²⁴</p> <p>f. Community medicine: an interdisciplinary field that aims at dealing integrally with the preservation and restitution of health, as well to prevent disease, not only at an individual level but also in groups of defined communities, taking into consideration health and social determinants; a main goal is to identify health problems and needs, and to evaluate the extent to which clinical and public health services meet such needs.¹⁷</p> <p>g. Population medicine: the efforts by leading clinical organizations to use their professional and financial base to actively participate and partner in improving total population health through a multi-sectoral approach to address broad health outcomes and disparity reductions.²⁵</p> <p>h. PM: Preventive Medicine</p>			

Figure 3. A conceptual classification of the emerging identity of the specialty of preventive medicine.

Health System Domains	Public Health System	Healthcare System	Clinical Care System
Credentials: Prerequisite Foundational Education & Professional Training (Who)	Foundational Education: Doctor of Medicine (MD) or Doctor of Osteopathy (DO) (4 years), & Graduate Degree in Public Health [Master of Public Health (MPH) or equivalent masters or doctoral post graduate degree (2-4 years)] & Professional Training: Clinical Internship or Transitional Year (1 year), & General Preventive Medicine & Public Health Residency (2 years)		
Earned Privileges: Knowledge & Skills Acquired During Residency (Accreditation Council for Graduate Medical Education [ACGME] Competencies & Associated Milestones)²⁸	PC1: Emergency Preparedness & Response		PC10: Clinical Preventive Services
	PC2: Community Health: Monitor, diagnose & investigate		PC11: Conditions of Public Health Significance
	PC3: Inform & Educate: Inform & educate populations about health threats & risks		
	PC4: Policies & Plans: Develop policies/plans to support individual & community health		
	PC5: Evaluating Health Services: Evaluate population based health services		
	GPM PC6: Descriptive Epidemiology: Able to characterize the health of a community		
	GPM PC7: Analytic Epidemiology: Able to design & conduct an epidemiologic study		
	PC8: Disease Outbreak: Investigate & respond		PC12: Preventive Services: Select & provide
	PC9: Surveillance Systems: Design & operate		
	MK1: Behavioral Health		
	MK2: Environmental Health		
	GPM MK3: Biostatistics		
	SBP-1: Work & coordinate patient care effectively		
	SBP-2: Incorporate considerations of cost awareness & risk-benefit analysis		
	SBP-3: Work in inter-professional teams to enhance patient safety & improve patient care quality		
	PBL: Identify strengths, deficiencies, & limits in one's knowledge & expertise		
PROF1: Compassion, integrity, & respect for others as well as sensitivity & responsiveness			
PROF2: Accountability to patients, society & the profession			
ICS1: Communicate effectively with patients, families, & the public			
ICS2: Maintain comprehensive, timely & legible medical records, including electronic health records			
Interventions/Tasks (What)	Community Preventive Services Task Force Guide to Community Preventive Services, Vaccination Campaigns, Communicable Disease Control, Environmental Health & Safety, Food Safety, Healthy People Objectives, Neighborhood Safety & Walkability	Team-Based Care, Value-Based Purchasing, Root Cause Analysis, Quality Assessment, Improvement, & Control, Center for Medicare & Medicaid State Innovation Models Initiative, Healthcare Delivery Model Design	United States Preventive Services Task Force Guide to Clinical Preventive Services, Screening, Motivational Interviewing, Smoking Cessation Counseling, Coaching, Lifestyle Prescriptions for Physical Activity, Sleep, Nutrition, & Emotional Wellness
	Data Analytics, Research, Health Administration, Population Health Data Registry Management, Genomics, Epigenomics, Transcriptomics, Proteomics, Microbiomics, Bio- & Clinical Informatics, Big Data Analytics for Individual Clinical Applications		
Sample PM Residency Program Rotations	City, County or State Departments of Health, ACPM/CDC Zika Prevention & Control	ACPM Health Policy, Delivery System Reform Incentive Payment (DSRIP) Program, State Quality Improvement Organization, Academies of Medicine	Employee Health, Occupational Medicine & Travel Medicine Clinic, Wellness & Chronic Illness Program, VA Health Promotion & Disease Prevention Program (HPDP)
Sites of Work of Practicing PM Physicians (Where)	Health Departments (Global, Federal, State, County, City)		Multi-Specialty/Interdisciplinary Clinics, MCOs & Hospitals
	Non-Governmental Health Organizations		FQHCs & Other Community Health Centers
	Health Data Analytics Consulting Firms		
	Population Health Think-Tank Groups		
	Academia		
	Other Health-Related Institutions or Organizations		
Figure Legend PC - Patient Care, MK - Medical Knowledge, GPM - General Preventive Medicine, SBP - Systems-Based Practice, PBLI - Practice Based Learning & Improvement, PROF - Professionalism, ICS - Interpersonal Communication & Skills, PM - Preventive Medicine, MCO - Managed Care Organization, FQHC - Federally Qualified Health Center			

Figure 4. A conceptual framework displaying the qualifications of the preventive medicine–trained physician, including educational credentials and earned privileges.

interventions and provide more ethically acceptable care,²⁴ and health protection equals primary prevention. Current epidemiologic models for population health do not adequately value the role of early prevention

(specifically health promotion and protection) for achieving population health. Therefore, they present a limited view of PH and PM, whose work is largely grounded in these two levels of prevention. By

embracing the complementarity of salutogenesis and pathogenesis and adopting a model inclusive of both worldviews, the authors propose that PM can further position itself as the leader of the medical practice of prevention as the population health transition unfolds.

MODEL 3: THE HEALTH SYSTEM DOMAINS, QUALIFICATIONS, AND BRANDING OF THE PREVENTIVE MEDICINE SPECIALTY

PM has a unique “meta-” identity: it is the only medical specialty whose practitioners train to work within and outside of traditional clinical practice, where they collaboratively apply disease prevention and disease treatment interventions alongside other physicians and other clinicians to improve population health. Unfortunately, this “meta-” identity has made it challenging to systematically brand the specialty and succinctly describe its many roles within the nation’s health infrastructure. To address these challenges, the authors propose adaptation of a useful conceptualization of this infrastructure²⁰ that distinguishes three unique health system domains: PH, healthcare, and clinical care. The PH system cares for people within varying populations and geopolitically defined communities, principally using macro-level interventions.²⁰ The clinical care system and healthcare system both care for captive populations defined as patients,²⁰ but the authors make the novel distinction that the former consists of the clinician-driven micro-level interventions (e.g., medications, surgeries, screenings), whereas the latter entails the meso-level interventions that fall outside of traditional medical practice (e.g., quality improvement and patient safety initiatives, team-based care).

To distinguish the role of PM physicians, as compared with other physician and non-physician stakeholders in these domains, the authors propose the systematic adoption of the following terms, long associated with the PM specialty but discussed in relative isolation in the literature. The PM physician practices community medicine⁵ in the PH system, population medicine⁶ in the healthcare system, and clinical PM³ in the clinical care system. Community medicine denotes health promotion and protection for populations in defined communities, including addressing the social determinants of health.¹⁷ Population medicine describes the application of multi-sectoral approaches by clinical organizations to improve population health, including disparity reduction efforts.²⁵ Clinical PM means the clinical practice of PM, including lifestyle medicine.³ Figure 3 presents this conceptual framework to facilitate the professional identification of PM within each health system domain. The

authors propose that “population physician” is a conceptually unifying and immediately applicable designation for all PM practitioners, whereas “salutologist” and “salutology” may be adopted as salutogenesis gains traction (like pathogenesis) in medicine and PH.

PM produces highly qualified physician specialists trained to do the work required to credibly pursue total population health²⁷ across all three health system domains simultaneously. As shown in the model in Figure 4, the comprehensive credentials PM physicians possess, and the privileges they have earned by meeting defined milestones and competencies in their graduate medical education,²⁸ show that they are ready to implement the specialty’s mission²⁹ and practice as “population physicians” in all three health system domains immediately upon entering the workforce. By linking these unique practice-ready qualifications of the PM physician to the three health system domains, this model provides a snapshot of PM residency training (including the real-world interventions and rotation sites PM residents partake in), and a ready-made branding tool for potential employers (but also current and future trainees) to understand what PM physicians bring to the table.

CONCLUSIONS

This paper proposes three models to better define PM’s emerging identity: alignment of the specialty’s vision, goals, and mission with the population health transition; adoption of salutogenesis as a complement to pathogenesis; and identification of the three health system domains and PM’s role in each of them. Although these models introduce concepts novel to PM, the authors believe they are timely and will help improve the visibility, branding, identity, and connection of members of the specialty.

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