

Chapter 22

Patient-Centered Medical Home



Priya Radhakrishnan

Introduction

The Patient Centered Medical Home (PCMH) is a care of delivery model aimed at providing coordinated care for patients with complex, chronic medical problems. Residency and faculty practice clinics typically care for patients who have a high burden of chronic disease and belong to populations that are traditionally underserved. With the focus on health care moving towards demonstrating outcomes, PCMH transformation is invaluable in providing pathways for improving the care for patients. This chapter focuses on providing an overview of PCMH within the academic Internal Medicine clinic.

Learning Objectives

1. Review the broad historical significance of PCMH and define major PCMH concepts.
2. Describe the benefits of implementing PCMH in an academic practice.
3. Understand the role of a clinic director in applying for and maintaining PCMH recognition.
4. Use case studies to learn about common issues that arise during the transformation process.

P. Radhakrishnan, M.D., F.A.C.P.
HonorHealth, Scottsdale, AZ 85255, USA
e-mail: Priya.Radhakrishnan@honorhealth.com

Outline

- PCMH history and evolution
- PCMH certification/recognition
- Initial application
- Data
- Maintaining certification
- Engaging faculty
- Engaging patients and patient advisory councils
- Potential problem areas
 - Case Study 1
 - Case Study 2
 - Case Study 3

PCMH History and Evolution

The patient-centered medical home (PCMH) is a model of care delivery that is designed around the needs of the patients and has its foundational elements in care coordination and communication. Originally developed as a method of delivering primary care to patients with complex chronic conditions, it has evolved into one of the building blocks for health-care delivery reform [1] and now includes the entire patient population. The term was first coined in 1967 by the American Academy of Pediatrics to describe care models needed for children with special needs and modified in 1978 by the Hawaiian pediatrician Calvin Sia [2]. The principles were later adopted and ratified by the national primary care organizations: the American Academy of Family Physicians, American Academy of Pediatrics, American College of Physicians, and American Osteopathic Association who developed the Joint Principles of the Patient-Centered Medical Home [3].

Adapted from the Agency for Healthcare Research and Quality (AHRQ) definition [4], the Patient-Centered Primary Care Collaborative (PCPCC) describes the medical home as “an approach to the delivery of primary care,” that is:

- Patient centered: A partnership among practitioners, patients, and their families ensures that decisions respect patients’ wants, needs, and preferences and that patients have the education and support they need to make decisions and participate in their own care.
- Comprehensive: A team of care providers is wholly accountable for a patient’s physical and mental health-care needs, including prevention and wellness, acute care, and chronic care.
- Coordinated: Care is organized across all elements of the broader health-care system, including specialty care, hospitals, home health care, community services, and supports.

- Accessible: Patients can access services with shorter waiting times, “after-hours” care, 24/7 electronic or telephone access, and strong communication through health information technology (HIT) innovations.
- Committed to quality and safety: Clinicians and staff enhance quality improvement to ensure that patients and families make informed decisions about their health.”

The Society of General Internal Medicine took a leadership role in 2009 and convened a series of conferences aimed at evaluating the efficacy of the PCMH movement. It was not until the Patient Protection and Affordable Care Act (also known as the ACA or “Obamacare”) was signed into law by President Barack Obama in 2010 that the model truly gained national attention. The law included provisions for enhancing primary care and medical homes, primarily through increased reimbursement from Medicare and Medicaid. The passage of this act prompted widespread pursuit of PCMH certification among clinics and organizations seeking enhanced reimbursement for the transformation [5]. Subsequently, the Centers of Medicare and Medicaid Innovation (CMMI) have announced several demonstration projects such as Comprehensive Primary Care Plus (CPC+) [6] that seeks to strengthen primary care through the development of regionally based multi-payer payment reform and care delivery transformation.

The evidence regarding the success of the PCMH is mixed. Early studies demonstrated reduction in some rates of utilization but not others [7]. However, as the model has matured, the data systems have improved, and payment reform has become more robust; there is increasing evidence of the efficacy of the PCMH transformation. Paustian et al. [8] in their study found that increased adoption of the PCMH domains of function (such as the use of PCMH communication tools, use of an all-payer registry, generation and use of performance reports, and tracking of metrics and 24/7 access) correlated positively with improvements in cost and quality. The impact of the PCMH model of care appears to improve with the degree of PCMH implementation achieved and with incremental improvements yielding higher in implementation [8]. Not unexpectedly, the maturity of PCMH processes also appeared to correlate with the cost savings [9].

PCMH primary care practices vary in their structure based on geography, size of the practice, patient population, etc. It is not a “one-size-fits-all” framework. Some of the factors that inform the unique characteristics of a medical home include its location (i.e., urban versus rural setting), composition (e.g., solo/small practice, midsize primary care practice, large multispecialty practice, academic-affiliated practice, etc.), the patient population it serves (e.g., health status, other social and economic characteristics), and whether financial or performance incentives are provided.

Regardless of the specifics of the practice, PCMH adoption starts with the practice leadership committing to transformation and a payment structure to support the process [10]. The clinic director is instrumental in driving and sustaining the change needed. As the primary care payment becomes clearly linked to the demonstration of quality metrics (by the implementation of the Merit-based Incentive Payment

System—MIPS) [11], academic practices, led by the faculty and the clinic leadership, have the unique opportunity to designing quality improvement projects with the residents. Academic clinics with residency programs, particularly those affiliated with hospital systems, tend to have more incentives to use HIT to leverage shared resources such as care coordination and data analysis. Partnerships with the hospitals or Accountable Care Organizations (ACOs) can lead to reducing inappropriate emergency room visits and readmissions. The larger hospital systems also have incentives to fund PCMH programs in academic clinics.

PCMH Certification/Recognition

There are several organizations that have accreditation or recognition programs that clinics can apply to get an “official” PCMH status. The National Council on Quality Assurance (NCQA) PCMH recognition is one of the most widely adopted models for transforming primary care practices into medical homes. Other programs include the Utilization Review Accreditation Commission (URAC), the Joint Commission Primary Care Medical Home Program, and the Accreditation Association for Ambulatory Health Care Medical Home Program. All the certification programs have costs associated with the application and maintenance of the standards. It is important to note that the NCQA is currently in the process of updating the PCMH recognition program in 2017. The redesign is based on the feedback from all stakeholders (including practices, policymakers, and payers). It is aimed at making the certification process more flexible and user-friendly, is focused on personalized service, and will require annual check-ins to ensure continuous improvement, a major change from every 3-year submission of data.

A major difference among the organizations is the method of certification/recognition: NCQA conducts a self-attestation, whereas the URAC, the Accreditation Association for Ambulatory Health Care, and the Joint Commission use on-site surveyors [12]. The NCQA recognizes residency training program sites in their PCMH program; however, the data attribution is done only for the practice and attending physicians, and the residents who rotate in those practices are not recognized [13].

Initial Application

As with any major program that has an impact on the fundamental structure, it is important to engage the leadership (system/hospital/medical group/health center). In addition, it is important to get buy-in from the residency program and staff leadership. In large health systems, it is not unusual for the system leadership to decide to pursue NCQA recognition and bring in the clinic and residency leadership to implement the process.

Either pathway requires a feasibility analysis. Based on my experience, it is important for the clinic director or manager to assemble a small leadership group. This group should include all stakeholders (e.g., patients, staff from the front and back office, nurses, physicians, residents, and HIT personnel). The process of application for certification is long and onerous. The group should pick the organization for recognition/certification based on discussions with the health system leadership. Familiarity with the certifying organization (by means of existing centers of excellence, patient safety standards, or preferences from the payer with whom the pilot is considered) should be considered. Champions should be identified early.

The PCMH transformation process must be approached methodically, and a project manager should be assigned. The approach used to manage the project may begin with a simple system such as a wall of sticky notes and supported by software such as Smartsheet™, Microsoft Evernote™, or Excel™. Many EHRs have built-in registry functions or population health tools that can aid the process. However, it is important to recognize that considerable work may be needed to improve the quality and attribution of the data set, based on the organizational HIT sophistication. Many of the PMCH standards map directly to the Meaningful Use measures that were required by the Medicare and Medicaid EHR Incentive Programs [14, 15] and are available to most clinics that have participated in the program. The Meaningful Use program was aimed at “using certified electronic health record (EHR) technology to: improve quality, safety, efficiency, and reduce health disparities; engage patients and family; improve care coordination; and population and public health; maintain privacy and security of patient health information” [14]. Taking an inventory of available reports and mapping them to the standards help with organization of the data. This should be followed by development of workflows to manage the transformation.

The certifying organizations have clearly organized educational sessions (conferences, webinars, and checklists), all of which are very helpful in the process. The team that is involved in the certification or recognition process should meet regularly, with a predetermined agenda using project management techniques to ensure timely completion of the process. Initial certification should take between 3 and 12 months based on the resources available [16]. The levels of recognition are based on a point system.

Patient involvement must begin at the outset of the PCMH recognition process. It is not unusual for clinics to start the process and add patients or develop a Patient Advisory Council (PAC) as an afterthought. In order that the process is truly patient centric, attention must be paid to inviting patients to join the transformation early on, with clear goals and educational sessions for the patients. Patient representatives can provide the clinic with insight into most of the processes and are typically willing partners for transformation. Involving residents and staff to attend the PAC meetings and giving them a formal seat at the table promote collaboration and involvement of the entire team in the transformation process.

As with any transformative process, the clinic director plays a significant role in championing the project, marketing it to faculty colleagues and residents, and

developing small quality improvement projects that involve faculty, residents, and students to help with the certification process.

Engaging the residency program director and faculty is advantageous to both the clinic leadership and the residency program. PCMH transformation fits well into the Clinical Learning Environment Review (CLER) focus areas [17] defined by the Accreditation Council of Graduate Medical Education (ACGME). Involving residents and faculty will also ensure that the residency program is enhanced by the process. For example, many residency clinics care for large populations of patients with significant health-care disparities; integrating the PCMH curriculum within residency training can inspire residents to make changes in their practices and witness real-time transformation. Using a standard process for quality improvement such as Plan-Do-Study-Act and following the Standards for Quality Improvement Reporting Excellence (SQUIRE) [18] guidelines on reporting quality improvement make this exercise into an academic project worthy of scholarship.

Data

Increasingly in today's data-driven health-care environment, there is almost a visceral reaction that most physicians display while being given their data.

Per Sandy et al., "In today's health-care environment where the practice of medicine is increasingly data-driven, it is important for physicians to develop appropriate practice management actions based on the data, and avoid both overreaction and underreaction" [19]. This source further notes that there is a positive association between the NCQA recognition program and achieving quality benchmarks, but it may also negatively associated with achieving efficiency benchmarks. The efficiency benchmark tends to be achieved at a later stage of PCMH transformation predominantly due to the addition of new workflows while simultaneously failing to remove redundant processes especially in the early stages. In order to ensure that efficiency and costs are contained, while applying for and subsequently maintaining certification, it is important for the clinic leadership to manage overall processes using strategies such as Lean Six Sigma to reduce the additional burden on staff and faculty" [19].

The clinic data team involved in developing the reporting framework must initially educate themselves on the quality of data. Despite significant widespread adoption of electronic health records, lack of good quality data is often the norm rather than the exception. Being prepared to evaluate and help "clean the data" is an important step that will determine the success of the transformation.

It is important that the faculty members who are responsible for the standards be accountable to the PCMH team in ensuring that the standards are met. Increasing numbers of residency clinics have dedicated administrative time built into block clinic rotations to achieve this objective. It is important both for the residents and supervising faculty that there exist clear expectations and a curriculum that defines

the best use of this administrative time to complete tasks and to mobilize the care coordination essential for patient-centered care. This is an important venue of engaging the learners (residents as well as the faculty who may not be familiar with the process of data measurement and improvement). Having a robust PCMH program can lead to innovative curricula and programs that may, in turn, attract a higher caliber of residents and faculty.

Maintaining Certification

Achieving certification or recognition is the first step in the process of PCMH transformation. To ensure that the process is woven into the fabric of the clinic, the clinic director and leadership should model the patient-centered behaviors such as ensuring expanded access to care, timely reporting of test and referral results, accommodating patient preferences, and shared decision-making. Unless attention is paid to the continuous process of quality improvement, it is not unusual for clinics to have lapses. Having PCMH reports (based on the reporting criteria) at faculty and resident meetings as a standing agenda item is recommended to ensure continuous improvement.

In a residency/faculty practice, access to care is often limited due to conflicting schedules, teaching conferences, and other activities in the academic department. Expanding the care team and redesigning the process of care delivery by including with redesigning the team [20], including pharmacists and nurses to deliver chronic care, training medical assistants to be partners in health-care delivery [21], and using email, text messaging, and telemedicine often improve access to care.

For clinics with many high-risk or vulnerable patients (i.e., significant needs around the social determinants of health, behavioral health problems, pain and addiction, or homelessness), multidisciplinary rounding has been shown to be effective (with the involvement of the entire care team including home visit nurses and social workers when indicated) [22]. Developing multidisciplinary team-based rounding requires a significant preparation of agendas, process for identification or referral of patients, and regular follow-up.

Engaging Faculty

Academic faculty practice clinics often are staffed by part-time faculty who have multiple administrative or academic responsibilities or those who may be pursuing part-time careers. This often causes problems with continuity of care. Team-based models are optimal for such practices which should include other members such as nurse practitioners or pharmacists to ensure that the care is truly patient centered and not physician centric.

Engaging Patients and Patient Advisory Councils

As previously noted, patients are a valuable and a necessary partner during the transformation. One common error during the process is that while PACs are developed, these advisory councils are not educated nor empowered to make decisions.

While developing a PAC, it is important to spend time defining the makeup of the PAC and to identify the resources needed. The PAC must represent the community of patients. Clinics with high numbers of non-English-speaking patients should make a special attempt to bring interpreters and present materials (agendas and information) in the appropriate language.

It is also important to share the data with the PACs to seek their help in the improvement process. In the author's experience, patients can help with setting agendas, improving satisfaction scores by serving as "secret shoppers," and developing pre-visit questionnaires. Academic clinics with empowered PACs are also positioned to apply for Patient-Centered Outcomes Research Institute (PCORI) grants. They are also helpful in piloting initiatives around shared decision-making and providing the patient perspective on high-value care.

Potential Problem Areas

Case Study 1

The NCQA recognized primary care clinic has a robust process for quality improvement that includes stakeholder analysis prior to beginning any improvement project. The health system undergoes leadership change, and the new leadership, under pressure from the Accountable Care Organization, decides to centralize all data management without consulting the physicians or clinic leadership. They decide to tackle the problem of monitoring controlled substance (CS) prescriptions, especially opioids, by making a registry of patients who were prescribed any CS. The pharmacist at the centralized system runs reports of the patients who are on opioid medications per the EHR and sends an email to each physician, whose name was on the list of controlled substance prescription registry, stating that they are noncompliant with the opioid policy and need to "clean up the list" or else they would be reported to the Chief Medical Officer (CMO). At the newly formed quality meetings, the CMO picks on "noncompliant" physicians and portrays them as bad doctors. The clinic director who attends these meetings is embarrassed and relays to the faculty that they need to work on their lists. He starts a QI project with a PDSA cycle. As the team reviews the data, it becomes obvious that the data is incorrect. The list contains the names of patients who have not actually received opioid prescriptions but have the medication on their medication list. It also includes patients who have not been seen for over 2 years and have not received care or refills from the clinic. The director sends an email detailing the problems with the data and

expresses his frustration with the method. The pharmacist tells the director that it is not his problem and he should address this with the CMO.

This is not an uncommon scenario in many organizations that take a shotgun approach to try to improve quality. PCMH transformation is heavily dependent on a data-driven approach to improvement. As health systems try to accelerate their improvement, the single most important factor that determines success is effective communication. A “shaming” tactic leads to lack of trust and burnout due to lack of perceived value.

It is a good idea for the clinic director to try to work with the pharmacist and the hospital administration to resolve this issue. There is valid concern about having clean processes for safe prescribing of CS, given the opioid epidemic. In this case, communication can be improved using a standard communication tool [23–25]. SBAR (Situation, Background, Assessment, and Recommendation) and A3 are commonly used tools that have been used effectively in health care. The clinic director in this case also looked for external resources and identified a staff member who was placed on modified duty to prioritize work with the list, as this was obviously an important topic for the leadership. The clinic also improved their scores by enlisting the support of the refill nurse who reviewed all opioid prescription requests and ensured that patients on chronic opiates had controlled substance agreements and random drug screens.

It is important for physician leadership to be sensitive to the nuances of quality improvement and system transformation, failure of which leads to increased burnout and physician dissatisfaction. This case highlights the importance of communication styles in process improvement. PCMH champions, including the clinic director, must manage communication styles to avoid burnout.

Case Study 2

The PCMH team, including clinic director Dr. AA, nurse BB, medical assistant CC, and clinic manager DD, meets with their designated Health IT counterparts to discuss the PCMH report generation that is required for their reporting. They have picked breast cancer screening with mammography as one of their preventive measures.

During the meeting, they are presented with the initial reports. Dr. AA reviews her report and is flabbergasted by the fact that her breast cancer screening rate by mammography is only 2%. This leads to a contentious discussion; Dr. AA claims that the “data is bad” and that this process cannot go on. Dr. AA reviews the first 20 patients on the list and finds that a couple were men, another had a bilateral mastectomy, and many were under the age of 40 and didn’t meet the screening criteria. Several more had undergone mammograms but showed up erroneously in the report as not having undergone the process. She sent this information to the IT team who reconfigured the registry and reran the report. After these changes, the new report showed her screening rate at 40%.

The team then developed breast cancer screening workflows with the medical assistants, nurses, and physician champions. Two of the physician champions who

had baseline mammography rates of 40–45% improved their rates to 70% after the intervention.

Data, data, data! Attribution and validity continue to challenge systematic health-care delivery reform efforts. Physicians reeling under national changes in health-care delivery have had a common refrain that the data is incorrect and they are, for the large part, correct.

It is important that, as a physician leader, the clinic director understands and owns this problem. Most commonly, the clinic director joins the chorus leading to a stalemate and lack of progress. To validate the data set, the PCMH team should review small sets of data (e.g., one provider within a short time frame) and communicate errors to the team. Some organizations have personnel in their IT teams whose sole responsibility is to validate the data; others do not. This process can be time-consuming but is incredibly important in “cleaning the data.” Team-based verification (i.e., members of the team working with small data sets and collaborating closely with the IT team) helps to continuously improve the data quality.

Case Study 3

Dr. AA and Dr. EE are ecstatic that they worked out the kinks in the mammography report and improved their rates to 70%. They feel confident that their processes and workflows are excellent. The teams (physicians and medical assistants) present their workflows at a faculty meeting and note that the process allows medical assistants to order the mammograms after verifying eligibility.

When they present their accomplishments, some of the physicians in their group are concerned about the delegated responsibility. One notes, “How can I let an MA order mammograms? It is my license on the line.” Two of the physicians refuse to let the MAs order mammograms on their behalf. The rest of the faculty are split. At the next faculty meeting, one of the physicians notes that her MA ordered the test for a patient who had a mastectomy. The faculty continue to oppose clinic-wide implementation of standardized order sets for ordering mammograms by staff, stating that they do not want to practice “cookbook medicine.” The clinic director decides not to implement clinic-wide order sets; instead the director continues to present the screening rate data.

This is a common issue among physicians who are concerned about delegated responsibility. To ensure that their concerns are addressed, education of the care team is important. While in some instances making an executive decision to implement order sets may be an option, getting buy-in and continuously reviewing the transformational process build a culture of trust and reliability. In this case, the clinic director chose to continue to review the mammography rates at every faculty meeting. Once a critical mass of physicians and providers continued to improve, he unblinded the screening reports. Physicians who worked with their teams had a higher rate. In addition, he used storytelling with accounts of satisfied patients at each meeting. Ultimately, there was universal adoption of order sets, and clinic screening rate improved to 80%.

Conclusion

The journey of transformation is long and arduous with several bumps on the way. The PCMH is an important step toward improving the health system. The clinic director plays an important role in leading the transformation efforts as well as acting as a cheerleader for the efforts.

- PCMH transformation is vital for academic clinics to ensure that they truly provide high-value care: take care of patients with complex chronic diseases and be at the forefront of population health initiatives.
- Clinic directors are in the unique position to help lead the transformation efforts and guide projects to ensure that the transformation efforts support the scholarly activities to fulfill ACGME requirements for residents and faculty.
- While initiating or maintaining the PCMH designation, the clinic director is instrumental in ensuring success of the efforts.

References

1. Adamson M. The patient-centered medical home: an essential destination on the road to reform. *Am Health Drug Benefits*. 2011;4(2):122–4.
2. Sia C, Tonniges TF, Osterhus E, Taba S. History of the medical home concept. *Pediatrics*. 2004;113(5 Suppl):1473–8.
3. American Academy of Family Physicians; American Academy of Pediatrics; American College of Physicians; American Osteopathic Association (March 2007). “Joint principles of the patient-centered medical home” (PDF). Retrieved 2009-06-30.
4. Defining the PCMH. US Department of Health and Human Services. <https://www.pcmh.ahrq.gov/page/defining-pcmh>
5. About the Law. US Department of Health and Human Services. <https://www.hhs.gov/healthcare/about-the-law/read-the-law/>
6. Comprehensive Primary Care Plus. Centers for Medicare and Medicaid Services. <https://innovation.cms.gov/initiatives/Comprehensive-Primary-Care-Plus>
7. Reid R, Fishman P, Yu O, Ross T, Tufano J, Soman M, Larson E. Patient-centered medical home demonstration: a prospective, quasi-experimental, before and after evaluation. *Am J Manag Care*. 2009;15(9):e71–87.
8. Paustian M, Alexander J, El Reda D, Wise C, Green L, Feters M. Partial and incremental PCMH practice transformation: implications for quality and costs. *Health Serv Res*. 2014;49(1):52–74. Epub 5 July 2013.
9. Carlin C, Flottemesch T, Solberg L, Werner AJ. System transformation in patient-centered medical home (PCMH): variable impact on chronically ill patients’ utilization. *J Am Board Fam Med*. 2016;29(4):482–95.
10. Doolittle B, Tobin D, Genao I, Ellman M, Ruser C, Brienza R. Implementing the patient-centered medical home in residency education. *Educ Health*. 2015;28:74–8.
11. The merit-based incentive payment system (MIPS). Centers for Medicare and Medicaid Services. The Medicare Access and Chip Reauthorization Act of 2015. <https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/MACRA-MIPS-and-APMs/Quality-Payment-Program-MIPS-NPRM-Slides.pdf>
12. Grimshaw H. The download comparing PCMH accreditations. *MGMA Connection Magazine*. 21 Nov 2014.

13. Gans D. A comparison of the national patient-centered medical home accreditation and recognition programs medical group management association. Medical Group Management Association. Englewood. 30 Jan 2014. <http://www.medicalhomesummit.com/readings/A-Comparison-of-the-National-Patient-Centered-Medical-Home-Accreditation-and-Recognition-Programs.pdf>
14. How to implement EHRs. Achieve meaningful use. HealthIT.gov. <https://www.healthit.gov/providers-professionals/ehr-implementation-steps/step-5-achieve-meaningful-use>
15. Blumenthal D, Tavenner M. The “meaningful use” regulation for electronic health records. *N Engl J Med*. 2010;363(6):501–4.
16. PCMH walkthrough. NCQA.org. <http://www.ncqa.org/programs/recognition/practices/patient-centered-medical-home-pcmh/pcmh-walkthrough>
17. Accreditation Council for Graduate Medical Education (ACGME). Clinical learning environment review (CLER). <http://www.acgme.org/What-We-Do/Initiatives/Clinical-Learning-Environment-Review-CLER>
18. SQUIRE. Squire statement. <http://www.squire-statement.org/>
19. Sandy L, Haltson H, Metfessel B, Reese C. Measuring physician quality and efficiency in an era of practice transformation: PCMH as a Case Study. *Ann Fam Med*. 2015;13(3):264–8.
20. Chronic disease and the health care delivery system. National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK). <https://www.niddk.nih.gov/health-information/health-communication-programs/ndep/health-care-professionals/team-care/Pages/publicationdetail.aspx>
21. Strong T. Care team redesign: transforming medical assistant roles in primary care. *Healthaffairs.org*. 11 Mar 2015. <http://healthaffairs.org/blog/2015/03/11/care-team-redesign-transforming-medical-assistant-roles-in-primary-care/>
22. Quan X, Joseph A, Keller A, Taylor E. Designing safety-net clinics for innovative care delivery models California Health Care Foundation. March 2011. <http://www.chcf.org/~media/MEDIA%20LIBRARY%20Files/PDF/PDF%20D/PDF%20DesigningClinicsInnovativeCareDeliveryModels.pdf>
23. Rizzo E. 10 patient handoff communications tools. *Beckers Infection Control and Clinical Quality*. 4 Sept 2014. <http://www.beckersasc.com/asc-quality-infection-control/10-patient-handoff-communications-tools-2014.html>
24. SBAR Toolkit. Institute for Healthcare Improvement. <http://www.ihl.org/resources/Pages/Tools/sbartoolkit.aspx>
25. Sobek D, Jimmerson C. A3 reports: tools for process improvement. <https://www.lean.org/Search/Documents/133.pdf>