

Global Review of Primary Care Delivery Models as Applied to Accountable Care Strategies

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ABSTRACT

Context: This is a review of the global experience of applying a range of PHC and health status management strategies as part of an overall accountable care system strategy. It provides a critical analysis and comparison of the experiences from developed countries. The objective of this study is to identify the key elements of success in delivering accountable primary care systems to serve as guidance to design and effectively position PHC models within accountable care strategies. The target audience is policy makers tasked with the design and implementation of an effective PHC model that can drive the transformation of a health system toward accountable care.

Methods: Global literature review identified commonalities of effective PHC and essential components of the more developed or high-functioning PHC and integrative strategies and models.

Findings: Globally, well-designed and well-executed primary care delivery plans have commonalities in their roles under accountable care in terms of purpose, aims, functions, and beliefs. One commonality is a sufficiently sized, well-designed, and well-distributed network of primary and secondary health care services in close proximity to the populations served. There are six key characteristics of High-Functioning PHC Models within Accountable Care Systems. There are 14 Critical Success Factors in PHC Capabilities and Performance. PHC service design and delivery is highly varied, therefore it is necessary to ask 13 core questions to develop a more detailed approach to work plan development and execution. Four case-based observations offer insight from a review of US integrated health systems.

Conclusions: Providers and accountable leadership should adopt an expanded and holistic definition of primary care and its role in a health system's mission. Leadership and management of primary care strategies for integrated health systems should develop competencies and skills to effectively capture, interpret, and display the total value received for the PHC resource investments.

Keywords: Community Health; Medical cost; Primacy care; Managed care; Health insurance

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INTRODUCTION

The notion of primary health care (PHC) as the first line of defense and the foundation of many health care systems have been continually reframed and reimagined, demonstrating varying negative effects on health outcomes across countries when PHC is underdeveloped. Although the available literature supports primary health care as a necessary foundation for improving the health of populations worldwide, the ratio of primary care physicians to population exhibits a wide range, from as low as 0.1 to as high as 7.5 per 1,000 population [1]. Underdeveloped PHC in countries has been linked to higher adult and infant mortality rates, higher incidence and prevalence of serious chronic illness, higher infectious disease rates, increased rates of mental health disorders, inefficient and high-cost utilization of specialty medical services, and reduced health status of populations overall [2].

A commonly used definition of PHC is from the World Health Organization (WHO), which generally defines PHC as “a whole-of-society approach to health that aims at ensuring the highest possible level of health and well-being, and their equitable distribution, by focusing on people’s needs, as early as possible, along the continuum from health promotion and disease prevention to treatment, rehabilitation, and palliative care, and as close as is feasible to people’s everyday environment”.

PHC delivery model design has been an experimental science for decades, with some commonality in guiding principles and implementing characteristics, which yield differences in results. Experimentation with various models and methods is well documented in Western Europe, Scandinavia, the Middle East, East Asia, and the United States. They range from highly developed interdisciplinary team models,

underpinned by established and shared philosophies of primary health care, to more traditional, solo, general practitioner clinic models, where each provider operates from an idiosyncratic perspective on professional practice and role in the health of patients and populations served [3]. All these models show some commonality in their guiding aims, as well as similarities in their structural and operating design characteristics. However, the models differ in their abilities to yield the value expected for their resource investments.

The redesign of delivery systems toward accountable care to increase access to quality services and maximize value for money is a common feature of many health reforms. The literature defines *accountable care* in multiple ways, but, in general, the term refers to the overarching goal of providing individuals and populations with the right services at the right times to avoid unnecessary duplication of service, while preventing medical errors and mitigating attendant care management risk [4]. *Accountable care organizations* (ACOs), on the other hand, according to the US Affordable Care Act, are networks of healthcare providers who work together to deliver high quality and cost-effective care to defined population, implementing the accountable care concept. The method of financing ACOs seeks to redistribute the total health care financing budget equitably within the network of collaborating providers by aligning the incentives of providers with the goals and mission of the organizational plan [5,6]. A well-established primary health care (PHC) strategy is often considered critical to the reform efforts leading toward accountable care systems. Such a PHC strategy is considered critical to the success of effectively and efficiently managing the

health of defined populations. The available literature supports that well-designed and well-managed PHC models can serve as a keystone for developing regional, integrated health systems that focus on accountable care strategies utilizing related health care financing models and methods. A well-developed PHC system, as a component of an integrated health system strategy, can positively affect the quality of clinical care outcomes, positively affect the health status of populations served, positively influence social determinants of health, reduce the effects of low-value care delivery patterns, improve management of specialty care service utilization, and advance health care equity in populations served [7].

For governments and organizations leading the development of accountable health systems for defined populations, well-informed design and execution of the PHC component of such efforts will have far-reaching effects. These effects are critical to the success of an integrated health system's mission, to meeting their commitment to the populations served, and to the overall value received for the financial investments made. This technical note examines the global experiences of applying a range of PHC and health status management strategies as part of an overall accountable care initiative through a literature review to inform a policy discussion. A methodical review of the available literature demonstrates that the design, delivery, and management of PHC is a focus of interest for governmental and private organizations that provide and finance health services for defined populations.

The objective of this note is to identify the key elements of success, identify why some efforts fail, and generate key lessons to guide future and ongoing efforts to design and effectively position PHC models

within accountable care strategies. It provides a critical analysis and comparison of the experiences and lessons learned from developed countries that have applied a range of PHC and health status management strategies as part of an overall *accountable care*, or *managed care*, *population health* strategy. The lessons learned can help inform ongoing and future designs.

PHC IN THE CONTEXT OF ACCOUNTABLE CARE

Globally, well-designed and well-executed primary care delivery plans have commonalities in their roles under accountable care in terms of purpose, aims, functions, and beliefs [8]. In the context of ACOs, primary care takes a proactive approach to providing continuous, comprehensive care for patients and actively coordinates care for patients across different levels and types of care within the health care system. In contrast, in the context of traditionally established systems in many developing countries, PHC typically focuses on basic health services, preventable care, and wellness promotion programs. Consequently, it is important that policy makers and health care system leaders recognize the value proposition of PHC under the accountable care concept and redefine its role as a strategic component of ACO strategies when moving toward accountable care. As a first step toward attaining these goals, it is necessary to identify the commonalities of effective PHC strategies.

An overarching commonality includes the availability of a sufficiently sized, well-designed, and well-distributed network of primary and secondary health care services in close proximity to the populations served. Strategically positioned and effectively designed and staffed PHC clinical sites located in reasonable proximity to populations serve as a locus

of initial entry into a health system. Well-designed and well-staffed sites provide stable patient relationships with primary care providers and care teams. They also serve as the facilitators and managers/navigators of referral care throughout the affiliated health system, provide access to ongoing chronic disease management, and offer a source of non-emergent acute care. PHCs with a more expansive vision for primary care will extend beyond the *physician-and-assistants* model to include a more holistic, team-approach perspective on the role of primary care within a comprehensive health system. This includes *lifestyle medicine*, which encompasses health behaviors, social determinants of health, and environmental effects on health, and mental health as contributors to a person's health status.

There are also other commonalities in terms of purpose, aims, functions, and beliefs linked to systems design and management practices that are features of well-designed PHC plans. These include cost-effective management of referrals to secondary and tertiary care; the application of evidence-based care, delivered according to consensus on accepted clinical standards, practices, and related protocols for larger, sponsoring health systems; a reduction of clinical risk associated with management of pharmaceuticals and related medication treatment regimens; the minimization of the delivery of low-value services [9]; the effective management of the total costs of care, especially for chronic disease conditions; the availability of required patient education and related integrative care plan [10]; the effective alignment of economic and financial incentives among participating providers, the care system, and the organizations and agencies financing health service delivery; and the availability of health

promotion and education services to individuals and communities served.

FEATURES OF HIGH-FUNCTIONING PHC MODELS WITHIN ACCOUNTABLE CARE SYSTEMS

The definition of *high functioning* as it relates to PHC strategies is in the eye of the beholder. This means that an organization's starting point in technology and culture for transformation will drive the expectation of a deploying a PHC strategy. PHC delivery models are typically perfectly designed for the results achieved. A review of PHC strategy designs demonstrates a variety of visions, missions, philosophies, designs, operating models, and financing methods, ranging from having nearly no intentionally organized and managed PHC strategy to very sophisticated, expansively imagined, and uniformly designed and managed PHC networks operating as integral components of larger, comprehensive integrated health system strategies.

The global literature suggests that the essential components of the more developed or high-functioning PHC and integrative strategies and models include, at minimum, following six characteristics: (i) they have strategically distributed networks of PHC sites within a defined population area; (ii) they are structurally integrated into a comprehensive health system; (iii) they include well-organized interdisciplinary teams; (iv) they optimize workflow and task assignment within teams; (v) they have a system to measure productivity, and (vi) they exhibit cross-sectoral integration with a whole-of-society approach. The following discusses each component in greater detail.

Characteristic 1: A sufficiently sized, identified, and geographically distributed network of primary care sites is located sufficiently close to key populations served

Facilities are sized and staffed to a projected population of attributed patients. Site designs accommodate expanded and innovative acute care, disease management programming, and team care space requirements. Figure 1 provides an example of the designated functional areas for a PHC facility.

Characteristic 2: Primary care sites are structurally integrated within a larger comprehensive health service delivery system

Such a delivery system should be capable of providing a substantial proportion of all health care services required by the populations served. Such integrated health systems include secondary, tertiary, trauma, rehabilitative, and palliative care service providers. Ideally, all affiliated providers are members of a systemwide, integrated, and organized medical group practice [11], and all operate under a unifying structure organized under common leadership, with a shared, supportive administrative infrastructure and a provider compensation plan that

aligns financial incentives of all providers with the health care financing plans of populations served [12].

Characteristic 3: Interdisciplinary professional teams support a well-defined primary care model

Teams should include a range of qualified and licensed clinicians: physicians, nurse practitioners, clinical pharmacists, behavioral health specialists, and supporting clinical assistants [13]. They should operate and collaborate as integrated clinical teams to care for patient panels (assigned groups of patients) assigned or attributed. Included in the configurations of interdisciplinary teams are nonclinical professionals who assist in the coordination of patient care services and their navigation within the system of care, as well as staff who support and facilitate the care management analytics that underpin the related care strategies. These analytics include disease registries, clinical outcomes evaluations, total costs of care assessments, patient use and compliance rates, referral care management, access, availability, intake, and the effective scheduling of patients according to need [14].

Primary Healthcare Facility; Functional Areas

Provider Exam Room	Laboratory and Blood Draw	Minor Procedures Room	Immunization Clinic	Physical Therapy
Visiting Specialist Center	Patient Ed. And Conference Area	Secured Supplies Storage	Eye Clinic and Optical Sales	Medication Infusion Center
Provider Work Area; Providers and Nurses	Nurse Triage and Care Follow-Up Scheduling	Virtual Care/Digital Care Work Area	Urgent Care Clinic Area	Limited Pharmacy and Equipment Sales
Patient Reception and Waiting (also sub-waiting)	Staff Break Area and Lockers	Behavioral Health, Testing and Clinical Pharmacy Consultations	Imaging Services	Administration

Figure 1: Facility Size is scaled to team (30,000-50,000 Sq. ft).

Characteristic 4: Participating providers are well organized, well positioned, and well supported to optimize the application of their time, competencies, and skill sets

This will ensure high value for the total resource investments made and will also ensure the effective delivery of the right care at the right time to the right patients. Patients need to be matched to teams and team members based upon their identified needs and best “clinical fit,” with consideration given to the level of resources applied to achieve the intended outcome. This is also referred to in the United States as “providers working to the top of their licenses”, which means that it is wasteful for highly trained providers to perform procedures or tasks that do not require such specialized training and many countries have also experienced similar issues [15].

A practical example for optimizing the workflow and task assignment within the PHC team is the substitution of a trained health educator or nutritionist for a physician to counsel a newly diagnosed diabetic on required health behavior changes—such as exercise, healthy eating, and living environment issues and risks—to best manage their condition. Another example is the substitution of a consultation with a clinical pharmacist for a consultation with a physician on medication management of compliance and the prevention of adverse drug interactions.

The literature addressing provider substitutions has revealed and debunked beliefs about the behaviors, functionality, and cost-effectiveness of teams in primary care. Two examples are noteworthy here. The first pertains to the pairing of nurse practitioners with primary care physicians to manage the health and healthcare needs of patients assigned to a provider panel. A common expectation of such a care model is that the advance practice providers (AAP)

or nurse practitioner will allocate professional time largely to the care of less complex acute conditions and to supporting patients with chronic conditions. The physician, on the other hand, will dedicate time to the initial diagnosis and care plan design for new patients, attend to more complex presenting problems, and provide consultative care through the nurse practitioner. The findings of one U.S. study revealed that for a sample of primary care providers, the complexity of the service units provided by the nurse practitioner was at least as high as, and, often, higher than those provided by the physician [16]. Follow-up interviews indicated that these results may have been attributable to misaligned provider compensation incentives. Whereas the nurse practitioner was compensated on a fixed salary basis, the physician member of the team was paid a fixed rate-per-unit of professional work effort produced. Consequently, the physician’s total compensation was a function of the number of total work units produced. Allocations of time to patients with less complex conditions facilitated faster patient turnover, the production of more work units daily, and higher levels of earned income for physician members of the teams. Physicians working under this compensation model could apply and leverage APP supply to reach self-determined, annual compensation targets. There was no follow-up to determine if the apparent misapplication of the care model affected clinical outcomes or total costs of care.

The second era of provider substitution in primary care settings pertains to the substitution of office-based nurses to perform clinical services typically provided by physicians. Three working hypotheses were confirmed by a 34-country study. First, “general practitioners who used an Electronic Health Records (EHR) were more likely to shift tasks” to non-

physician staff. Second, “in countries where nurses have prescribing rights, more tasks were shifted” from physicians. Third, in countries that scored higher on a scale for professionalism of primary care nurses, task shifting was more prevalent [17]. There was no support for a fourth hypothesis, “physician age affected the likelihood of task shifting; i.e. younger physicians were no more likely than older physicians to shift tasks.

Characteristic 5: Provider productivity is measured, evaluated, and reported routinely and uniformly across the network

The success of PHC models calls for a shared definition and understanding of professional productivity. Conventional methods of monitoring, evaluating, and reporting practice productivity typically focus on the provider, specifically the physician. Applied metrics often include the number of patient encounters and/or work units produced, revenues generated, and practice expenses per unit of physician effort produced. Expanded models of PHC call for a more sophisticated and holistic approach to the definition and quantification of both practice and provider productivity. The principal goal of measuring provider productivity is to determine PHC resource consumption rates and clinical care practice patterns as a function of the outcomes produced for identified clinical cohorts of the PHC sites and network, including provider productivity patterns. Comparisons across PHC sites using this approach are feasible and recommended (Figure 2) [18]. Such an approach should first consider the totality of the care service units provided to patients by teams, arrayed by service type, as a function of the entire operating budget of each PHC delivery center (clinic). Second, the expected-to-achieved patient care outcomes should be examined by the indexed

clinical cohorts served, such as those with diabetes, hypertension, cardiovascular disease, behavioral health diagnoses and those receiving primary, preventive care services. Such an approach to PHC program productivity analysis is not financial, by design. The focus of analysis is the units of clinical effort productivity, allocated to assigned patients, by provider type, within identified diagnostic cohorts.

Conventional financial accounting practices are not sufficient to measure the true value created by PHC. Typically, under conventional financial accounting, individual PHC sites often operate an annual financial loss, primarily because the value they create is realized in forms that escape site-specific revenue and operating expense accounting function applications. The value received for the operating budget investments made in the PHC is recoverable elsewhere in the integrated health system financing plan-from, for example, avoided hospitalizations, minimization of the delivery of low-value services, avoidance of unnecessary and duplicated diagnostic services, reductions in medication errors and adverse drug interactions, early and effective behavioral health and addiction interventions, and appropriate delivery of primary and secondary prevention services and immunizations.

Characteristic 6: A primary care network sufficiently connected with community and governmental programming that contributes to shared population health goals and objectives. Some articles in the literature reference the need for a whole-of-society approach to a comprehensive PHC [19].

That is, clinical sites need to connect robustly to other services and agencies that contribute positively to patient care planning, delivery, and management (for example, public health services and programs

and social services agencies). In addition, this whole-of-society approach incorporates population health management, which is a form of PHC strategy. This strategy focuses on proactively engaging the

CRITICAL SUCCESS FACTORS IN PHC CAPABILITIES AND PERFORMANCE

Several key success factors can be distilled from higher functioning PHC systems and their experience with design, implementation, and operations management. This section discusses in greater detail 14 of the more common success factors identified from the literature. They relate to (i) A care-seeking culture (ii) Organizational vision (iii) Financial incentives (iv) Care management support (v) Strategic referrals (vi) Exogenous determinants of health (vii) Care coordination (viii) Continuing education (ix) Facility design (x) Organizational design (xi) Health system integration (xii) Fundamental value proposition (xiii) PHC network design (xiv) Lifestyle medicine programming.

Cultural predispositions and learned behavior patterns of the populations served greatly affect the execution success of organized PHC designs:

community in the delivery of health services to the targeted populations and improving the overall health status of the entire community.

For example, residents of the Middle East and East Asia are more likely to seek care based on a predisposition to self-refer directly to the specialist believed to be appropriate. Examples are self-referrals to a neurologist for a headache, a gastroenterologist for a stomachache, and an orthopedic surgeon for back pain. However, in Scandinavian countries, patients are more likely to have a close, productive relationship with an identified primary care provider or team that provides and coordinates care for the patient [20].

A shared vision and a clear definition of roles are needed within the provider team: The success of the interdisciplinary primary care team approach is largely dependent on clarity of mission and vision as well as a shared definition, philosophy, and culture of PHC and service delivery and management. A well-defined, aligned, and actively managed team culture will affect the execution of the care strategy [21].

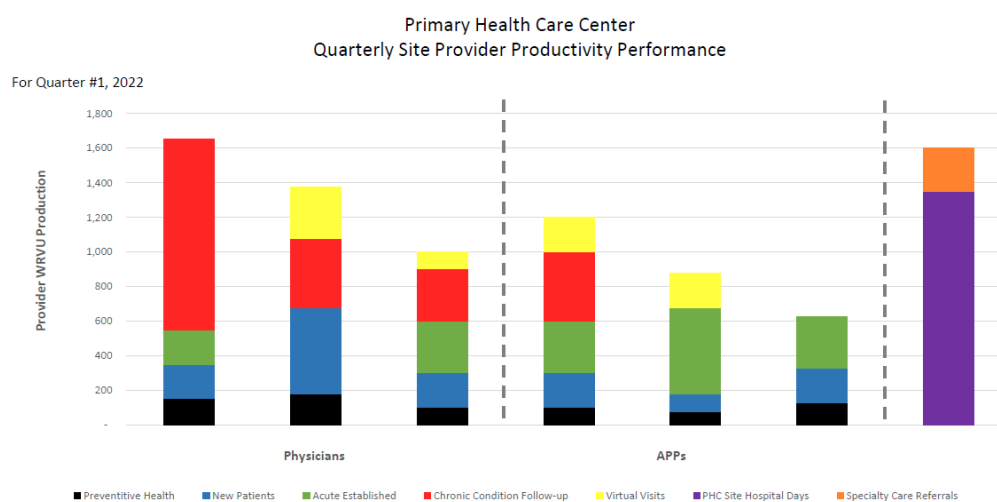


Figure 2: Observations: PHC setting includes three primary care physicians and three APPs. Providers apply their professional time variously within the outpatient setting. WRVU productivity varies within the physicians and APP groups.

Likewise, clearly defined roles, scope of services, and job descriptions are required for each member of the care delivery team, together with managed adherence to assigned patient care roles and responsibilities. Role clarity, coupled with intentional division of labor, within teams is a critical factor in model success; this success includes overall productivity and value created for patients by teams. PHC productivity depends on effective management of role clarity and the allocation and application of the professional services of clinical team members.

Prevailing financial incentives, especially provider compensation, must ensure that members of the provider team remain sufficiently motivated and satisfied: Specific financial incentives (i.e., compensation) may vary by provider and provider type on the team. Misaligned compensation incentives directly affect the clinical behavior patterns of practicing professionals, and thereby the functionality performance of care teams and the PHC overall.

Provider teams must be administratively supported to fulfill related and essential responsibilities not associated with direct patient care: Areas of care management support include functionality of the electronic medical record, management of access for new patients and patients requiring scheduled ongoing care, triage of new patients to the right initial provider (that is, to the right team member), the management of specialty referral care, the monitoring of prescription drug prescribing patterns, the management of care visit follow-up, and the ongoing analyses of total costs of care for high-risk clinical cohorts.

Primary care teams must be well connected to and familiar with supporting referral care providers within the overall system of care, such as

preferred referral specialty physicians and locations of service, rehabilitative care, palliative care and hospice, and participating pharmacies:

Referral specialty sites of service must have established methods to manage primary care team referrals. Standards for initial visit and consultation are established per specialty referral site participating in an identified specialty referral network. Support staff are educated and prepared regarding how and when the referred patients are returned for follow-up and ongoing care by the PHC. Examples include post-surgical rehabilitation, management of heart failure, and ongoing monitoring and care for diabetics following intervention for a medical crisis.

PHC teams must recognize and evaluate factors that affect clinical outcomes and the health status of individual patients within clinically similar cohorts: For example, there are exogenous factors that affect patient outcomes and the performance of the primary care delivery team and system. These include social determinants of health; cultural factors that affect care plans and compliance; and environmental factors, such as patients' living conditions, transportation, and social support system availabilities.

Referral providers must be encouraged and motivated to return patients referred to them to identified primary care providers and teams when appropriate: In addition, patients must be properly prepared to expect to return to their primary care teams for follow-up care. Success here will reduce variation in approach to the management of medical conditions over time. The evidence supports that higher performance here will likely reduce the delivery of low-value care rates as well as total costs of care.

Providers must be encouraged, supported, and compensated for participating in the continual development of clinical best practices and shared standards of care:

In the context of accountable care, leadership must provide appropriate incentives and mechanisms for PHC providers to align clinical practices closely toward these developed best practices and standards. If primary care providers are to adequately and successfully fulfill the role of drivers of *accountable care*, the definition of *provider productivity* must be expanded beyond simply seeing and treating sick patients to earn their compensation. The definition of *compensable productivity* must include time and effort dedicated to, for example, developing and disseminating clinical best practices, identifying patients at-risk, establishing preventive care processes and regimens, developing methods to activate patient compliance with health behaviors recommendations, and managing the professional activities of assigned care teams.

The design and use of PHC facilities significantly contributes to the efficient execution of the optimized PHC plan:

The facilities' designs must effectively accommodate an expanded and more complex model of care. Facility designs, for example, will house members of the multidisciplinary and interdisciplinary teams. The clinical work areas of each member must be designed to accommodate essential equipment and specialized furniture and fixtures.

Depending upon their geographic proximity to secondary and tertiary specialty services, primary care sites may require prescribed levels of imaging and laboratory diagnostic equipment and technologies, areas for rehabilitation care and related provider therapies, rooms sized to accommodate

group education and therapies, and limited pharmacy dispensing capabilities (Figure 3) PHC facilities will vary in size and design as dictated by population sizes and types to be served. Facility sizes can range from 30,000–50,000 square feet. They may incorporate an array of ancillary services on-site; have space for minor medical procedures, space for visiting specialists, and a designated urgent care clinic within the facility.

Leaders of integrated health systems must invest in the ongoing education and training of provider teams and administrative support staff for continuous improvement:

International evidence indicates that organizational design and structure alone is not a strong predictor of success in achieving intended results. Integrated, organizational structure is a facilitating tool for application of intended goals—goals such as improved clinical quality, enhanced health status of a population served, increased returns on invested assets, and well managed total costs of care. Leaders of integrated health systems must invest in the ongoing education and training of provider

teams and administrative support staff with the underlying goal of continually improving the integrated model's ability to deliver on the mission of the health system. More highly developed integrated health systems have, as a principal goal, the ongoing development of the systems' abilities to learn, adapt, and innovate. Many make use of a standardized *balance scorecard* approach to continuous performance improvement of the integrated health system, including all its clinical care component parts. Effective use of balanced scorecard methods requires leadership support and the commitment of required education and training resources within the PHC and supporting integrated health system [22].

Collaboration beyond the comprehensive health care delivery system: Ultimately, success with PHC strategies requires a whole-of-society-and-purpose approach to achieve accountability. PHC as a component of a broader system plan is essential, but by itself it is not sufficient to succeed with the comprehensive plan of going-in goals as defined above. Success with PHC strategies requires collaboration with public health agencies, commercial and governmental payer organizations, the patient and the family, public and private schools, organizations where people served are likely to congregate and interact, sponsored social media/public media-based health care, and related educational campaigns.

Multisite integrated PHC networks that are viewed by leadership as an integral component of a larger, regional, comprehensive health system: These PHC networks should be a distinct clinical service line operating within the larger health system services configuration. A *clinical service line* can be defined as “a grouping of clinical services dedicated to an identified constellation of medical, health, and healthcare conditions, designed and directed to produce and deliver a superior course of care, and patient experience, over time, based upon evidence-based, best practices for defined populations” [23]. What this means in practice is that leaders of PHC networks need to be developed for what is both a linear and a cross-functional role with patients and with other clinical service lines within an integrated health system. First, it is an identified clinical service line of its own, no different from other distinct service lines—such as cardiovascular, cancer care, orthopedics, rehabilitation, emergency care, eye care,

and obstetrics and gynecology—in a health system. Second, primary care holds the responsibility, and accountability, as the “front door” for a larger number of patients cared for by the health system, as well as the care coordinator, referral manager, source of primary and secondary preventive health care, and the manager of chronic disease for a larger proportion of all patients served.

Lifestyle medicine should be a key component of a PHC strategy: The more sophisticated PHC strategies hold significant potential for developing more expansive *lifestyle medicine programming*, which calls for an expansion of the vision, mission, services, and facility designs for PHC facilities and networks. Lifestyle medicine goes beyond a focus on health behaviors to incorporate socioeconomic, cultural, and environmental factors that influence individual habits, and thereby health and health status [24]. The practice of lifestyle medicine includes a consideration of *personomics*, a relatively new term referring to “an individual’s unique life circumstances and factors that influence disease susceptibility [25]. What is the potential for lifestyle medicine as a component of global PHC strategies? Five chronic disease categories account for 70 percent of global mortality and disability: cardiovascular disease, cancers, chronic respiratory diseases, neurological diseases, and behavioral health disorders. Regional differences are affected by socioeconomic class, racial differences, income, governmental policy, culture, ethnicity, public health practice, health care financing methods and models, and health system design and service delivery methods.



Figure 3: Primary health care facility floor plan.

PHC NETWORK DESIGN, PLANNING, AND EXECUTION FUNDAMENTALS

Evidence from the global literature on PHC service design and delivery demonstrates that variation is the norm: Specifically, there persists variation in the definition of *primary care* and in the scope of services provided, the target patient populations served, and the design and functionality of the provider teams. Variation also persists in identifying what is entailed in the provision of preventive health services and screenings, availability of urgent care services, chronic disease management programming, and specialty referral patterns, availability of practice and care management support systems, and financial and economic productivity of the underlying business models.

Thus, there is a need for the intentional design of PHC services delivery that serves defined populations distributed over expansive geographies. Effective planning begins with the process of

answering key questions that then direct the design of the intended primary health care network strategy within the integrated health system design. Answers to these questions guide planning, design, organization, execution, and management.

Integrated health system leadership must ask themselves, and answer, the following set of core questions that they can use to develop a more detailed approach to work plan development and execution.

What is the design of the prevailing health care services financing environment and models?

for example, fee-for-service, capitation, value-based payments, governmental budgetary allocations, and so on, and how does the services financing environment influence and affect the mission, organization, and delivery of PHC services, including provider and provider team incentives alignments and clinical behavior patterns?" Integrated health systems are warned not to rush to provider compensation plan redesign and transformation in anticipation of

changes in health financing methods. Many PHC models have failed financially because the expected method of health system payment never materialized.

What is the definition of primary care and primary care team, including scope of services and design and configuration of the PHC team?

The definition of PHC fundamentally affects the role of PHC providers in care delivery and their ability to produce the value expected for their resources invested. It is also one of the fundamental factors for defining the accountability of care. For multidisciplinary and interdisciplinary teams to be effective with accountable care strategies, their mission must be grounded in an accepted and shared definition of *primary care*. This definition must be sufficient in scope and specificity to guide the professional behaviors of team members, which includes the plan and deliver care for clinical cohorts within assigned patient panels, as well as the direct care for individual patients. A shared definition of primary care is also required to help define and shape the responsibilities and accountabilities for services provided and outcomes achieved for patients assigned.

What is the stated mission and vision of the primary care network and what is the expected philosophy of care and culture of the network and individual sites?

Clarity of mission and vision is a critical factor in the success of the team approach to PHC. The mission and vision provide the guiding principles to the interdisciplinary primary care team and thus affect the execution of the care strategy. A *primary care network* is, by definition, a geographically dispersed, strategically designed and located collection of clinical teams. In a broader accountable care strategy, these PHC teams should be charged with a common

clear, compelling, and critical role. The whole of the strategy is composed by many, similarly, configured micro teams. The success of the whole of the network is largely determined by shared mission and vision statements. These statements are the fundamental basis of the network's shared belief system. A shared belief system is not only the foundation of an executable accountable care strategy, but also is the basis for the definition of performance metrics suitable for use in a balanced score care application.

What role does primary care play in the broader health system strategy?

To determine this role, the leadership must identify the following: What goals will a high-functioning primary care network serve, and what are key indicators of network performance—for example, health status of populations served, management of chronic conditions, preventive health services delivered, specialty referral management, total cost of care management, urgent care management, health behavior management, initial access to the broader health system, care equity?

Will there be a standardized approach to the organization of care models across sites (for example, interdisciplinary team care)?

If so, what is the underlying philosophy and preferred model? What are expectations for patient panel size to be managed by sites and internal teams?

What are the expectations for the standardization of care models across sites?

Such expectations include expectations about the standardization of protocols for preventive care, health screenings, chronic disease management, specialty referral management, and digital/virtual care.

Are standardized site designs preferable?

If standardized designs are preferable, how many care teams are housed within a site, and what ancillary and specialty medical care services are to be provided on-site (for example, imaging diagnostics, treatment rooms, pharmacy, optical, urgent care, examination rooms, patient consultation rooms, group education rooms, and so on)?

How should provider compensation plans and incentives influence and encourage the application of professional services by provider type?

Examples of provider type include physicians, APPs, clinical pharmacists, behavioral health specialists, nurses, and nursing assistants. Provider compensation plan redesign and transformation should consider the expected changes in health financing methods and behavioral changes.

How many sites of service are required to implement the strategy and what is the strategy's estimated total cost (including, for example, the cost of facilities and related hard assets)?

Depending upon their distance from a large health system and depending on their intended scope of service, primary care sites may require imaging and laboratory diagnostic equipment, technologies, areas for rehabilitation care, rooms sized to accommodate group education and therapy services, and pharmacy dispensing capabilities. For a PHC strategy as part of the accountable care, sizing and locating individual primary care service sites is fundamental to the execution of a successful plan. Each PHC site may require an individualized business plan that includes all related costs of development, as well as ongoing financial performance projections. As noted earlier in Section II.I, in the discussion of characteristic 5, PHC sites are likely to operate at a loss from the financial accounting perspective. However, the financial value

created by individual sites, and the network overall, accrues to the whole of health system (for example, ACOs) in the form of well-managed total costs of care; reductions in low-value clinical care; prevention of costly, unnecessary episodes of care; and enhancement of the health status of populations served.

How will the financial performance of the PHC strategy be evaluated at the site and network levels, and how will return on investments made in the strategy be evaluated?

It is imperative to evaluate the financial performance of PHC service delivery sites in the context of the financial performance of the delivery system as a whole. The value of PHC must extend beyond the financial performance of individual sites when developing a PHC strategy. ACOs must develop the internal competencies and sophistications required to continuously evaluate the performance of a funded PHC network within an accountable care strategy. Clinical and administrative leaders must, together, adopt and adapt a new way of thinking as it relates to evaluations and quantifications of the value received for the total investments made. While the applications of traditional and customary accounting and financial management rigor will remain a mainstay of management science, value assessment must extend beyond the traditional and customary to understand how the investments in primary care contribute to the overall value creation of an efficacious approach to accountable primary care design and delivery.

What centralized support services and infrastructure-including leadership, staff, and hard assets-are required to execute the preferred strategy?

Services and infrastructure that are centralized include electronic medical records, schedule management, triage, specialty referral management, monitoring of prescription drug prescribing patterns, follow-up of care visits, and ongoing analysis of total costs of care for high-risk clinical cohorts. Larger, sufficiently sophisticated primary care network strategies require an administrative, supporting infrastructure that is unique to the strategy. While all the expected medical services support structures are required, administrative functions-such as finance, accounting, billing, human resource services, marketing, facilities management, and so on-and staff with competencies in public health practice are also required. These public health practices, for example, include epidemiology of covered populations, health psychology, and health behaviors interventions.

What is the best leadership and management model for the strategy?: Accountable leadership that adopts and expands a holistic definition of primary care and its role in a health care system is a major contributor to the success of a PHC strategy. It is also essential that leadership and management develop the competencies and skill sets required to capture, interpret, and display the value proposition of PHC. Successful PHC network strategies require an innovative blend of clinical and nonclinical leaders. Physicians, initially trained in clinical practice, especially, must be supported by investments in their training as professional team leaders, as public health professionals, and as total cost of care managers. Related investments can be substantial.

How will competition between PHC and referral sites be managed to minimize the unproductive duplication of services, underutilization of facilities and supporting hard assets, and patient confusion?:

The management of referrals has an impact on the clinical care of patients and the health status and total costs of care of populations served, as well as the financial performance of the health system in general. Successful ACOs should minimize unproductive competition among sites of service and clinical specialties operating within the system. Traditionally, leaders of integrated health systems often cause unproductive internal competition. This is because individual sites of service are pressured to produce a projected net bottom line-that is, a projected net financial result. Sometimes such targets are achieved at the expense of partners within the system. For example, a network component of an integrated system may invest in the retention of certain clinical specialty programs at the local level that may be more cost-effectively provided through referrals within the system. Internal, unproductive site competition is costly and should be avoided.

LESSONS WITH INTEGRATED PHC FROM THE UNITED STATES

While many integrated health systems in the United States espouse an apparent consensus on the role of primary care in accountable care and population health strategies, there is wide variation in primary care service delivery designs, execution, and function. This variation remains the norm today, including in clinical performance and financial results produced. Variation is evident in the areas of the definition of *primary care*, especially in terms of its scope of practice; the design of clinical models, especially evident in teams versus physician-centered care delivery; the acceptance of standardizations of

clinical protocols; the approach to the management of common conditions; the design and application of preventive health care protocols; definitions of *provider productivity*; the design of provider compensation; referral management strategies; the role of primary care in the management of total costs of care; and facilities design and equipping, and related asset investment strategies.

A REVIEW OF FUNCTIONING PHC DELIVERY SYSTEMS WITHIN LARGER US INTEGRATED HEALTH SYSTEMS, BOTH PUBLIC AND PRIVATE, PROVIDE USEFUL OBSERVATIONS AND LESSONS LEARNED FOR FUTURE DESIGNS. FOUR CASE-BASED OBSERVATIONS ARE WORTH MENTIONING

First, interdisciplinary teams must function in collaboration and not as independent practitioners within an accountable and integrated PHC model. If the APPs are left to develop their own, selected, patient panels within the practices, that selection process will influence the economics of the APP's professional productivity and, by extension, the economics of the physicians, affecting the net financial productivity of the model. For example, if the APPs' practices are built from patients who are new to the practice, with specific and defined clinical profiles, demographics, and payer mix distinctions, then, by definition, the physicians' patient panels are affected as well. When APPs are left to develop "independent practices" within practices, the economics and related financial results are a direct product of the design and may not be financially productive at required levels. Hence the functioning of interdisciplinary teams in collaboration and not as independent practitioners is critical to the success of the model.

Second, provider compensation plan designs need to be well designed. Their design will affect provider behaviors and the functionality and goal attainment of primary care sites and the PHC network overall. Primary care provider compensation plans vary in philosophy, incentive design, and administration. The plans tend to vary on a continuum. On one end of the continuum, physicians and other providers are paid a fixed salary, with defined expectations of productivity (for example, number of patients seen, panel size, or work relative value units produced). On the other end of the continuum, providers are paid based upon pure productivity, with productivity typically defined as the work relative value units produced. In the middle of this continuum, providers may be paid a fixed salary with an incentive bonus paid based upon performance. Here, performance can be defined in varying ways. It can be productivity based, defined as work relative value units generated above a baseline expectation and/or quality of care and panel health status performance indices achieved—such as immunization levels, management of hypertension, hemoglobin A1C levels, blood lipid levels, and return to visit compliance rates. Some integrated health systems have adopted a philosophy that a high quality of care performance is expected, so it is not a factor included in incentive bonus compensation plans, nor are incentives for directed financial savings on patient panels managed. In these cases, indirect markers of total cost of care management may be applied instead (for example, the reduction of unnecessary hospitalizations, of non-acute hospital days, and of unnecessary referrals to specialists, and the presence of well-controlled medication prescribing patterns). Experimentation with primary care compensation plans continues in US PHC strategy designs today.

Third, adequate management of specialty referrals is critical. Such management affects the clinical care of patients, the health status of the populations served, the total cost of care, and the financial performance of the health system overall. Principal roles of primary care providers here are to retain specialty referrals within the health system, provide appropriate follow-up care when patients are returned from referral, and assist in the ongoing evaluation of specialty care access within the health system. “Specialty care leakage” from integrated health systems can significantly degrade the financial performance of integrated health system accountable care plans. *Specialty care leakage* can be defined simply as patients being referred to, or who elect to use, specialty providers that are not part of the integrated health system’s provider roster. Clinical care can be a challenge to manage under such conditions, and health systems can sustain unexpected high costs of care that becomes their responsibility under various value-based, risk-sharing contracts with third-party payers [25].

Fourth, the operating economics of the PHC model within an accountable care system must be carefully considered and managed for financial performance. Indeed, if physicians are designated leaders and managers of care teams, whose purview includes the ongoing review of the care provided by APPs and nurses providing direct care within a practice, the operating economics of the model must be carefully considered and managed for financial performance. For one integrated health system, a physician-APP ratio of 1 to 1 was found to be dis-economic. This means that the time spent managing the clinical activities of one APP reduced the physicians’ financial productivity for the practice to unacceptable levels. Productive economies and related financial

performance were acceptable at a 1 to 3 ratio. However, wide implementation of such a model requires primary care physicians who are interested in the model and are trained and equipped to successfully implement it.

CONCLUSIONS

This technical note examined the available, multi-country literature regarding the practical development of an effective and high-performing system of PHC services, with *health* defined broadly. The lessons learned from the application of PHC strategies globally demonstrate that the effective design, structuring, organization, and delivery of systematic primary health services is a worthwhile area for ongoing examination, study, experimentation, and innovation. There are hundreds of articles and research papers addressing the definition and delivery of effective and *accountable PHC* to identified populations.

A consensus appears to exist regarding PHC’s potential utility as an integral part of a comprehensive, integrated, and accountable health care system, even though practitioners, administrators, researchers, and those who investigate from the perspectives of health care economics and finance hail from several countries with varying political ideologies, cultures, and economic foundations. This examination of a representative sample of the available literature demonstrates a growing commonality of mission, vision, and goals regarding the design, structure, organization, evaluation, and delivery of primary care services to defined populations, including innovations of facility designs.

The consensus holds that providers and accountable leadership adopt an expanded and holistic definition

of primary care and its role in a health system's mission. Likewise, there is evidence in the literature of a shared view of the need for a whole-of-society strategy—that is, a strategic perspective that extends beyond the traditional provider components of health care and related health services. Partners in this strategy include local, state, and federal governmental agencies such as public health, social services, public and private health care financing agencies, and religious organizations. Moreover, for the strategy to be a success, the patient needs to be engaged as an active participant with the primary care provider team.

Leadership and management of primary care strategies for integrated health systems requires developing the competencies and skill sets required to effectively capture, interpret, and display the total value received for the resource investments made for PHC. Evaluation of the returns on PHC investments will be challenging, as the value created from PHC for larger integrated health systems is not readily available from applications of conventional accounting and financial performance assessment methods and models. Because of this, there is a risk of underinvesting in primary care. Future investments in high-value primary care strategies will be considerable.

Leaders in health systems and providers can draw upon existing commonality as a blueprint for PHC development and innovation across countries and cultures. This can be done even though the specifics of primary care system design, structure, and operations differ in detail based on differences in geography, culture, traditions, governmental involvement, politics, and financing realities. Many of the required components of a PHC development blueprint are assembled here in this note. They can be

used by policy makers to ensure the effective integration of PHC within an accountable care strategy.

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Our study did not require an ethical board approval because we completed a review of existing literature.

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