Research Article

Continuity of care challenges in GCC countries: *H. pylori* eradication as example in a UAE Tertiary Care Center

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Abstract

Background: *Helicobacter pylori* infections are extremely prevalent worldwide. *H. pylori* infection is a factor in the genesis of gastric or duodenal ulcers, gastric cancer, and rarely gastric mucosa-associated lymphoid-tissue lymphoma (MALT). Outcomes of infected patients are variable from one population to another. The Gulf Cooperation Council (GCC) Countries are made of six monarchies: Saudi Arabia, United Arab Emirates, Oman, Qatar, Bahrain, and Kuwait. They have many cultural and economic similarities including the health-care sector. Data about *H. pylori* infection prevalence in these countries are limited. This particular infection is common in this part of the world as in other developing countries with resistant *H. pylori* strains documented.

Objective: The aim of this study was to evaluate continuity of patient care practice in Gulf Countries by studying a specific example at a regional Tertiary Care Center.

Materials and Methods: A descriptive retrospective pilot study, conducted in a tertiary care center in the United Arab Emirates from 2013 to 2014, reviewing electronic medical records for patients tested and followed for *Helicobacter pylori* infection. Three tests were performed to establish diagnosis: Urea Breath Test, *H. pylori* stool antigen testing, or gastric biopsy with histopathological examination. Patients tested positive for *H. pylori* positive were provided first appointment to initiate treatment according to two established regimens. They were further followed, with repeat testing, in order to establish if they achieved *H. pylori* eradication.

Result: A total of 480 patients were tested for possible *H. pylori* infection, 168 of them tested positive for this infection (100%). However only 107 patients (64%) showed up for a first follow-up appointment to check testing result and start therapy whereas more than one-third: 61 patients (36%) missed this appointment. After starting therapy for *H. pylori* eradication, only 48 patients (29%) kept their second follow-up appointment needed to confirm their *H. pylori* status post-treatment. Another 35% (59 patients) missed this appointment. Therefore of the initial 480 investigated individuals only 10% completed the process as indicated.

Conclusion: The total rate of missed follow-up appointment exceeded two-thirds (71%) of patients infected with *H. pylori* in an UAE tertiary care center. This result reflects obvious discontinuity of care. In addition, this practice is likely prevalent in other medical fields within the Gulf Council Cooperation Countries which have similar cultural and educational settings. Many identifiable causes contributing to the degradation of care continuum are discussed.

KEY WORDS: *H. pylori* eradication, GCC countries, United Arab Emirate, care challenges

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Introduction

Continuity of care in the medical field has been defined as a unique longitudinal relationship between patients and all those who provide care for them. For primary care doctors, this relationship usually matures into a strong and lengthy bond between them and their patients with a bidirectional sense of loyalty, trust, and responsibility.[1] This definition

is being challenged nowadays by many factors, such as, dwindling primary care givers and fast changing health-care industry. Such dilemmas and challenges do not apply only to medical practice in developed countries; they are also present, probably with variable degrees, in many developing regions.

Helicobacter pylori is a slow growing spiral shaped uniflagellar gram-negative organism measuring 3.5 × 0.5 μm. It was identified in 1982 by Marshall and Warren.[2] Biochemically, it produces multiple enzymes including catalase, oxidase, and urease. It is important to mention that the urease appears to be vital for survival and colonization. *H. pylori* infections are extremely prevalent worldwide. It is suggested that 50% of the world population is affected, with or without symptoms, by this bacterium. The prevalence in the developing nations in adults reaches 80% before the age of 50 years. In developed countries, the infection rate is rare in patients younger than 10-years-old and reaches 50% for patients older than 60 years.[3,4] *H. pylori* infection is a factor in the genesis of gastric or duodenal ulcers, gastric cancer, and rarely gastric mucosa-associated lymphoid-tissue lymphoma (MALT). Outcomes of infected patients are variable from one population to another.[5]

The Gulf Cooperation Council (GCC) Countries are made of six monarchies: Saudi Arabia, United Arab Emirates, Oman, Qatar, Bahrain, and Kuwait. They have many cultural and economic similarities including the health-care sector. Data about *H. pylori* infection prevalence in these countries are limited. This particular infection is common in this part of the world as in other developing countries with resistant *H. pylori* strains documented.[6,7]

Materials and Methods

A descriptive retrospective pilot study, looking at *Helicobacter pylori* infection management, was conducted in a tertiary care center in the United Arab Emirates in late 2013 and early 2014. A total of 480 patients' charts (Electronic Medical Record—Cerner and paper files) were randomly reviewed for initial diagnosis and subsequent treatment follow-up. Patients had a wide spectrum of clinical symptoms such as heartburn, dyspepsia, or abdominal pain. They underwent one of the three following diagnostic procedures depending on their physician's recommendation: urea breath test, *H. pylori* stool antigen testing or gastric biopsies + histopathological examination. Consent form was obtained for each patient who underwent the latter procedure. Patients who were found to be *H. pylori* positive were treated according to two established regimens (two antibiotics + proton pump inhibitor): amoxicillin/clarithromycin/PPI or amoxicillin/levofloxacin/PPI. They were further followed, with repeat testing, in order to establish if they achieved *H. pylori* eradication.

Result

A total of 480 patients were tested for possible *H. pylori* infection (Figure 1). They had a variety of complaints such as abdominal pain, heartburn, and indigestion. Slightly more than one-third (100%) of them tested positive for this infection (168 patients) by one of the above described three tests. All of them were provided a first follow-up appointment (average time 20–30 min) to review results and possibly start therapy. Of them, 64% (107) showed up for that appointment whereas more than one-third individuals (61, 36%) who tested positive did not. All 107 patients were started on one of two *H. pylori* eradication regimen as described previously and were provided with a second follow-up appointment to check for microorganism eradication. Only 48 patients (29%) kept this last step in this model and 59 patients (35%) did not do the second test (Figure 2). Therefore, of the initial 480 investigated individuals only 10% completed the process as it should be.

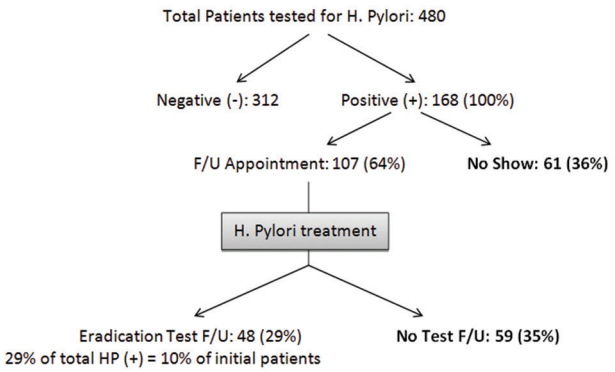

Figure 1: Patients' follow-up algorithm.

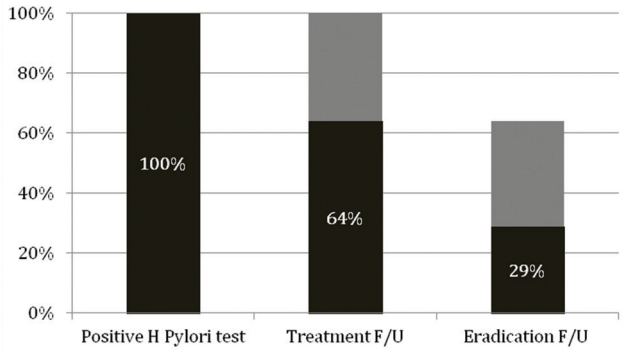

Figure 2: Follow-up pattern for patients diagnosed with positive *H. pylori* infection.

Discussion

In our study, compliance with *H. Pylori* post-treatment testing was achieved in less than a third (29%) of participants. This poor follow-up indicator is lower than the one obtained in

a similar Latin American community of 1463 subjects. Of the 281 with still positive post-initial treatment cases, 138 completed second treatment course (49%).[8] We acknowledge some short-comings for this study including its retrospective design and limited socio-demographic data collection. In spite of that we are trying to initiate a further debate about the all-important issues of care continuum. Discontinuity of care is an ongoing medical challenge in both developing and developed countries.[9] The need to implement strategies aiming at improving this deficit is well-recognized in this area.[10]

Causes of Discontinuity of Care

We could identify nine possible causes of discontinuity of care. This list is not exhaustive however:

1. *Cultural factors:* Literacy plays an important role in health education. According to the United Nations data, while tremendous leaps in improving adult literacy rate in Saudi Arabia from 33% in 1970 to 77% in 2001 have been achieved; this success still falls short, especially among women (68% literacy rate), compared to rates in developed countries.[11] Furthermore, there may be some cultural and religious sensitivity that might affect care-seekers/care-givers' interactions. Special tailored programs designed to overcome such difficulties are needed in order to improve continuity of care in clinics and hospitals.
2. *Fixed residence versus human migration:* According to the 2012 Qatar Statistics Authority's data, local Qataris form only 6% of the total employed population (1.3 million) of the country whereas expats make up the vast majority of active workers (94%).[12] These figures differ slightly in the rest of Gulf Cooperation Countries (GCC). This fluid human migration from place to place can directly impact continuity of care. It becomes extremely challenging to establish long-term follow-up for migrant workers for reasons such as their choice to return home, repatriation, or moving to another country.
3. *Financial restraints:* A relatively large proportion of GCC migrants are unskilled workers such as laborers and domestic workers. The mean monthly salary for a South-Asian low-income worker in Qatar is 1028 Qatari Riyal (US$280) in 2013.[13] Workers' remittance to their home countries and presumably to their families is understandably their top priority. According to the Middle East Institute, located in Washington, DC, workers' remittances from Bahrain to their respective countries reached US$1.5 billion (12% of the country Gross Domestic Product).[14] One can hypothesize that seeking health care by such population comes mostly in emergent situations. Further establishing a regular primary care model for them can be very challenging.
4. *Modern care system versus traditional system:* According to the Massachusetts Medical Society, only 38% of that state's physicians work for themselves in 2012.[15] The dwindling number of family and primary care physicians reflects the vanishing traditional patient–physician relationship with all its aspects of trust, loyalty, and continuity of regular visits. This example from an American State, where the "family doc" tradition is well-rooted, probably does not compare to more recent care models in the GCC countries. Nevertheless, loose patient–physician rapport may participate in poor continuity of care.
5. *Academic shortcoming:* Medical schools are usually very good at pathology and therapy teachings. Most of their curricula fall short of providing adequate patient–physician communication courses and training. In many instances, academia addresses importance of disease and fails to put patient's concerns first. Indeed and early on, some residents and young physicians pick the bad habit of addressing their patients as a diagnostic entity such as "the guy with lung abscess" or by their location such as "ICU bed 7". Acquiring good communication skills are extremely important for both patients and physicians especially when facing difficult situations such as palliative care or end-of-life. A prospective trial conducted at Duke University showed that even a relatively short intensive course can improve the end-of-life communication skills of American medical residents.[16]
6. *Qualified medical personnel:* A 2009 systematic review, about the impact of education and glycemic control in diabetic patients, showed added benefit of individual education on blood sugar control when compared with usual care.[17] Patient education usually stresses the importance of follow-up care in the overall health scheme when provided by qualified staff. Hiring such personnel can be very challenging especially in countries heavily dependent on expatriate medical staff such as the GCC ones. According to a study by Kotilaine in 2009, the percentage of foreign nurses in some GCC countries is as follow: 48% in Bahrain, 56% in Saudi Arabia, 41% in Oman, and 92% in UAE in 2007.[18]
7. *Administrative choices:* Health administrators are an important piece of an increasingly complex health-care puzzle. Hospital or clinic administrators can elect having outpatient care only, inpatient care only, or a mixture of both models. Evolving care models, such as the "Hospitalist Model," are being developed to improve the quality of care.[19] These models might have a negative impact on the quality of care continuum.[20,21] Some hospital administrators, in GCC countries, have elected to improve local patients' satisfaction by facilitating their care access. A priority walk-in plan was put in place for citizens only. Patients, with or without a scheduled appointment, can arrive at any working hour for medical care. This plan might willingly or unwillingly encourage some individuals not to adhere to regular follow-ups and establish continuous rapport with one primary care doctor.
8. *Health-care coverage:* Except in Oman where the proportion of private medical institutions is low (8%), it varies from 33% (Saudi Arabia) to 46% (United Arab Emirates) in the rest of GCC countries.[18] This booming private health industry is attracting an emergent health care insurance scheme with it. Many insurance companies, either local or

international, are embarking in this lucrative business with expected drawbacks. Physicians are seeing more denial rates for their actions and patients are experiencing more frustrating experiences leading to seeking other opinions somewhere else with obvious care disruption.

9. *Medical tourism:* It is a growing global industry. For India alone, during the period 2009–2012, it was estimated that US$2.4 billion were generated from medical tourism.[22] Many citizens of the GCC countries are well-off and are actively seeking this form of care on their own. Other citizens will have overseas medical care paid by their government. In the year 2009 alone, the UAE spent US$2 billion on this form of treatment.[23] In one Omani study, 15% subjects went abroad without even establishing medical care in Oman. Further, from those initially treated locally, 38.2% had no specific diagnosis and 38.2% had received ineffective treatment.[24] This form of practice further degrades the continuity of care quality within local institutions.

Poor Continuity of Care—Consequences

The repercussions of discontinuity of care extend beyond patients' well-being. Indeed, it can affect care-givers' morale and productivity while draining institutions' resources.

1. *Patients' impact:* It can be in the form of poor health outcomes or decreased engagement. For diagnostic outcomes, missing a benign finding might have limited harm but possible catastrophe can strike in case of inappropriate follow-up for severe chronic conditions. Indeed, medical literature abounds with studies showing improved morbidity and mortality outcomes with well-established continuity of care. A perfect example is a large Canadian heart failure study between 1999 and 2009. More than 24,000 patients, first-time diagnosed with congestive heart failure, were followed for 6 months post-discharge for death or all-cause of readmission. Of them, 5336 patients (21.9%) had no follow-up visits, 16,855 patients (69.2%) saw a familiar physician (defined as one who had seen the patient at least twice in the year before the index admission), and 2182 (9.0%) saw unfamiliar physician. The study authors found that death risk or urgent readmission was lower among patients who had all of their visits with a familiar physician (43.6%; adjusted hazard ratio 0.87, 95% confidence interval 0.83–0.91) or followed by unfamiliar physicians (43.6%; adjusted hazard ratio 0.90, 95% confidence interval 0.83–0.97) as compared with patients who had no follow-up visit at all (62.9%).[25] Modern medicine goes beyond patient satisfaction nowadays, patients and their loved-ones must actively participate in health decisions with proper guidance of their personal physicians. Good patient–physician relationship builds trust and excellent adherence to treatment. A recent Chinese study about factors influencing therapy adherence in epileptic patients identified patient–prescriber disconnect as a non-adherence risk in one out of ten patients (9.5%).[26] In GCC countries chronic conditions such as diabetes mellitus, obesity, cardiovascular diseases, strokes, renal failure, and asthma are extremely prevalent and rank usually among the top 10 causes of morbidity, disabilities, and mortality. In Kuwait for instance, 76% of deaths in 2010 were due to these conditions.[27]
2. *Health-care providers' impact:* In the field of medicine, a unique patient–care giver relation exists. It is based on trust, respect, and honesty. For the past four decades however, this interpersonal trust has been steadily eroding according the American Heart Association. This conclusion is similar to a Gallop poll's findings conducted in the year 2000 about job honesty in public opinion. Nurses ranked first with 79% rate of surveyed individuals while doctors had the fourth place with 63%. These results are making physicians rethink and develop new ways in rebuilding and sustaining their patients' special rapport.[28,29] Continuity of care not only build mutual trust, it also familiarize care-givers more with their patients' conditions, accumulate solid uninterrupted medical records and facilitate work environment. A large cross-sectional Norwegian study of 5455 nurses, looking at nurses' satisfaction with electronic patient record during shift changes, found a direct association between perceived informational continuity and work system satisfaction.[30] Further physicians might face possible medicolegal consequences with poor discontinuity of care because of increased risk of medical errors. A unique study by Scobie investigating medical, laboratory, and treatment errors, conducted in eight countries, identified eight risk factors of self-reported errors. These are: age under 65 years, some college level education or less, presence of two or more chronic conditions, a care coordination problem, poor doctor–patient communication, poly-pharmacy (four or more drugs), use of an emergency department, and evaluation by four or more physicians within 2 years.[31] The last five risk factors have obvious physicians' involvement in one form or another.
3. *Medical institutions' impact:* Most modern hospitals, clinics, and care centers have complex operational systems. Medical literature provides evidence that continuity of care with a single primary care physician is one of the most important variables in total health-care cost-effectiveness.[32] In GCC countries, "doctor shopping" can be prevalent. Patients and even family members request repeating tests already done elsewhere. This practice will in all likelihood increase local institutions' burden and drain their resources. They also might keep changing prescriptions provided by different physicians with clear treatment non-adherence. This approach poses increasing health outcome risks from poly-pharmacy or inadequate prescriptions. It obviously further increases care cost.[33]
4. *Medical research:* With impeccable data collection is needed among other requirements. The US Department of Health and Human Services' Agency for Healthcare Research and Quality (AHRQ) details all such requireents and quality indicators for consumers, health-care

professionals and policymakers in their website.[34] With discontinuity of follow-up care, patients' data are fragmented at best even in the era of electronic data capturing. Such poorly collected data will not provide solid clinical information needed for either retrospective or prospective research work. Further, high drop-out rates for study research subjects are a set-up for cohort research failure. Such continuity of care practices will in all likelihood hamper fostering and advancing medical research in GCC countries. Furthermore, investigators interested in doing medical research, might not achieve their full potentials while facing possible academic disappointment and probable professional frustration.

Improving Continuity of Care—Means and Methods

As health care moves toward a more patient-centered focus, providers are searching for ways to look at individual patient's circumstances in order to tailor a more effective care process. Many innovative strategies have been developed to address the logistical issues that impact patients' compliance. Many of these are amplified in many regions of the world including the GCC countries. Successful strategies include: public education, professional training, smooth communication, and system operations.[35]

1. *Public education:* Health-care spending in GCC countries is expected to reach a solid 11.4% growth between 2010 and 2015. By the year 2015, it is projected to surpass US$ 44 billion.[36,37] Investing some of such vast resources on health education will reap fruitful results and better outcomes. Special health-education programs, including careful cultural alignment, suited for public needs can be developed. Their implementation requires close collaboration of policymakers, health-care professionals, and media outlets. Periodical evaluation of such programs is needed.
2. *Professional training:* It is provided in order to achieve better patient/care giver rapport. Health-care professionals should be exposed to either formal teaching or regular training about continuity of care's methods and challenges. Courses for medical students about patient–physician relationship should be developed and encouraged. Early engagement, for first-year medical students, with this issue was tried before. Learning was enhanced by use of an interdisciplinary faculty, close mentoring and by small-group continuity.[38] Periodic courses for clinicians, nurses and ancillary staff members will further improve effective communication. Recognition and gratitude of exceptional patient/care giver relationship, such as the Barnes family story and subsequent establishment of the DAISY Foundation, is gratifying and encouraging for both nurses and physicians.[39]
3. *Effective communication:* Administrators, chiefs, clinicians, and other staff members should engage in a collective effort geared toward improving communication within their institutions. They should collectively identify organizational barriers to effective communication such as lack of resources, poor infrastructure, resistance to new systems and culture not conducive to change.[40] Ways of effective communications such as direct face-to-face meeting, phone calls and electronic correspondences will benefit patients, care givers, and institutions. Innovative ways to improve communication are being developed. One example is the creation of dedicated team of pharmacists and case managers that visits patients prior to their hospital discharge and works closely with their supervising medical team in order to provide safer discharge plan and subsequent follow-up.[41]
4. *System operations:* Complex system operations govern modern health care. Policymakers and planners need to iron out many challenging issues in order to ensure smooth operations. Among such difficulties, we can identify:

- *Provider's availability:* Recruiting and hiring competent health professionals is just the first step to ensure health-care institutional success. Administrators must also ensure staff satisfaction and retention in order to guarantee sustainable operations. Avoiding care givers burnouts must be a top priority for institutions' success.[42]
- *Transition services:* continuous efforts are being made in order to develop programs aiming at cutting down readmission and emergency room visits.[43]
- *Modern telecommunication utilization*: Cost-effective options such as tailored telephone calls are being further explored to cut down on hospital readmission rates.[44] Telemedicine is a novel method used by some centers with successful results. Studies have demonstrated that virtual visits (video conferencing) between a skilled home health-care nurses and patients with chronic conditions at their homes can improve patient outcome at much lower cost (more than 50% cost reduction in one study) compared to traditional skilled face-to-face home health-care visits.[45]

Conclusion

The example of *H. pylori* eradication plan and follow-up care in this study from the UAE is a probable reflection of a large discontinuity of care epidemic in the GCC countries. Continuity of patient care is a complex multi-factorial concept affecting the general population, care givers, and medical institutions. Environmental factors, patient education, socio-economic status, patient–physician communication, and other logistical factors directly impact continuity of care either positively or negatively. The need to preserve patient continuity of care must be at the highest priority possible for everyone involved in health care. Resourceful solutions, involving policymakers, team leaders, and health-care professionals should be developed for better care continuum in this part of the world. Any proposed solutions should take into consideration: advancing population's well-being and improving working conditions within medical institutions.

References

1. Saultz JW. Defining and measuring interpersonal continuity of care. Ann Fam Med 2003;1(3):134–43.
2. Marshall BJ, Warren JR. Unidentified curved bacilli in the stomach of patients with gastritis and peptic ulceration. Lancet 1984;1:1311.
3. Pounder RE, Ng D. The prevalence of *Helicobacter pylori* infection in different countries. Aliment Pharmacol Ther 1995;9(Suppl 2):33.
4. Torres J, Leal-Herrera Y, Perez-Perez G, Gomez A, Camorlinga-Ponce M, Cedillo-Rivera R, et al. A community-based seroepidemiologic study of *Helicobacter pylori* infection in Mexico. J Infect Dis 1998;178:1089.
5. McColl, KE. *Helicobacter pylori* infection. N Engl J Med 2010;362:1597–604.
6. Al Faleh FZ, Ali S, Aljebreen AM, Alhammad E, Abdo AA. Seroprevalence rates of *Helicobacter pylori* and viral hepatitis A among adolescents in three regions of the Kingdom of Saudi Arabia: is there any correlation? Helicobacter 2010;15(6):532–7.
7. Alfaresi MS, Elkoush AA. Characterization of clarithromycin resistance in isolates of *Helicobacter pylori* from the UAE. Indian J Gastroenterol 2010;29(3):116–20.
8. Morgan DR, Torres J, Sexton R, Herrero R, Salazar-Martinez E et al. Risk of recurrent *Helicobacter pylori* infection 1 year after initial eradication therapy in 7 Latin American communities. JAMA 2013;309(6):578–86.
9. Horwitz LI, Moriarty JP, Chen C, Fogerty RL, Brewster UC, Kanade S, et al. Quality of discharge practices and patient understanding at an academic medical center. JAMA Intern Med 2013;173(18):1715–22.
10. Al-Azri M, Al-Ramadhani R, Al-Rawahi N, Al-Shafee K, Al-Hinai M, Al-Maniri A. Patients' attitudes and experiences of relational continuity in semi-urban general practices in Oman. Fam Pract 2014;31(3):303–10.
11. Available at: http://www.un.org/esa/population/publications/countryprofile/saudiarabia.pdf [accessed March 23, 2014].
12. Available at: http://www.theedge.me/human-capital-qatars-battle-to-retain-its-talent/ [accessed March 23, 2014].
13. Gardner A, Pessoa S, Diop A, Al-Ghanim K, Le trung K, Harkness L. A portrait of low-income migrants in contemporary Qatar. J Arabian Studies 2013;3(1):1–17.
14. Available at: http://www.voltairenet.org/IMG/pdf/Migration_and_the_Gulf.pdf [accessed March 23, 2014].
15. Available at: http://www.wbjournal.com/article/20121126/PRINTEDITION/311219985/the-vanishing-private-practice [accessed March 23, 2014].
16. Alexander SC, Keitz SA, Sloane R, Tulsky JA. A controlled trial of a short course to improve residents' communication with patients at the end of life. Acad Med. 2006;81(11):1008–12.
17. Duke SA, Colagiuri S, Colagiuri R. Individual patient education for people with type 2 diabetes mellitus. Cochrane Database Syst Rev 2009;1:CD005268.
18. Available at: http://www.ncbc.com/uploads/library/20090630-123912eGCC%20Healthcare%20-%20NCBC%20Research.pdf [accessed March 23, 2014].
19. Meltzer D. Hospitalists and the doctor–patient relationship. J Legal Stud 2001;30(2):589–606.
20. Wachter RM, Pantilat SZ. The "continuity visit" and the hospitalist model of care. Am J Med 2001;111(9B):40S–42S.
21. Rosenbloom AH, Jotkowitz A. The ethics of the hospitalist model. J Hosp Med 2010;5(3):183–8.
22. Sundar I. *Medical tourism competition and comparative advantages: the case of India*. International Conference on Arts, Economics and Literature (ICAEL'2012) December 14–15, 2012, Singapore.
23. Available at: http://inc.iirme.com/Sites/HospitalBuild/v1/Downloads/resources/articles/Regional%20healthcare/regional_healthcare.pdf [accessed March 27, 2014].
24. Al-Hinai S, Al-Busaidi A, Al-Busaidi I. Medical tourism abroad: a new challenge to Oman's health system—Al Dakhilya region experience. Sultan Qaboos Univ Med J 2011;11(4):477–84.
25. McAlister FA, Youngson E, Bakal JA, Kaul P, Ezekowitz J, van Walraven C. Impact of physician continuity on death or urgent readmission after discharge among patients with heart failure. CMAJ 2013;185(14):E681–9.
26. Liu J, Liu Z, Ding H, Yang X. Adherence to treatment and influencing factors in a sample of Chinese epilepsy patients. Epileptic Disord 2013;15(3):289–94.
27. Available at: http://www.arabtimesonline.com/NewsDetails/tabid/96/smid/414/ArticleID/199935/reftab/69/Default.aspx [accessed April 4, 2014].
28. Jacobs AK. Rebuilding an enduring trust in medicine. Circulation 2005;111:3494–8.
29. Rowe R, Calnan M. Trust relations in health care—the new agenda. Eur J Pub Health 2006;16(1):4–6.
30. Hellesø R. Strømseng Sjetne I. Norwegian hospital nurses' satisfaction with the electronic patient record and associations with informational continuity during shift changes. Nurs Inform 2012;2012:166.
31. Scobie A. Self-reported medical, medication and laboratory error in eight countries: risk factors for chronically ill adults. Int J Qual Health Care 2011;23(2):182–6.
32. De Maeseneer JM, De Prins L, Gosset C, Heyerick J. Provider continuity in family medicine: does it make a difference for total health care costs? Ann Fam Med 2003;1(3):144–8.
33. Davis KL, Candrilli SD, Edin HM. Prevalence and cost of non-adherence with antiepileptic drugs in an adult managed care population. Epilepsia 2008;49(3):446–54.
34. Available at: http://www.ahrq.gov/professionals/systems/hospital/qitoolkit/index.html [accessed March 26, 2014].
35. Sparbel KJ, Anderson MA. Integrated literature review of continuity of care: Part I, conceptual issues. J Nurs Scholash 32(1):17–24.
36. Available at: http://www.ey.com/EM/en/Newsroom/News-releases/7-Jan-14-GCC-healthcare-spending-expected-to-grow-11-4--from-2010-2015 [accessed March 27, 2014].
37. Available at: http://www.arabhealthonline.com/IndustryNews/GCC-healthcare-spending-to-reach-44bn-by-2015/ [accessed March 27, 2014].
38. Branch WT, Arky RA, Woo B, Stoeckle JD, Levy DB, Taylor WC. Teaching medicine as a human experience: a patient-doctor relationship course for faculty and first-year medical students. Ann Intern Med 1991;114(6):482–9.
39. Douglas KS. Through the eyes of gratitude. Nurs Econ 2012;30(1):42–4, 49.
40. Stockdale SE, Sherin JE, Chan JA, Hermann RC. Barriers and strategies for improving communication between inpatient and outpatient mental health clinicians. BMJ Qual Saf 2011;20(11):941–6.

41. Team follows at-risk patients after discharge. Hosp Case Manag 2013;21(6):83–5.
42. Shanafelt TD, Boone S, Tan L, Dyrbye LN, Sotile W, Satele D et al. Burnout and satisfaction with work-life balance among US physicians relative to the general US population. Arch Intern Med 2012;172(18):1377–85.
43. SNF visits help hospital reduce LOS, readmissions. Hosp Case Manag 2013; 21(4):52–3.
44. Johnson MB, Laderman M, Coleman EA. Enhancing the effectiveness of follow-up phone calls to improve transitions in care: three decision points. Jt Comm J Qual Patient Saf 2013;39(5):221–7.
45. Finkelstein SM, Speedie SM, Potthoff S. Home telehealth improves clinical outcomes at lower cost for home healthcare. Telemedicine J E Health 2006;12(2):128–36.

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