

# Could Values and Social Structures in Singapore Facilitate Attainment of Patient-Focused, Cultural, and Linguistic Competency Standards in a Patient-Centered Medical Home Pilot?

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## Abstract

Primary care practices in the United States are transforming into patient-centered medical homes (PCMHs) at a rapid pace. Newer PCMH standards have emphasized culturally and linguistically appropriate services (CLAS), but at this time, only some states in the United States have proposed or passed cultural competency training for health care professionals. Other countries are moving to PCMH models. Singapore, a small, ethnically diverse island nation, has national values and social structures that emphasize cultural and linguistic cohesion. In this piece, we examine Singapore's first PCMH pilot with a national academic center and primary care practice group. Features such as common shared values, self-reliance, racial and religious harmony, patient experience surveillance, and incorporation of CLAS standards in routine health care transactions may predict success for the PCMH in Singapore, with some implications for the United States.

## Keywords

PCMH, patient-centered medical home, culturally and linguistically appropriate services, CLAS, patient centered, cultural competency, Singapore, PCMH pilot

The nation of Singapore is embarking on its first patient-centered medical home (PCMH) pilot, representing a partnership between a university hospital and a primary care medical group. While the pilot is still underway, the leaders of the pilot must pay significant attention to the cultural and linguistic diversity of the nation, values of individual reliance and family support, and how these may facilitate success of the pilot in meeting certain PCMH standards. The connection between the PCMH transformation and culturally and linguistically appropriate services (CLAS) in health care has become increasingly prominent in primary care settings across the United States and other Western countries and often quite difficult to attain, so a structure to incorporate CLAS standards into the inaugural pilot in Singapore is essential.

Additionally, as PCMH standards place a heavy emphasis on self-care and shared decision making, the values of self-reliance and family support systems take more prominence in health care. In this perspective piece, we comment on how social values of self-reliance and family support

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and existing CLAS structures in Singapore could put the country in prime position to meet these PCMH standards.

To begin, it is important to understand the evolution of the PCMH model in the United States and some shortcomings that exist. Primary care practices across the United States are transitioning toward PCMHs at a rapid pace (1, 2). Practices may be recognized or accredited as PCMHs through national bodies, such as the National Committee on Quality Assurance (NCQA), the Joint Commission (TJC), the Utilization Review Accreditation Commission (now known as URAC), the Accreditation Association for Ambulatory Health Care, Inc; state-based programs; and patient/consumer and payer programs. Regardless, core tenets include a personal physician or primary care provider working with a team to care for patients.

The 2014 NCQA PCMH standards identify specific measures highlighting cultural considerations, community health, and patient engagement (1). TJC standards also emphasize communication with patients in languages that they prefer and in the manner in which they prefer health-related communication (3). All of the standards feature patient self-management and activation as important objectives for PCMH practices. Consequently, the success of PCMH transformations will depend on the ability of communities and health programs to incorporate or expand existing social and cultural structures into primary care.

Although this is a significant goal, it has been a challenge to successfully achieve in the United States. Could an infrastructure incorporating CLAS in the Singaporean way of life provide a strong base for their PCMH pilot? Could certain values of self-reliance in health care and family support mechanisms in Singapore's health care system accelerate attainment of these patient-specific PCMH standards? We argue in this perspective piece that they indeed may.

## Background

Singapore, an island nation and sovereign city-state in Southeast Asia, is located off the southern tip of the Malay Peninsula. Singapore has a population of 5.4 million comprising 74.2% Chinese, 13.3% Malay, 9.2% Indian, and 3.3% Eurasian and other Asian races (4, 5).

Singapore has achieved remarkable strides in its health care delivery since its inception as an independent nation in 1965. The Singaporean system was recently rated as the world's most efficient health care system from among 51 countries based on factors such as cost of health care as a percentage of gross domestic product (GDP), life expectancy, and health care cost per capita (6). Singapore's low health care expenditure of 4.5% of its GDP is significantly less than that of the United States, which is over 17% of GDP. Moreover, Singapore boasts one of the lowest infant mortality rates of 2 deaths per 1000 live births and highest life expectancies of 85 years for women and 80 years for men (7, 8).

## Singaporean Health Care System

The health care infrastructure in Singapore is organized into 6 regional clusters, each of which is anchored by a general hospital. While the regional hospitals mostly provide acute care, they are also closely linked with intermediate and long-term care services provided through the private sector and voluntary welfare organizations, the US equivalent of nongovernmental organizations. Singapore's primary care system is a hybrid of public and private sectors, with 80% of primary care being provided by around 2000 private general practitioners and the remaining 20% delivered through publicly funded, "one-stop" health care centers called polyclinics (9). One example of a private health care company is Frontier Healthcare Group staffed by a core team of family medicine physicians (10), which offers family medical care, health screening, and immunization services.

On the other hand, government-run polyclinics offer a range of acute and chronic services at a subsidized rate to all citizens (11). Primary care in the private sector generally has shorter waiting times and greater care continuity than that in the public sector (12), but there is insufficient data comparing the costs of services of these 2 clinics.

## Patient-Centered Medical Home Pilot in Singapore

In 2013, recognizing the importance of strengthening the primary care system, the Singapore Ministry of Health launched its first PCMH pilot, using the NCQA standards as a framework. This pilot represents a partnership between National University Health System (NUHS) and Frontier Healthcare Group as part of a larger government effort called the Primary Care Masterplan 2011. The primary goal of this masterplan is to achieve a healthy equilibrium between the public and the private sectors in primary care with regard to capacity and caseload.

While 80% of primary care is delivered in the private sector, private general practitioners care for only 55% of patients with chronic illness, with the other 45% patients with chronic illness seen in polyclinics. The Frontier Family Medicine Clinic (FFMC) represents a public-private partnership set up to transform the way health care is delivered by focusing on patient-centered and integrated care.

Under this partnership, the government provides seed funding over 3 years (2014-2017), with the expectation that FFMC will be able to sustain its own operations after the withdrawal of the seed funding, while NUHS provides the governance to ensure the appropriate use of public funds by Frontier Healthcare Group. This pilot is being carried out against the background of a very porous and open health care system where individuals are not empaneled (ie, assigned to a specific primary care physician) and funding is fee-for-service rather than capitated. Led by a multidisciplinary team including family physicians, specialists, nurses, allied health professionals, hospital administrators, and academics

in public health and health services research, the FPMC upholds the joint principles of PCMH and emphasizes care coordination, integration, and case management for patients as they transition through different parts of the health care system. Close collaboration between specialists and family practitioners take place through specialist-led case discussion meetings held at FPMC and ward visits of FPMC patients conducted by family physicians to facilitate post-discharge follow-up. Between April 2013 and August 2014, a total of 9816 acute care patient visits and 3682 chronic care patient visits took place at FPMC. There is a strong focus on data-driven care and outcomes (including cost-effectiveness) evaluation from the inception of the PCMH pilot. Hence, clinical, operational, process, health-related quality of life and patient and staff satisfaction outcomes are being captured routinely and stratified by demographic data. Ultimately, these measures will be linked to formal incentives for the care teams. The pilot was described by its leaders in a presentation for the World Congress on Integrated Care, and the abstract was published in the *International Journal of Integrated Care* (13).

While this pilot is still ongoing and data are still emerging, some early considerations predict success of this transformation for certain PCMH standards in Singapore. In certain NCQA PCMH criteria, such as CLAS (PCMH 2C), Self Care and Shared Decision-Making (4E), and Coordinating Care Transitions (5C), the Singaporean PCMH pilot may be positioned to see more significant and swift successes than the United States, where known gaps exist. For example, in the Patient-Centered Primary Care Collaborative's 2013 Annual Update on PCMH evidence in the United States, some of the gaps that the authors highlighted in many of the reported PCMH outcomes studies were in the areas of assessing patient experience, documenting patient activation and sociocultural considerations (14). The Singaporean PCMH pilot has started on good footing by including demographic data, patient quality of life, and satisfaction metrics, and the presence of their unique social structure could ideally facilitate successful and early cultural and linguistic competency.

## Drivers for Success

Through literature reviews, observational analyses, and interviews with Singaporean health system leaders, including coauthors WHL and TSA and others involved in the PCMH pilot (13), we identify 3 major cultural and structural facilitators and drivers for potential success in realizing the PCMH standards on CLAS, self-management, and patient/family activation for shared decision making. First, the Singaporean health care system and its policies enforce a culture of self-reliance in which Singaporeans take an active role in actuating their health care. Second, Singaporeans are surrounded by a supportive family structure, which allows for security against health care costs and burdens. Lastly, a strong national identity empowers Singapore with racial and

religious harmony that provides the context for improved access to and engagement in health care. In the next sections, we provide more context for these 3 facilitators.

## Self-Reliance

In line with its early political roots as a British colony, the Singapore nation began as a tax-based health care system providing free or highly reduced fees for medical services. The majority of health services were offered through the public sector, with only a minor role for the private sector. The Prime Minister at the time, Lee Kuan Yew, was skeptical of medical waste resulting from free services and favored a health care system incorporating greater responsibility at the individual level. Lee's government introduced user fees at the public clinics, and what first began as a trivial 50-cent copayment to dissuade moral hazard and encourage a self-reliant work ethic soon gave rise to a national ideology centered on individual responsibility (15).

Singapore's transition from a largely government-funded health care system to one emphasizing individual responsibility is reflected in its health care policies known as the 3Ms system—Medisave, MediShield, and Medifund. Medisave, a compulsory health savings account, is a key indicator of Singapore's emphasis on the individual expectation in health care. By requiring Singaporeans to contribute a portion of their monthly wages to their health accounts, Medisave ensures that a minimal amount of money is saved to cover medical costs. Medisave dollars can be used to pay for hospitalizations, certain vaccinations, health screenings, other outpatient services, and home-based hospice care. The account can also be used to finance MediShield, a catastrophic health insurance plan, to meet the cost of prolonged hospitalization (16). A universal basic health insurance plan called MediShield Life is being implemented in 2015, which will alleviate some of the financial burden on individuals (17). Lastly, Medifund provides a safety net health funds for those of lower income. This system provides an important base for the nation in their first PCMH pilot, with patients already accustomed to a culture in which they are expected to be activated and function as active consumers of health care.

## Family Role

In addition to self-reliance, the Singaporean health system values the family as a primary support group for the individual. Former Prime Minister Goh Chok Tong first implicated the family as the basic building block of society in 1988. This social value was eventually adopted as one of the country's 5 "shared values" listed in the White Paper in 1991 (17, 18). Today, the Singapore health care system runs with a "Many Helping Hands" approach, which emphasizes the role of the family and community in helping the disadvantaged and discourages reliance on government-funded welfare programs. The family is viewed as the next layer of support beyond the individual and before the community and

government. One illustration of the role of family in health care is evident in the Medisave policies. Medisave allows immediate family members from parents, spouses, and children to draw money from each other's accounts (9).

The relationship between the people and the government rests on a familial dynamic in which the government will aid the people but only if the people themselves try their hardest to achieve. The people and the government are bounded in a mutual relationship often referred to as the Singaporean family. In health care, this translates into a heightened role for family members in the health care of their loved ones. Families and caregivers are considered part of the care team, as their loved ones transition through various components of the health care system (19).

This value structure also forms an important base for a PCMH model in which patient and family engagement is expected and encouraged, especially in the standards on coordinating care transitions, self-care, and shared decision making.

### ***Racial and Religious Harmony***

As a nation built on individual and family priorities, Singapore has enjoyed racial and religious harmony. From its roots, the country has built in CLAS principles to health care delivery. The primary care delivery system reflects the diversity in the population, and this is demonstrated by clinical staff composition, signage, programming, resources, and services representing the multiethnic languages and backgrounds of the patients, such as Malay, Mandarin, or Tamil. Cultural and linguistic competency and congruence is a major priority for the health care sector in Singapore and is considered as a primary component of optimal care, not as an add on or adjunct to service. In the FPMC PCMH pilot, there is a major emphasis on culturally sensitive and linguistically congruent patient education, patient programming and scheduling, patient resources, and other patient materials. They are also working to develop communications on the system transformation that is cognizant of the health literacy, language preferences, and learning styles of their patients, ensuring that patients have access to information in multiple languages across the different settings. This is a good sign that CLAS standards may be attained in the PCMH pilot, given the roots of the nation in harmonizing diverse ethnic groups.

### **CLAS Evolution and Uptake in the United States**

In the United States, the actualization of the CLAS principles is still in process, despite their broad introduction to health care more formally in 2000. In 2000, the Office of Minority Health published the first *National Standards for Culturally and Linguistically Appropriate Services in Health Care* (20), which provided a framework for health care organizations across the United States to better serve

the nation's increasingly diverse populations. Subsequently, due to challenges in uptake, in 2010, the Office of Minority Health launched the National CLAS Standards Enhancement Initiative, which was an attempt not only to revise the standards but also to expand their scope and improve their implementation. Translation into primary care remains highly localized. For example, one study found that that providers with attitudes reflecting greater cultural motivation to learn were more likely to work in clinics with a higher percentage of nonwhite staff as well as clinics offering cultural diversity training and culturally adapted patient education materials (21).

At this time, however, only some states in the United States have proposed or passed cultural competency training for some health care professionals, and only a handful have mandated some form of CLAS for portions of or all of its health care workforce. While CLAS standards are a goal for the entire health care delivery system, and not just PCMH practices, the incorporation of CLAS standards to PCMH standards has brought new attention to them (1). A systematic review of 5 common interventions to improved health care system provision of culturally competent services was unable to draw conclusions on effectiveness of interventions because either there were too few comparative studies or studies did not examine CLAS-specific outcome measures such as patient satisfaction, improvements in health status, or disparities in use or recommendation for health services (22). Betancourt and colleagues recommend that CLAS training and provision be better evaluated using tools of health services research and quality improvement, and this is a growing area of research in the United States (23). Such gaps present an important opportunity for the Singaporean pilot.

### **Conclusions**

As Singapore continues to develop and study its PCMH model, much of its future health care successes will depend upon the preservation of individual and family-centered values as well as cultural and linguistic competency. Since Singapore has a relatively short history spanning just 5 decades, the generation which grew up with strong nationalistic ties through an age of great economic development is now aging and contributing to an increasing elderly population, which will increase from 10% to over 20% by 2030 (24).

The connection between cultural competence and patient centeredness is not new, however. Saha and colleagues described conceptual features of both concepts that are highly similar and interconnected (25). A systematic review of patient-centered care models with a cultural competence (CC) component found that including CC in such models led to increased practitioner knowledge and awareness around caring for diverse patients (26). Organizations such as the Community Health Center Association of Connecticut have incorporated cultural competence training into their PCMH tool kits (27). However, as Jackson and colleagues argued in their systematic review of PCMH implementation and

outcomes, having core PCMH components or trainings does not necessarily translate into successful outcomes, especially as there is wide variation in how PCMH is defined and operationalized (28).

These important views suggest that our perspective is also limited. We have presented this perspective in the early stages of the Singaporean pilot with a discrete definition and set of goals. It is possible that completion of the pilot may suggest different directions for the system and that incorporation of CLAS does not automatically lead to behavior change or improved outcomes for the system, providers or patients. Detailed analysis and evaluation of the pilot will be essential and is already underway. Additionally, we did not obtain the perspective of patients and families on this early pilot. It will be invaluable to ascertain patient-perceived benefits and patient experiences as affected by this transformation.

To the extent that Singaporeans can preserve their strong national identities and commitment to the central roles of patients, families, and communities in health care, attention to meeting the cultural and linguistic needs of their patients as they seek primary care services, and strategies for expanding resources to strengthen their communities, their PCMH efforts may have important lessons for the multiethnic, multi-racial societies in the United States and European countries with diverse populations. The United States and Europe may look to Singapore for policies and strategies that could facilitate more rapid uptake of consensus, implementation and realization of CLAS as well as integration of social supports into health care management and policy.

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### References

1. Patient-Centered Medical Home Standards and Guidelines [Internet]. National Committee for Quality Assurance, Washington, DC; 2014 [Cited 2015 Jan 12]. Available from: <http://www.ncqa.org/Programs/Recognition/Practices/Patient-CenteredMedicalHomePCMH/BeforeLearnItPCMH.aspx>.
2. Edwards ST, Bitton A, Hong JS, Landon BE. A national survey of patient centered medical home initiatives. *J Gen Intern Med*. 2014;29:S10-1.
3. NCQA Level 3 PCMH Recognition Requirements Compared to 2011 Joint Commission Standards and Eps [Internet]. The joint commission, Washington, DC; 2011 [Cited 2015 Jan 12]. Available from: [http://www.jointcommission.org/assets/1/18/PCMH-NCQA\\_crosswalk-final\\_June\\_2011.pdf](http://www.jointcommission.org/assets/1/18/PCMH-NCQA_crosswalk-final_June_2011.pdf).
4. Singapore Department of Statistics. Population and land area [Internet]. Singapore; 2015 [Cited 2014 Oct 21]. Available from: [http://www.singstat.gov.sg/statistics/latest\\_data.html#14](http://www.singstat.gov.sg/statistics/latest_data.html#14).
5. The World Factbook: Singapore. Central Intelligence Agency (CIA): Washington, DC; 2015 [Cited 2015 Jan 28]. Available from: <http://www.cia.gov/library/publications/the-world-factbook/geos/sn.html>.
6. Bloomberg LP. Most efficient health care 2014: countries. Bloomberg database [Internet]. Singapore; 2015 [Cited 2014 Oct 21]. Available from: <http://www.bloomberg.com/visual-data/best-and-worst/most-efficient-health-care-2014-countries>.
7. World Bank. Mortality rate, infant (per 1,000 live births) [Internet]. Washington, DC; 2015 [Cited 2014 Oct 21]; 2014. Available from: <http://data.worldbank.org/indicator/SP.DYN.IMRT.IN>.
8. World Health Organization. World Health Statistics [Internet]. 2014, Geneva; 2015 [Cited 2015 Jan 23]. Available from: [http://apps.who.int/iris/bitstream/10665/112738/1/9789240692671\\_eng.pdf?ua=1](http://apps.who.int/iris/bitstream/10665/112738/1/9789240692671_eng.pdf?ua=1).
9. Haseltine WA. Affordable Excellence: The Singapore Healthcare Story. Singapore: Ridge Books; 2013.
10. Frontier Healthcare [Internet]. Singapore; 2009 [Cited 2015 Feb 4]. Available from: <http://www.frontierhealthcare.com.sg/>.
11. Health Promotion Board. Polyclinics that provide screening services [Internet]. Singapore; 2012 [Cited 2015 Jan 27]. Available from: <http://www.hpb.gov.sg/HOPPortal/health-article/3658>.
12. Khoo HS, Lim YW, Vrijhoef HJ. Primary healthcare system and practice characteristics in Singapore. *Asia Pac Fam Med*. 2014;13(1):8. doi:10.1186/s12930-014-0008-x.
13. Koh TW, Tai ES, Wee HL, Tham TY, Sim KP, Khoo YHE, et al. Piloting the Patient-Centered Medical Home concept: Singapore's initial experience. *Int J Integr Care*. 2013;13 World Congress on Integrated Care, 2013 Supplement.
14. Nielsen M, Olayiwola JN, Grundy P, Grumbach K, Shaljian M. The Patient-centered Medical Home's Impact on Cost & Quality: An Annual Update of the Evidence, 2012-2013. Washington, DC: Patient-Centered Primary Care Collaborative; 2014.
15. Lee KY. From Third World to First: Singapore and the Asian Economic Boom. Singapore: HarperCollins; 2011.
16. Ministry of Health. MediShield Life Review Committee's Report. Singapore: Ministry of Health; 2014.
17. Quah JT. (Ed.). In search of Singapore's national values. Singapore: Times Academic Press; 1990.
18. Shared values. Singapore: Singapore National Printers; 1991.
19. Ministry of Health. Interim Caregiver Service [Internet]. Singapore: Ministry of Health; July 7 2014 [Cited 2015 Jan 23]. Available from: [http://www.moh.gov.sg/content/moh\\_web/home/pressRoom/Parliamentary\\_QA/2014/interim-caregiver-service.html](http://www.moh.gov.sg/content/moh_web/home/pressRoom/Parliamentary_QA/2014/interim-caregiver-service.html).
20. Office of Minority Health. National CLAS Standards. Washington DC: U.S. Department of Health and Human Services.
21. Paez KA., Allen JK, Carson KA, Cooper LA. Provider and clinic cultural competence in a primary care setting. *Soc Sci Med*. 2008;66(5):1204-16. doi:10.1016/j.socscimed.2007.11.027.
22. Anderson LM, Scrimshaw SC, Fullilove MT, Fielding JE, Normand J. Culturally competent healthcare systems: a systematic review. *Am J Prev Med*. 2003;24(3):68-79.

23. Betancourt JR, Green AR. Commentary: linking cultural competence training to improved health outcomes: perspectives from the field. *Acad Med*. 2010;85(4):583-5. doi:10.1097/ACM.0b013e3181d2b2f3.
24. Committee on Ageing Issues: Report on the Aging Population [Internet]. Singapore: Committee on Ageing Issues; 2006 [Cited 2015 Feb 20]. Available from: <http://unpan1.un.org/intradoc/groups/public/documents/APCITY/UNPAN024041.pdf>
25. Saha S, Beach MC, Cooper LA. Patient centeredness, cultural competence and healthcare quality. *J. Natl Med Assoc*. 2008; 100(11):1275.
26. Renzaho AMN, Romios P, Crock C, S nderlund AL. The effectiveness of cultural competence programs in ethnic minority patient-centered health care—a systematic review of the literature. *Int J Qual Health Care*. 2013; 25(3):261-9.
27. PCMH Toolkit: Resource for Connecticut FQHCs. Community health center association of Connecticut; 2013 March Published in Connecticut by the Community Health Center Association of Connecticut [Cited 2015 July 14]. Available from: [http://www.chcact.org/resources/CHCACT\\_PCMH\\_Toolkit.pdf](http://www.chcact.org/resources/CHCACT_PCMH_Toolkit.pdf).
28. Jackson GL, Powers BJ, Chatterjee R, Bettger JP, Kemper AR, Hasselblad V, et al. The patient-centered medical home: a systematic review. *Ann Intern Med*. 2013;158(3):169-78.

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