Institute of Lean Healthcare

Primary & Specialist Healthcare Needs Process Improvement

INSTITUTE OF LEAN HEALTHCARE

EDWARD G ANDERSON

Executive Summary

As is well known, the U.S. healthcare System is excessively costly and has an unacceptable level of preventable deaths and other medical errors. This paper argues that primary and specialist care are a major source of these problems. Patients, physicians, and other personnel in primary and specialist care are all dissatisfied because of overwork, administrative complexity, medical errors, and excessive waiting times. Process improvement methodologies could address many of the sources of these problems. Hence, process improvement efforts—until now undertaken almost exclusively in hospital environments—must also be employed in primary and specialist care settings.

Introduction

Most process improvement initiatives are focused on hospitals rather than primary and specialist care. The purpose of this paper is to argue that improvement in primary and specialist care is also crucial. Primary and specialist healthcare in the U.S. is responsible for costs and adverse events at a level comparable to or greater than that in hospital settings. Moreover, patients, physicians, and staff in practices are all dissatisfied. The source of these problems appears to be an ad-hoc approach to primary and specialist care operations. The result is poor process design, inefficient personnel utilization, lack of communication within and between practices, and poor management of the patient experience. Hence, the opportunities for process improvement in primary and specialist care are promising.

Cost of Primary and Specialty U.S. Healthcare

The excessive cost of healthcare in the U.S. is well known. It represents 17.8% of the U.S. GDP or $3.2 trillion annually as of 2015. This translates into a per-capita cost of approximately $10,000 per year (CMS 2015).

What is often not appreciated is how much primary and secondary practices contribute to healthcare costs. Healthcare spending on primary and specialist practices in 2015 was 20% of overall healthcare spending vs. hospital care at 32%. (With a slight abuse of terminology, hereafter, primary and specialist care will be referred to as outpatient care and their practices as outpatient clinics.) Pharmaceuticals, many of which are prescribed by outpatient practices, accounted for an additional 10% of spending. Hence, spending on primary and specialist care is comparable to that of hospitals (CMS 2015). Despite that, the general focus of improvement effort remains focused on hospitals rather than outpatient settings. (Bishop et al. 2011, Manning 2017)

Despite the fact that the U.S. spends roughly double the percent of its GDP on healthcare relative to other OECD countries, visits to U.S. primary and specialist practices are fewer. U.S. patients make 4 outpatient visits per year on average in comparison with the OECD average of 6.5 visits per year. Hence, the U.S. consumer is spending more money on healthcare, but having fewer visits to the physician (Squires & Anderson 2015).

Quality of Primary and Specialty U.S. Healthcare

SAFETY

Medical errors and preventable adverse events are prevalent in outpatient settings. Much has rightly been made of recent studies showing that avoidable deaths in hospitals number approximately 400,000 per year. In addition, perhaps 10 times that many patients experience life-threatening, though non-fatal consequences (James 2013). As with cost, most process improvement work in private and government sectors on safety has focused on hospitals (Bishop et al. 2011). Data on deaths and other avoidable harms in outpatient care is much sparser. Yet there is some evidence. In one study of seven diverse practices, 24% of visits resulted in errors and preventable adverse events (Elder et al. 2004). Misdiagnosis in outpatient settings is thought to be the leading cause of medical error (Bishop et al. 2011). Additionally, in 2006 the Institute of Medicine estimated that 530,000 annual medication errors and preventable adverse events resulted in injuries among Medicare patients in outpatient settings alone. This is approximately 33% more than occur in hospital settings *for both Medicare and non-Medicare patients* (Institute of Medicine 2006).[*]

PATIENT DISSATISFACTION
Patients are also dissatisfied with the outpatient experience on a number of fronts. Healthcare, particularly in a clinical setting, is clearly a service. Yet the basic elements of what patients want from a good service experience in healthcare are lacking (Cordina et al. 2017). "Staff dragons" in outpatient settings can often be rude or otherwise unpleasant to deal with (Leape et al. 2012a, 2012b, CFAH 2013, Savastano 2015), and many calls are dropped by the clinic's front office (Leap et al. 2012b, James et al. 2015). Even providers can be derisive to and dismissive of patients and their concerns (Leape et al. 2012a, Raman and Tucker 2011.) Then there is waiting. An average patient visit lasts 84 minutes, 64 of which are spent waiting or filling out forms. Only 20 minutes are face-to-face with the physician. Interestingly, in hospital settings, evidence suggests that few if any well-known measures to make the patients comfortable during waiting are actually employed (Hopp & Lovejoy 2012). Studies in this aspect of outpatient care are lacking to the best of the author's knowledge. From the author's own observations, however, this lack appears to be true in many outpatient settings as well. For example, an internet search on "advertising in physician offices" reveals an apparently booming industry in waiting room and exam room television advertising. For example, one site states "Advertisers love a captive audience. With their long dwell time, doctor's offices offer one of the most captive audiences available in out-of-home advertising" (Medialife 2017). One of these advertisers, AccentHealth, claims to serve more than 30,000 physician waiting rooms in the U.S. (Fox 2016). Reports in The Huffington Post, among other sources, suggest that many patients these intrusive (Fox 2016).

Moreover, the total opportunity cost to the patient of the time spent per physician visit is $43.[†] The result is a total cost of $52 billion dollars annually (as of 2010). The opportunity cost of a patient visit actually exceeds a patient's co-pay, which averages only $32 per visit. Nationally, lost time due to physician visits is 2.4 billion hours annually. Finally, for every $1.00 spent on clinical care, a $0.15 opportunity cost in respect to patient time is also incurred. (Ray et al. 2015)

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[*] Note that according to the sources, these are all conservative estimates.
[†] This includes the cost of 37 minutes travel time per 121-minute visit.

Patient dissatisfaction is problematic not only for patients, but also providers. Patients who are dissatisfied from excessive waiting, poor front office staff interaction, or both are much less pleasant to treat (Anderson & Wendt 2017). This likely contributes to physician, nurse, and other provider's burn-out.

PHYSICIAN DISSATISFACTION
Physicians engaged in clinical care are also dissatisfied. In a survey by the Physicians Foundation, 54% of physicians reported low morale, and 49% felt burnt-out. This is unsurprising as the average physician sees 99 patients and works 50 hours per week in family practices (Dolan 2014). 71% of physicians find patient relationships the most satisfying part of work, but 21% of their time is spent on non-clinical paperwork. Physicians feel that this time spent on paperwork detracts from care (Physicians Foundation 2016).

Consolidation into larger practices was supposed to help these problems, but it seems either to do nothing (Andes et al. 2002) or worsen (Gaynor & Pauly 1990) them. Nor are electronic health records helping. They may actually worsen the problems according to physicians (Dyrda 2016). Medical assistant scribes to enter EHR information for providers has been shown to help (Willard-Grace et al. 2014, Bodenheimer et al. 2014, Sinsky et al. 2013). Half of physicians would not recommend the profession to their children. Perhaps unsurprisingly, the percentage of physicians in independent practices or partnerships has dropped from 48.5% in 2012 to 33% today (Physicians Foundation 2016).

MEDICAL STAFF DISSATISFACTION
Nurses, physician assistants, and medical technologists are also dissatisfied. Nurses are particularly well researched with respect to these issues. Many are continually humiliated or treated with disdain by higher-level providers. "A sense of privilege and status can lead physicians to treat nurses with disrespect." (Leape et al. 2012a). This leads to many nurses burning out or leaving the nursing profession. (Leape et al. 2012a). This may be one reason behind the fact that nurses are often silent about medical problems. Another is if nurses often work with multiple physicians, preventing them from being on familiar terms with any physician (Anderson and Wendt 2017).

There is less information on mid-levels (nurse practitioners and physician assistants). However, an even greater fraction of them in primary care practices experience burnout than in physicians A good tightly-knit team in which members solely work with each other creates a culture can ameliorate burnout issues, but the majority do not (Willard-Grace et al. 2014). Anecdotal evidence exists that process improvement can promote such team structures (Anderson and Wendt 2017). There is even less information on medical assistants. However, what does exist suggests that most medical assistants do not work "at the top of their license," which is problematic as expanded responsibilities improve satisfaction with their jobs (Sinsky et al. 2013, Bodenheimer 2014).

FRONT OFFICE STAFF DISSATISFACTION
Staff are also dissatisfied. Staffs are shrinking due to declining revenues, so they are having to do more, racing from one task to another (Ritchie et al. 2014). The quality of their work is also slipping. As stated earlier, many calls are dropped each day, and many front line staffers

are rude in comparison to other service industries (Savastano 2015). However, there are reasons for these issues. Staffs are dealing with many competing demands. Check-in, insurance verification, and reminder calls must be made every day (James et al. 2015). Billing is particularly complex (James et al. 2015). New ICD-10 codes have complicated their work and reduced efficiency (Ritchie et al. 2014). In addition, there are many billing, test, and pharmaceutical problems for them to deal with every day, as discussed later in the paper. Unsurprisingly, 86% of mistakes made in the healthcare industry are administrative. For example, patient charts cannot be found for 30% of physician visits (Technology CEO Council 2007). In short, many front-line staff feel over-stressed. Despite the fact that hiring replacements can cost 20% of a staff member's salary, many outpatient clinics seem unable to keep staffers from seeking "more defined and less chaotic" jobs (Ritchie et al. 2014).

Source of the Problems
As pointed out earlier in this paper, consolidation was a suggested solution, but has not helped clinical practices. Nor is policy likely to be a panacea. One commonly suggested solution to inefficient healthcare services is a single-payer system. However, research shows that outpatient clinic problems in the U.S. also exist in countries with different healthcare policies. For example, Sweden, which has a socialized healthcare system, has many of the same outpatient problems as found in the U.S. (Porter 2010). So something beyond policy fixes is needed.

Based on research in hospitals, process improvement may prove a great help. For example, the well-respected Virginia Mason Medical Center has successfully adapted many aspects of the Toyota process improvement methodology to healthcare. However, little research has delved into applying process improvement to outpatient settings. On the PubMed article database in 2017 there were 184 statistical studies with respect to process improvement overall, yet only 5 concerned outpatient settings (Manning 2017). That said, recommendations abound for outpatient process improvement from numerous sources. Most of these seem to identify the same problems. Summarizing this work suggests that many areas in outpatient settings are amenable to process improvement. These areas include the following issues.

PROCESS AND LAYOUT
Most outpatient clinics lack standardized protocols, nor does there seem to any rationale for how processes are structured. Poor protocols and processes result in staff having to "run around" too much (Dolan 2014) as well as creating numerous handoff problems (James et al. 2015). Patient charts cannot be found for 30% of patient visits (Technology CEO Council 2007). Exacerbating these problems at all levels is a widespread lack of communication within practices (James et al. 2015).

To mange the chaos, personnel have to pitch in wherever they can, resulting in their working in activities appropriate to lesser qualified—and less expensive—personnel (James et al. 2015). Because personnel in outpatient settings do not work "at the top of their license," hiring decisions for a proper mix of employees are hard to determine (James et al. 2015). This is particularly problematic as one of the largest—if not the largest—problems outpatient clinics face are personnel costs (Ritchie et al. 2014).

APPOINTMENTS

Another issue is how patients flow through outpatient clinics. 30% of appointments are no-shows. The patients who do show up are often late. Appointment durations are unpredictable. Sometimes appointments that are nominally 15 minutes end up lasting 60 minutes (James et al. 2015). Paperwork exacerbates appointment variability as described below. Hence, personnel scheduling is difficult, lengthens wait time, and often reduces utilization, particularly of physicians (Anderson et al. 2013, Han 2013).

PATIENT PAPERWORK

Paperwork is a particularly bad problem in outpatient settings (Han 2013). If the patient has not already filled out the necessary forms before a clinic visit, an additional 20 minutes of time is wasted during the visit (Dolan 2014). Portals would help this, but typically are lacking (Dolan 2014). Interoperability issues between electronic health records are also a problem, as information entered in one healthcare organization often cannot be transferred to another (Dyrda 2016). In fact, one time, the author saw it within the same practice. The practice's electronic health record system had changed at the beginning of the New Year. After that time, each patient had to be entered as a new patient and filled out a new set of paperwork. Aside from increasing variability in time spent at a clinic and hence average length of time (Anderson et al. 2013), interoperability problems can clearly contribute to adverse events if information entered at one healthcare organization cannot be accurately transferred to another.

The poor design of healthcare forms is of little help. Many practices ask new (or even prior) patients to fill out forms with redundant data, particularly with respect to insurance as the insurance card is also routinely copied. Many of these forms in fact ask information that is already in electronic health records available to the clinicians and administrators (Leape et al. 2012a). Also, many ask for the patient's social security number, which is almost never used in billing processes any longer.[*]

BILLING

Billing is often listed as the first issue to be managed in improvement articles. Excessive cycle times from appointment to reimbursement are often the number one barrier to the financial well being of a clinic (Dolan 2014). Delays result from incorrect insurance eligibility information (which most practices see as exceedingly complex), not communicating with the patient upfront to reduce payment misunderstandings, and reducing billing errors such as those created by ICD-10 diagnostic codes (Ritchie et al. 2014).[†] Complex billing structures also result in offering services that cannot be reimbursed (Ritchie et al. 2014). The fact that there are often no personnel dedicated exclusively to billing exacerbates all of these problems (James et al. 2015).

OVERUSE OF PHYSICIANS

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[*] In fact, in one practice, the author was asked for his social security number twice *on the same page.*

[†] The author's personal favorite ICD-10 code is T63.432, intentional self-harm with a caterpillar.

While difficult to know for sure, one gets the sense from reading the literature that the physicians in a clinic are often the most utilized personnel. This is as it should be, as physicians are the most expensive people in a clinic. That said, the physician's primary purpose is to diagnose patients. Much of their time, however, is spent on non-diagnostic activities such as 20 hours per week on prior authorization issues or otherwise interacting with insurance plans (Ritchie et al. 2014, Han 2013). They also do much other work that could be performed by non-physicians in the practice (Willard-Grace et al. 2014, Bodenheimer et al. 2014). As an example, in one documented case, a physician liked to give patients brochures and other handouts, yet he only retained one original copy for each brochure in his office. Every time he needed to hand copies out, he would leave the exam room to use a copier (Dolan 2014). The authors have also witnessed similar issues, such as one provider using a Google map to find directions to the specialist that she had just referred the patient to. Front line staff obviously should do these tasks, rather than physicians. More subtly, nurse practitioners, RNs, or even medical assistants could perform many other duties physicians undertake. These other personnel are often not fully utilized in the sense that they are not working at "the top of their license." In other words, they perform work that people with lesser qualifications—and who cost less—could perform equally well (Dolan 2014).

FRONT LINE STAFF
It is estimated that 86% of the mistakes in the healthcare industry are administrative. Other problems are that 30 percent of charts cannot be found during patient visits (Technology CEO Council 2007). Many telephone calls are allowed to drop, have long hold times, or remain unreturned (James et al. 2015, Leape et al. 2012b). Because of patient variability and the general complexity involved with testing, 30 percent of tests need to be reordered because the results are lost (Technology CEO Council 2007). Supplies are often misplaced as well (Han 2013). Finally, most practices do not have a standard communication protocol with the pharmacies they use (James et al. 2015). Perhaps this last issue contributes to the surprisingly high number of medication errors attributed to primary and specialist practices described earlier.

COMMUNICATION WITH OTHER OUTPATIENT CLINICS AND HOSPITALS
Outpatient clinic communication is poor not only with patients, but with other outpatient clinics and hospitals as well. Primary care clinics do not communicate well with specialists that they have referred their patients to. The following numbers differ depending on whether one is surveying primary or specialty practices. However, many, if not most, of primary care physicians do not send notice of referrals to the specialists in question. And a high percentage (20-40%) of specialists do not send their results to primary care physicians. Yet, physicians believed that lack of communication puts high quality medical care at risk, particularly those with chronic conditions (O'Malley & Reschovsky 2010). Research shows that poor communication also occurs between physicians and hospitals. One study found that errors resulting from communication gaps between hospitals and physicians occurred about 50% of the time for recently discharged-patients, and those patients were at greater risk of hospital readmission (Roy & Karson 2005). Again, electronic health records could ameliorate both types of communication gaps, were EHRs interoperable. However, they are not (Lim & Anderson 2016). Hence, communication between primary, specialist, and hospital organizations is problematic at best.

Conclusion

This paper's goals are twofold. One is to argue that, while heretofore most process improvement effort have been directed at hospitals, much more attention should be given to primary and specialist care. The reason is that they are a significant source of cost and quality problems in the healthcare system. Moreover, all of the participants—patients, physicians, and staff—are dissatisfied with the current state of affairs.

The second goal of this paper is to argue that most of these poor outcomes result from common operational pathologies in primary and secondary settings. The research is far too scanty on this second topic, and more research must be done. That said, many sources believe that the root causes of primary and specialist practice problems derive from an ad-hoc approach to operations. This results in poor process flows and ill-defined protocols, which contributes to longer and more variable patient visits. Moreover, there is poor communication on all sides: between practice and patient, between clinicians and others in the practice, between practice and pharmacy, between practice and practice, and between practice and hospital. Fortunately, many of these are common problems that have been improved in other service industries. So with the appropriate process improvement methodologies, the effectiveness of this crucially important sector of the healthcare industry can and should be improved.

References

Andes S , Metzger LM , Kralewski J , Gans D. (2002). *Managed Care* (Langhorne, Pa.) 11(11):48-54.

Anderson, E.G., Wendt, Neal (2017). Case study interview with CEO of multi-physician specialist practice.

Anderson, Mary Ann, Edward G. Anderson Jr. and Geoffrey Parker (2013). *Operations Management for Dummies*. Wiley*.*

Bishop, Tara, Andrew M. Ryan, Lawrence P. Casalino (2011). "Paid Malpractice Claims for Adverse Events in Inpatient and Outpatient Settings." *JAMA* 305(23): 2427-31 Corrected on June 23, 2011

Bodenheimer, T., Willard-Grace, R., & Ghorob, A. (2014). Expanding the roles of medical assistants: who does what in primary care?. *JAMA internal medicine*, *174*(7), 1025-1026.

CFAH (Center for Advancing Health) (2013). "**Patients Appreciate Good Front Office Staff.**" Retrieved on May 20, 2017 from http://www.cfah.org/blog/2013/patients-appreciate-good-front-office-staff.

CMS (2015), National Health Expenditures 2015 Highlights – CMS https://www.cms.gov/research-statistics-data-and-systems/statistics.../highlights.pdf retrieved on March 16, 2017

Cordina, J., Kumar, R., Moss, C (2017). "Debunking common myths about healthcare consumerism." McKinsey, retrieved from http://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/debunking-common-myths-about-healthcare-consumerism?cid=eml-web on March 24, 2017.

Detert, J. R., & Treviño, L. K. (2010). Speaking up to higher-ups: How supervisors and skip-level leaders influence employee voice. *Organization Science*, *21*(1), 249-270.

Dolan, P.L. (2014). "Time is money: 4 ways to manage practice productivity, organize staff." *Medical Economics*. Retrieved from http://medicaleconomics.modernmedicine.com/medical-economics/content/tags/efficiency/time-money-4-ways-manage-practice-productivity-organize-st?page=full on March 16, 2017.

Dyrda, L. (2016). "112 statistics on physicians under 45 years old — practice setting, finances, future plans & more." *Becker's Hospital Review.* Retrieved from http://www.beckershospitalreview.com/hospital-physician-relationships/112-statistics-on-physicians-under-45-years-old-practice-setting-finances-future-plans-more.html on March 16, 2017

Elder Nancy C., MaryBeth Vonder Meulen, Amy Cassedy, (2004). The Identification of Medical Errors by Family Physicians During Outpatient Visits", ANNALS OF FAMILY MEDICINE VOL. 2, NO. 2

Fox, J. (2016). "These Ads Ram Themselves Down Your Throat." Retrieved on April 1, 2017 http://www.huffingtonpost.com/jeff-fox/these-ads-ram-themselves-_b_8979108.html.

Gaynor, Martin and Mark V. Pauly (1990). "Compensation and Productive Efficiency in Partnerships: Evidence from Medical Groups Practice." Journal of Production Economics.

Han, D.P. (2013). "How a manufacturing process transformed healthcare delivery." Medical Economics. http://medicaleconomics.modernmedicine.com/medical-economics/content/tags/financial-strategies/how-manufacturing-process-transformed-healthcare retrieved on March 24, 2017.

Hopp, W. J., & Lovejoy, W. S. (2012). *Hospital Operations: Principles of High Efficiency Health Care*. FT Press.

Institute of Medicine (2006). *Preventing Medication Errors*. Retrieved from http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=11623 on March 16, 2017

James, Katherine A., Stephen E. Ross, Betsy Vance, Radhika Nath, Michael I. Harrison, and David R. West (2015). Inefficiency In Primary Care. *Family Practice Management,* 2015 (March/April): 18-22.

Leape, L.L., Shore, M., Dienstag, J., Mayer, R., Edgman-Levitan, S., Meyer, G., & Healey, G. (2012a). Perspektive: A culture of respect, part 2. Creating a culture of respect. *Academic Medicine*, *87*(7), 1-6.

Leape, L. L., Shore, M. F., Dienstag, J. L., Mayer, R. J., Edgman-Levitan, S., Meyer, G. S., & Healy, G. B. (2012b). Perspective: a culture of respect, part 1: the nature and causes of disrespectful behavior by physicians. *Academic medicine*, *87*(7), 845-852.

Lim, S.Y., Anderson (2016). "Institutional Barriers Against Innovation Diffusion: From The Perspective Of Digital Health Startups." Proceedings of the *2016 Hawaii International Conference on System Sciences*.

Manning, A. (2017). Unpublished research on process improvement in healthcare. Communication to author.

Medialife (2017). "**Your client in doctors' offices** Here's a way to reach folks with targeted advertising." Retrieved on April 1, 2017 from http://medialifemagazine.com/your-client-in-doctors-offices/

Murdoch, C. (2015). Personal communication to the author.

O'Malley AS, Reschovsky JD. (2011). "Referral and consultation communication between primary care and specialist physicians: finding common ground." *Archives of Internal Medicine*171(1):56-65.

The Physicians Foundation (2016). *2016 Survey of America's Physicians: Practice Patterns and Perspectives.* Retrieved on March 17, 2017 from http://www.physiciansfoundation.org/uploads/default/Biennial_Physician_Survey_2016.pdf

Porter, M. (2010). "Value based healthcare delivery." Presentation to the U.S. Office of the National Coordinator for Health Information Technology

Raman, A., & Tucker, A. (2011). The Cleveland Clinic: improving the patient experience.

Ray, Kristen, MD, MS; Amalavoyal V. Chari, PhD; John Engberg, PhD; Marnie Bertolet, PhD; and Ateev Mehrotra, MD, MPH (2015). "Opportunity Costs of Ambulatory Medical Care in the United States." *The American Journal of Managed Care*.

Roy C.L., Poon E.G., Karson A.S., et al. Patient safety concerns arising from test results that return after hospital discharge. *Ann Intern Med*. 2005;143:121-128.

Savastano, Dianne (2015). "Rudeness In Healthcare... And What To Do About It." Healthassist. Retrieved on March 30, 2017 from http://healthassistcorp.com/rudeness-in-healthcare-and-what-to-do-about-it/.

Sinsky, C. A., Willard-Grace, R., Schutzbank, A. M., Sinsky, T. A., Margolius, D., & Bodenheimer, T. (2013). In search of joy in practice: a report of 23 high-functioning primary care practices. *The Annals of Family Medicine*, *11*(3), 272-278.

Squires, David, and Chloe Anderson (2015). "U.S. Health Care from a Global Perspective: Spending, Use of Services, Prices, and Health in 13 Countries." Commonwealth Fund.Retrieved from http://www.commonwealthfund.org/publications/issue-briefs/2015/oct/us-health-care-from-a-global-perspective on March 16, 2017

Technology CEO Council (2007). "A Healthy System." Retrieved on March 17, 2017 from http://www.techceocouncil.org/clientuploads/reports/A_Healthy_System_Final.pdf.

Terry, K., Ritchie, A., Marbury, D., Smith, L., Pofeldt, E. (2014). "Top 15 Challenges Facing Physicians in 2015." *Medical Economics.* Retrieved from http://medicaleconomics.modernmedicine.com/medical-economics/news/top-15-challenges-facing-physicians-2015?page=full on March 16, 2017.

Willard-Grace, R., Hessler, D., Rogers, E., Dubé, K., Bodenheimer, T., & Grumbach, K. (2014). Team structure and culture are associated with lower burnout in primary care. *The Journal of the American Board of Family Medicine*, *27*(2), 229-238.