PREVENTING PATIENT VOLUME LEAKAGE IN HEALTHCARE SYSTEMS

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**Abstract**

The healthcare environment today is causing many healthcare organizations to consolidate and form healthcare delivery systems. Organizations are assembling themselves into systems so that most, if not all, facets of healthcare delivery are available within their system. This approach aims to keep patients within the system and makes care more efficient, cost effective, and continuous. Patient leakage from the system results in adverse effects for the organization including higher costs and lower quality outcomes, both detrimental in today’s healthcare framework. This essay conducts an in-depth analysis of the causes of volume leakage including physician referrals out of the system, lack of patient engagement, and inefficient organizational referral processes. Identifying and rectifying gaps in the system where the patient or provider has latitude to go outside the system is the most fundamental first step in solving the problem of patient leakage.

Leakage prevention methods include physician incentives and contracting, improving patient engagement and loyalty, streamlining referral processes, and educating support staff on the importance of patient “keepage”. When a strong and continuous network of care has been set up, several barriers are in place keep patients from leaving the system.

The issue of patient leakage is an important one as the adverse effects are not limited to decreased revenue and poorer outcomes for the one organization itself. From a public health perspective, patients leaving a healthcare system results in uncoordinated, broken care which leads to poorer quality of life across a population. The cost inefficiencies also result in more capital being spent by the healthcare system to make up for the loss rather than on actual high quality care for the patient. Healthcare organizations exist to provide all types of care ranging from preventive to acute to tertiary care. When a patient leaves a healthcare system, they are not able to receive the specialized and coordinated care they need, rendering the organization unable to properly take care of the population they serve.

This paper concludes with best practices and recommendations for preventing patient leakage, enabling the healthcare system to deliver coordinated, efficient, and high quality care.

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**I. Introduction**

 Healthcare reform has greatly altered the delivery and reimbursement of healthcare today. Care is approached from a value-based point of view where the goal and reimbursement of healthcare is based on the outcome and value of care delivered (Carlin, 2012). Due to this changing environment in the healthcare industry, healthcare organizations are restructuring themselves and working towards new goals. Efficiency of care, cost effectiveness, and quality are the drivers of healthcare today as providers begin to self-analyze and look for areas of improvement (Punke, 2013).

 As reimbursement and patient volumes continue to fall across the board, healthcare organizations are beginning to tighten their belts and take a closer look at their services, operations, and revenue stream.

Patient Volume Leakage

These changes in healthcare have pushed organizations towards integrated delivery of care. From joint ventures to mergers to acquisitions, healthcare is finding strength in numbers in the current environment. The objective is to provide a continuum of care for the patients as the habitual delivery of care in “silos” begins to fade away. The integration of care hopes to achieve the major objectives of the current healthcare environment, namely the triple aim: population health, experience of care, and per capita cost (Carlin, 2012). In order to provide a better continuum of care, many steps such as implementation of electronic medical records and physician employment are beginning to become the norm.

While moving towards integrated care has improved results for many healthcare organizations, there are major issues that impede the success of these organizations achieving the best results for their system and patients. One such issue is the problem of patient volume leakage from a system. Patient volume leakage occurs when a patient leaves a particular health organization for a hospital, physician, or facility that is not within the organization’s core network (Faber, 2014). Patients enter a system for care but leave for another organization due to a myriad of reasons. As patient volumes are already decreasing across the country due to external factors such as increased cost sharing, allowing patients to be lost to another system could be ruinous for the healthcare organization. Patient leakage is currently one of the most pressing issues for healthcare organizations and they identify sources of leakage and work to find solutions for the problem (Gamble, 2013).

This paper will begin by examining the current state of this problem, identifying causes for patient leakage, and will then explore both physician and patient-based methods of leakage prevention. The paper will conclude with recommendations on the most effective methods healthcare organizations can employ to solve the problem of leakage from their system.

**II. Current State**

Identifying sources of volume leakage has become a priority for healthcare leaders as it puts a major strain on their system. Heavy losses in revenue can occur when a patient abandons a healthcare system. An outside referral of even one procedure or service leads to lost direct revenue and downstream revenue (McKenzie, 2013). The perception amongst most administrators is that patient leakage at their system is at about 5-10%. However, the reality is that most systems are losing anywhere from 30-60% of their patients through leakage whether it be a solitary episode of care received elsewhere or the patient permanently leaving the system (Faber, 2014)

Today, as reimbursement becomes more stringent for hospitals, fixing the problem of patient leakage is starting to take utmost priority for administrators (Gamble, 2013). Inpatient volumes are also decreasing nationwide, due to better health management and a shift to outpatient services. This trend also makes leakage a critical topic, as keeping the already declining patient population within one’s system is necessary to keep the organization running and competitive (Donato, 2014).

 The break in the continuum of care that occurs as a result of system leakage is also detrimental to the healthcare organization. Disjointed care has been proven to be associated with lower quality outcomes (Hartgernik, 2012). With the new focus on value-based purchasing, unfavorable outcomes in care lead to lower reimbursements and in some cases, penalties. Keeping the consumer within the system is a strong predictor of coordinated and better quality care and will keep revenues up.

Lowered levels quality and efficiency of care also affect organizational costs. Lack of efficiency in care and the patient moving in and out of the system lead to higher costs for the organization. Duplicate testing, manpower and time spent in tracking down a patient, transmitting forms to another organization, etc. all lead to waste of resources for the organization (McKenzie, 2013).

Patient leakage puts an additional cost burden on the organization as capital must be put in to attract new consumers to make up for the lost ones. According to Mission Point Health System, 1% of “keepage” of patient volume is equivalent to $1,000,000 in revenue for the organization. It is more costly to market and pull new consumers into the system than it is to retain already existing consumers (Zismer, 2012).

**III. Public Health Implications**

In addition to the lost revenue and poorer outcomes for the organization, organizational leakage has major public health implications. The loss of patients from a healthcare system results in a break in the continuity and quality of care (Carlin, 2012). When a patient is lost from a healthcare system, they are not able to receive the specialized and coordinated care they need, rendering poorer health outcomes for a population. Care coordination and population health are the new areas of focus for the upcoming wave of healthcare reform (Carlin, 2012). If healthcare organizations are not able to meet these goals because of volume leakage, this can have an overall detrimental impact on the population health.

**IV. Types of Patient Volume Leakage**

Patient leakage usually takes one of two forms. The first and most frequent is the loss of the patient to another organization when a PCP makes a referral out of the system to another. Patient leakage can also occur as a result of the patient themselves moving to another provider despite referral or services available within the system (McKenzie, 2013). Both forms of leakage are due to a variety of factors that must be identified and rectified. The following sections will describe both types of leakage and outline methods of prevention for each. Section V addresses physician-driven leakage while Section IX concentrates on patient-driven leakage.

**V. Physician-driven Leakage and Prevention Methods**

Physicians, namely primary care providers, serve as the referral base for any healthcare organization. The strength of the flow of referrals is contingent on this base. Recent reports show that while the number of actual referrals has been steadily increasing in the last ten years, only 35-45% of PCP referrals end up at a partner hospital (Govette, 2014). Healthcare organizations will get the greatest return on investment when investing in establishing referral networks from their physician base as opposed to concentrating solely on marketing to the patient.

Physicians are either employed by the system they work in or work as independents. Influencing employed physicians to refer within their system is easier than for those that are independent. However, it is important to note that no physician can be forced to refer to solely to a specific organization. The organization may contractually require that the physician do their best to keep patients within the system unless certain exceptions are present. These include: 1) the patient expresses a preference for a different provider, 2) the patient’s insurance determines the provider, or 3) the physician believes referral within the system is not in the patient’s best medical interests (Showalter, 2012).

There are other reasons as to why a physician may refer a patient out of the system including factors such as: relationships with specialists out of the network, habit, inheriting preference from seniors in their field, being close to retirement and apathy towards organizational goals, negative experience with in-network hospital, service availability, physician ancillary revenue, and payor policy (Smith, 2014). While some of these reasons can be regulated (through a contract), some can be worked upon (through physician liaisons), and others may never change. Health systems must identify which of the above reasons are contributing to leakage from their system, which can be rectified, and then implement steps that will stem the problem.

**V.a. Employed vs. Independent Physicians**

Healthcare organizations have more autonomy over physicians when they own the physician practice. Recent trends in physician and practice employment show a growth of hospital-owned physician practices with a rise from 20% of all physician practices being hospital-owned in 2002 to over 69% being owned in 2012 (McKenzie, 2013). While this recent trend in acquiring practices rests on a multitude of causes, one of the most important is the ability of the healthcare system to expand their referral base and influence providers into keeping patients within their system.

For large healthcare systems, building a relationship with employed physicians that influences the PCP to refer within the system is a first step for preventing volume leakage. Some organizations might outline stipulations in the physician’s contract while others may be hesitate in doing so as such a step may result in negative reactions from their physicians. The in-house requirement may also be impossible for smaller organizations that do not have all specialties and subspecialties within their organization. In these cases it is still important to educate the physician about keeping patients within the system or with partner organizations as much as possible (Govette, 2014).

For non-employed physicians, the formula is more difficult as there is no requirement or authority in regards to referrals staying within the organization. The level of leverage and influence that the system has on the physician is based on the system’s partnership with the physician (Cohn, 2005). Organizations can create relationships with physician practices through a minimal customer service relationship in which they provide support services to the physicians. On the other end of the spectrum is total employment of the physician which results in the organization having the greatest amount of influence over the physician (Cox, 2013). Hospitals will have more authority over those that they employ but first need to weigh the financial investment against the gains of employment. Figure 1 below shows the spectrum of physician engagement and financial investment with the corresponding level of influence on the physician.



**Figure 2. Physician integration options and corresponding financial commitment**

**V.b. PCP Education**

The physician, namely the PCP, has much impact when it comes to patient decisions about further care as patients tend to look to their physician for sources of information regarding their care. Studies show that primary care providers are the most heavily relied upon source for specialist referral. The Health Tracking Household Survey reports that seven out of ten patients used their PCP for guidance in finding a specialist and six in ten used their PCP as the exclusive source in finding a specialist (Tu, 2008). It is therefore of utmost importance that PCPs are properly educated and continuously updated about the services and specialties available within their system as they have a strong influence on their patients’ choices. Many PCPs report that they often do not know all the services offered within their system and therefore may refer out of the system. In the last 40 years, the number of specialties and subspecialties has grown from 10 to over 145 subspecialties (Govette, 2014). The increased use of hospitalists at hospitals also contributes to the lack of knowledge among PCPs regarding organizational services. As many PCPs now hand over the responsibility of hospital rounding to hospitalists, their exposure to specialists and specialized services in the hospital is limited (Faber, 2014). Yet the role of the primary care provider as a resource of information continues to expand and organizations with an array of services must work to make their physicians aware of what is available within their network. Regular conferences, forum, socials, etc. are a good way of getting physicians to meet and interact and see who is in their network and how they can be of service to their patients (Faber, 2014).

 Emphasis on the continuum of care in the system as part of the referral systems is important as well. Patients may stay within the system for a specific episode however it is important to reiterate the importance of staying within the organization for all healthcare needs to both the physician and patient. The goals and direction of the organization must be relayed to the physician so that the goals of those working within the organization itself are aligned with those of the system (Zismer, 2012).

**V.c. Physician Relation Specialists**

The various aspects of physician education will be most beneficial and effective when delegated to one specific person or team within the healthcare organization. The assumption is often made that because physicians fall under the same umbrella of an organization or network, referrals and relationships will automatically be created (Karsh, 2009). This is very rarely the case and where Physician Relation Specialists come into play. Physician Relation Specialists, Physician Liaisons, etc. work with physicians and have the responsibility of network building, service line and treatment updates, CME programming, and addressing any questions or concerns the physician has about the network of doctors and services in the organization (Cohn, 2005). Physician Liaisons inform physicians within the organization about all services such as laboratory, diagnostic imaging, physical therapy, and of course, specialty services. They also assess physician needs and increase communication between the hospital and physicians. The liaison serves as a champion of the healthcare organization, sharing important information and characteristics of the organization to the physicians and helping to build relationships while streamlining the referral process (Cinque, 2014).

According to a study by the Advisory Board, physician liaison interactions serve as the second most effective physician-marketing tool (Cinque, 2014). While physician-physician interactions are rated as the topmost effective tool, healthcare organizations are aware of the fact that their providers do not have the time to engage in network building and marketing, regardless of their desire to do so. The use of liaison or relations specialist is therefore an especially effective means of marketing to physicians and aligning them with the organization. Critical success factors for effective liaisons include a possessing a clinical background, having direct access to the CEO (so that any issues are brought up by the physicians can be directly addressed), having marketing/ business expertise, and an understanding of the organization’s strategic goals (Gamble, 2011).

Both PCPs and specialists report that the number one incentive in working with and referring to another physician is the quality of the relationship and an environment of trust (Gelb, 2013). Physician liaisons are tasked with helping to build such connections amongst the providers themselves as well as with the organization’s management, assessing any issues that may serve blocks to seamless referrals and helping to fix them (Donato, 2014).

 This joint partnership and communication with physicians builds strong relationships within the healthcare network. Relationships with management in the healthcare organization predict workplace satisfaction and commitment to the organization (Karsh, 2009). An active, engaged Physician Relations team will stimulate a strong network throughout the system, helping to prevent volume leakage.

**V.d. Physician Incentives**

In addition to education and fostering relationships, incentivizing physicians is another method of keeping physician referrals within the healthcare network. Health administrators have found that in many cases, though PCPs may have the information and resources need to refer within the system, this may not be enough to impact referral patterns (Karsh, 2009). Incentives are another method of influencing referrals yet can serve as a “gray area” as there are many laws that surround the subject, especially when dealing with financial methods (Showalter, 2012).

**V.d.1. Financial Incentives**

For example, through the Accountable Care Organization model or Clinically Integrated Network model (which will be discussed later in more detail) some health systems are distributing savings earned from delivering integrated care among their physicians (Butts, 2012). Conclusions have not been drawn about whether or not this system of incentivizing works as the bonuses are usually low and dependent on the number of physicians in the system (Butts, 2012).

When dealing with a regular health system, bonuses and other financial remuneration is not legal when working with physicians to refer within the system (Showalter, 2012). The federal Anti-kickback Statute prohibits the use of compensation in exchange for referrals or other healthcare business (AHA, 2010). The Stark Law prohibits physicians from referring patients to any facility where they have a vested financial interest (Watts, 2008). For example, if a physician has a stake in an imaging center, he is not allowed to refer patient to this center as he would financially benefit from sending an increased number of patients to the center (Showalter, 2012). This law does not relate to physicians referring to a particular healthcare system as a whole unless they are receiving direct financial remuneration as result of their referrals. With such laws in place, proper means of incorporating physician incentives into “keepage” strategies is critical.

**V.d.2. Stark Law Violation, An Example**

A prime example of the Stark Law coming into play in health organization practices occurred with the Tuomey Healthcare System. In May of 2013, Tuomey Healthcare System, Inc. was found guilty of violating the Stark Law and the False Claims Act by paying their referring physicians for “perceived revenue gained” in the form of a bonus. The system attempted to work around the Stark Law by providing a “productivity bonus” to physicians based on the volume of patients that they kept within the Tuomey facilities for their procedures. This bonus was not based on the procedures the physicians performed but rather a percentage of an estimate of how much the hospital believed to have gained from that physician’s referrals. The bonus was seen by the Department of Justice as a bribe that pushed physicians increase the number of patients and procedures they referred within the system (Becker, 2013).

The Tuomey system was investigated by the government not only because of the bonuses it distributed but also because the physicians were being paid above fair market value (FMV). In his article which reviews the Tuomey case, author Scott Becker says, “To comply with Stark Law and Anti-kickback Statute, compensation paid to physicians by hospitals must be generally consistent with FMV and not take into consideration the value or volume of referrals an employed physician may bring to the hospital or the hospital’s affiliates” (Becker, 2013).

**V.d.3. Economic Credentialing/ Tiering**

A method of influencing physician behavior and decision-making that does not use direct financial incentives is the use of economic credentialing. In economic credentialing, if the hospital determines that an employed physician is causing the hospital economic hardship, they can either warn and monitor the physician’s behavior or can revoke certain privileges completely (Cohn, 2005). The legality of revocation of privileges is still under scrutiny by the government on a case-to-case basis but is one method of “incentivizing” physicians to direct their patient flow.

Economic credentialing is also used to restrict certain privileges for physicians that have a vested interest in a competing facility or care setting. This credentialing protects the hospital when there is a direct conflict of interest involved and patient referral will almost always sway in the side of the other facility (Mattioli, 2009). This type of restriction on privileges either forces the physician not to work with the organization or release their hold in the competing organization.

Insurance companies also carry out indirect means of physician incentivizing. Payors look at the cost effectiveness of a physician in providing care to their members. Other factors such as quality of care go into this formula and the physician is ranked on a tier system with the most effective doctors placed in the “top tier” which results in patients being steered to them by the payor (Mattioli, 2009). As continuity and efficiency of care become increasingly important in value-based purchasing, care alignment and leakage prevention have become significant sources of interest for payors as well.

**V.e. When Barriers to Leakage are Ineffective**

Even when physician education occurs or contractual obligation is implemented, there are instances where patient leakage on part of the referring physician occurs. When these basic barriers to leakage are not effective, the organization must conduct a root cause analysis to understand where leakage is occurring and why. Volume leakage on part of the physician affiliated with the system is of utmost concern to healthcare executives as they are providing means of affiliation, support, and revenue to these physicians either directly or indirectly.

**V.e.1. Data Use**

In order to understand the cause of consistent leaks out of the system, the process must be initiated by collecting all data of referral patterns for analysis. This data can be gathered internally, from software systems, payors, etc. (Miller, 2014). Data allows the organization to see referral patterns and pinpoint whether the leakage is due to a small percentage of physicians or is happening across the board. If the data points to a small number of providers that are pushing patients out of the system, these physicians must be approached and the issue addressed. The authors of “A guide to physician integration: a models for sustainable success” suggest that instead of accusing the physician of losing revenue for the system, a root cause approach must be taken in order to understand *why* the physician sent their patient elsewhere (Kauffman, 2012). Was there a service needed that the system did not have? Was there an issue with quality? Location? Understanding the rationale behind the outside referral can help the healthcare organization recognize how it can enhance its services for both its physicians and patients.

If leakage is happening across the board and cannot be attributed to a small percentage of physicians, then the healthcare organization as a whole is not doing enough to ensure that patients are kept within the system. Taking initiative to employ a system of continuous physician education, loyalty and relationship enhancement, as well as constant data analysis is necessary to begin to stem volume leakage.

One unnamed organization cited in a study in *Health Affairs* initiated the process of daily “leakage reports” which leadership first reviewed themselves and then with the individual physician. The cause of the outside referral was examined and discussed. This session was then used as an educational opportunity to review outside utilization costs and effect on the system if it was deemed that the patient could have been kept within the network. This mode of physician education was highlighted as it did not punish the provider but rather used the incident to immediately identify and educate the doctor about volume leakage. Also, because executive level leadership was involved in the process, it drew attention to the importance of the issue among the providers (Mechanic, 2011). Sharing data with the physician is a means of further educating them about the current status of the organization. For example, though a competitor hospital may be popular with patients, their mortality or infection rates for a particular procedure may be higher. Communicating such data with the physicians allows them to better understand the organization and share this information with their patients (Govette, 2014).

**V.e.2. Referral Patterns**

 Identifying physician referral patterns to the organizations can further help identify root causes of volume leakage. The Advisory Board Company outlines the process Mellville Health used to identify their top referring physicians and their patterns. The process was carried out by first stratifying the service area into zip codes and identifying referrals in each area. The next step was to further subgroup the referrals in each area by service line subspecialty. As this analysis was carried out to identify oncology referral patterns, the subspecialties examined were medical, surgical, and radiation oncology.

 The results identified PCPs and surgeons as those with the greatest percentage of referrals, and Mellville therefore concentrated marketing and outreach efforts on these groups. The analysis went on to identify individual physicians and their number of referrals per month to the system. The aim with loyal referrers to the system was to keep these patients satisfied with the system. Providers that referred to the system at times but still sent referrals elsewhere were identified as “high potential referrers” and focus was paid to marketing and building strong connections with the physicians. If the physicians were employed by the organization and still split in their referrals to other systems, then more aggressive means of stemming this leakage were employed (Cinque, 2014).

 Identifying referral patterns through software and data collection enables health systems to identify the most influential physicians in their network. Capitalizing on the most influential physicians leads to higher retention rates and greater downstream revenue (Gelb, 2013). Focusing on these physicians helps with marketing efforts, physician alignment, and even contracting, if necessary.

 Data collection also allows healthcare organizations to see referral patterns in terms of location, proximity to their hospitals and ancillary services, and also helps identify if there is a need for a specific service or clinic in a particular area (Robertson, 2012). Referral patterns that are drawn from data sets allow organization leaders to step back and look at the “big picture”, perhaps identifying gaps where they did not know one existed.

**V.f. Physician Loyalty to the Organization**

Enhancing the “physician experience” within the healthcare system is a critical element in ensuring that physicians are content with the organization they are working with. Satisfaction with their organization and environment has been shown to increase loyalty towards their system. According to the Gelb Consulting Group, there are four main elements referring physicians wish to receive from the institutions they refer to. These include: 1) Updates about the patients they refer in a form they find useful 2) a referral process that is straightforward and simple 3) having a specific reason for referring to a particular institution, and 4) recognition for the relationship they have with their patients (Gelb, 2013). According to this healthcare consulting group, enhancing the physician’s experience at the organization takes the physician from being just a referral source to a champion of the organization.

Building this type of patient loyalty that is not based solely on contracts and obligation can be a challenge. The work of the Physician Liaison discussed earlier is instrumental in this process. According to the authors of “Improving Physician Alignment: Key Drivers and Essential Attributes”, the five greatest factors that contribute to physician satisfaction are: 1) commitment to quality 2) active communication 3) collaborative decision-making 4) dependable support services, and 5) win-win financial relationships (Condora, 2008). Combining this list of factors with those from the Gelb Consulting Group shows a recurring theme in what physicians want from the hospitals they are affiliated with- open, two-way communication, efficient support services, a standard of quality they can entrust their patients to, and a mutually beneficial relationship with the organization. Molding relationships with the physician around these goals makes him or her aligned as a member of the coordinated care team rather than just a source of referrals.

**V.f.1. Active communication**

 Active and open communication is primary in fostering physician satisfaction and loyalty to a health system. According to the American Society for Healthcare Human Resources Administration (ASHHRA), “By facilitating consistent and meaningful two-way communication, leaders can discern what may drive physician attitudes, perceptions and actions, and help organizational leaders put operational remedies in place” (Cox, 2013). Insight into what physicians are thinking about the organization and what they need in order to be more effective members of the network is key to aligning physicians with the organization and keeping them loyal and engaged.

**V.f.2. Efficient support services/ Process Improvement**

Streamlining referral and other processes for physicians and providing a convenient and efficient system for them is tantamount to physician loyalty. 63% of PCPs are dissatisfied with the referral process at their organization (Karsh, 2009). Healthcare organizations can take simple steps such as providing physician directories to make access to information easier; and having an online directory that can be constantly updated with new information would be ideal (Faber, 2014). Simplified methods of submitting referral forms and test results as well as feedback on the status and treatment of the patient all contribute to effective referral methods (Condora, 2008).

 **V.f.3. Quality**

 Physicians also list quality of the institution they refer to as one the most influential factors in their decision (Condora, 2008). However, it is rare for physicians to carry out quality research on their own by searching through published quality report cards and reports (Gruman, 2014). Hospitals therefore should take the initiative to talk about their quality benchmarks and data and educate providers about their successes. It is also found that physicians will refer based off of *perceived* quality, not just exact numbers (Gruman, 2014). This translates to health organizations being their own champions and publicizing their commitment to quality, the certifications they hold (such as Leapfrog, etc.), and the advanced technology they use, and so on.

**V.f.4. Win-win financial relationships**

 As mentioned earlier, direct financial incentives are illegal in the structure of the referral system. However, physician engagement will improve when they are benefiting from a system that is financially healthy (Butts, 2012). Helping physicians understand that keeping care coordinated and within the network is the best way to decrease costs and increase revenue- a cyclical process that benefits all involved. Financial partnerships, whether direct through employment or indirect through a two-way patient stream, are key in keeping physicians engaged and connected to a system (Dentler, 2013).

**V.g. New Physician Relationships**

 Healthcare systems must also work to keep their physician base growing in markets that are of most value to the hospital. Strategic maneuvers include looking at new markets that have potential consumer populations. Establishing relationships with physicians in these new areas is important and will allow for a new influx of volume to enter and ideally stay within the organization. Hospitals may also seek out large physician practices whose strategic goals line up theirs and can approach these groups for setting up an arrangement that would benefit both parties (Cox, 2013).

 Marketing and the development of relationships with physicians that have just moved to the service area are also critical to developing a strong referral base for the organization. Unlike other providers in the region that may be contracted to competitor facilities, new physicians are usually unattached and have potential for building a lasting relationship with the organization.

Adding new specialists to the network based on population need is another solution also implemented by some health systems as a way to increase services offered as well as reduce specialist wait time for patients, decreasing the need for outside referrals (Mechanic, 2011).

**VI. Staff Roles and Education**

With physician referral strength serving as the first barrier to patient leakage, the next point of focus is on staff and staff education. Both PCP and specialty services staff act as the link between the referral and the specialist. Data shows that lack of follow up to ensure that the patient has made an appointment with the referred specialist results in 45% of specialized care being lost from the system (Govette, 2014). Once the appointment has been made, follow up needs to occur to ensure that the appointment was kept, subsequent appointments made, and any questions or concerns addressed. This “hand off” between the two sides of care is a vulnerable spot where patients may be lost from the healthcare system (McKenzie, 2013).

Staff at both the PCP’s office and the specialist’s office is responsible for follow up and ensuring the next step in the continuum of care has taken place. Consistent and repeated training of follow up for a referral and care delivery aligns all staff members’ understanding of their role and the importance of patient care coordination. A strong and efficient support system from staff in turn leads to increased physician and patient satisfaction, increasing loyalty to the system.

Staff members are integral to facilitating a “closed loop” method of care in a healthcare organization (Nicoloff, 2013). The closed loop method ensures that the patient moves from one provider to another in the system and reverts back to the PCP when appropriate, leaving no opportunity to be lost from the network between any episodes of care.

Staff can further contribute to preventing volume leakage by tracking performance measurement. By keeping a record of how long it takes for essential documents, test results, etc. to be sent between providers, systems can work to decrease this length of time so that efficient and timely care can take place (Nicoloff, 2013). Staff engagement and education in the importance of patient keepage encourages employees to keep the continuum of care going.

**VII. Care Navigators**

Care navigators within a healthcare organization are a specialized solution to the breaks in care as they ensure a continuous and coordinated process of care. According to one Medicare study, a typical Medicare beneficiary sees an average of two primary care providers and five specialists (AHA, 2010). This type of complex back and forth contributes to increased opportunity for volume leakage. The complexities of receiving care can leave patients confused and erring on the side of perceived convenience and cost, even if this means going to another organization. Care navigators provide the guidance and navigation needed in complex healthcare environments. Their direction keeps patients within the healthcare system as they help the patient move from one aspect of their care to the next. In fact, many experts agree that care navigators, “… form the basis for tackling some of health care’s most deeply rooted problems…such as system leakage” (Albert, 2012).

**VIII. EMR/ Software Support**

Efficient and meaningful use of specialized software and electronic medical records is gaining attention in light of recent healthcare reform. Proper implementation and use of such software can contribute to efficient and automated coordination of care. Software, when used hand in hand with staff coordination and the referral process, can help in improving and organizing coordinated care. An electronic referral system allows for PCPs to carry out many functions from searching for a specialist or ancillary service close to a patient’s address to sending patient information on to the specialist before their appointment (Faber, 2014). EMR systems allow the PCP to send required information about patient history and testing to the specialist in an effectual manner and also allows for a portal of two-way communication between the PCP and the specialist. This two-way communication is missing in traditional fax and paper referral systems; leaving a major gap in provider communication when it is the most essential. Increased communication between all providers taking care of the patient results in better patient management and improved outcomes (Govette, 2014). Software support provides a continuous stream of communication and coordination of care that helps to ensure that the patient moves seamlessly from one part of the system to the other, reducing the chances of leakage.

**IX. Patient-driven Leakage and Prevention Methods**

 The patient serves as the center of focus for the healthcare system. The physicians, navigators, and staff all contribute to and revolve around the patient experience. Yet even after all preventive methods have been implemented, the patient can still choose to leave the system. Healthcare consumers have the autonomy to receive care wherever they choose. Healthcare organizations must therefore identify and employ methods of volume keepage that are aimed at the patient.

**IX.a. Establishing Patient Loyalty**

Patients in the current healthcare environment have a myriad of choices in regards to their healthcare. A one-time customer does not mean they will continue to seek care with the system (Miller, 2014). And as in the case with physicians, being associated with a particular healthcare organization does not automatically denote loyalty to that organization. Due to this fact, the healthcare organization must create a system that builds patient engagement and loyalty.

**IX.a.1. Quality**

Perceived quality is one of the main factors that affect patient commitment to an organization. Staying competitive and providing the best levels of care is essential in keep patients loyal to a system (Faber, 2014). Consumers of healthcare will revert to the place where they think they will get the best care. In addition to clinical outcomes, service provided by providers and staff at the organization is vital to a patient’s perception and commitment to a system (Faber, 2014). In fact, a healthcare organization’s reputation for its commitment to patient-centered care, quality, and service is the single most important determinant in a patient choosing a particular healthcare organization (Huang, 2012). If this is true, then the opposite side of this fact must be taken into consideration- patient-centered, quality and service are important determinants is a patient *leaving* a particular healthcare organization.

**IX.a.2. Accessibility**

Accessibility is also key to retaining patients. Location convenience, ability to make appointments quickly and see a specialist in a timely manner are important to making health systems accessible. Many organizations are also implementing extended and weekend hours in their popular clinics and facilities to better serve their patient population (Fabner, 2014). When Cleveland Clinic learned, for example, that their long patient wait times were hurting their image, they instituted a “same day appointment service”. This service which was accessible through a toll free number, allowed patients to be seen the same day if they called in before noon or the next day if they called after noon. For more complex conditions that needed to be seen by a specialist, triage nurses and care navigators worked with the patient to get the care they needed as soon as possible (Rowe, 2013).

Identifying lengthy patient wait times for specific service lines or specialists is crucial in improving accessibility to care and deterring patients from seeking the services of another system’s provider. Caldwell Butler and Associates, a consultant team that specializes in Six Sigma and Lean processes in healthcare, state that these processes can also be used to identify issues that contribute to patient leakage. The consulting group states that, “A deeper examination of waste reveals that market share and revenue can be greatly enhanced by eliminating waste such as missed appointments, waiting times, delays in procedures, and other events that suboptimize care delivery” (CBA, 2014). In order to use Six Sigma processes to eliminate waste that contributes to patient leakage, CBA recommends starting with a target analysis that identifies all the players in the game- providers, employees, and patients. This step collects data about each of these including service line details, accessibility of the providers, ease of making appointments, marketing, and so on. Once this step is completed, CBA recommends a one-day event in which administration and other leaders from the organization get together to review the data collected and identify barriers, challenges, and opportunities for improvement that could contribute to preventing volume leakage. Once the main issues have been identified, action items should be decided upon that can be implemented over the next 100 days. This time limit ensures a timely yet carefully thought out implementation plan that will improve upon problem areas. Metrics and milestones can be determined at this time, with a specific number of goals assigned to each department that participates. After 100 days, metrics are assessed to see if goals have been met with follow up plans contingent on the outcomes of the rapid cycle testing. The outcomes need to be quantified into measures that the organization can use to benchmark their success (or lack of it) over the past 100 days. If the changes were effective and patient accessibility, wait times, and other processes improved, the action items used should be hardwired into the operational processes and can be used for more than just accessibility issues (CBA, 2014).

**IX.a.3. Process of Care**

 Once the patient has entered the system, a continuous continuum of care and care coordination are of utmost importance. In order to keep patients within the system and prevent leakage, there must be no gaps in care that give the patient opportunity to leave for another provider (Nicoloff, 2013). Transition points between providers and episodes of care, as mentioned earlier, are vulnerable spots where a patient may be lost from a system. Reinforcing staff follow up, scheduling appointments, and open communication are all critical to the ensuring an integrated and continuous mode of care (Nicoloff, 2013). Furthermore, constant communication with patients is necessary, to help them understand what the next steps are as well as ensuring the answering of any questions they may have. If physicians and their staff find themselves pressed for time, healthcare systems can consider implementing care navigators for this role.

**IX.b. Patient Engagement**

Empowering the patient further enhances the patient experience. Hospitals provide wellness education, social network, rewards programs, etc. in order to engage the patient in their own care. This type of interaction between the provider organization and the consumer creates a link that keeps the patient tied to the system. (Zismer, 2011)

 Experts also recommend that disadvantages regarding disloyalty also be highlighted to further keep consumers loyal to their healthcare organization. Leaving the system for care elsewhere can result in higher costs, lower efficiency, and breaks and continuum of care. Highlighting these drawbacks can help influence the customer’s decision-making process. Finding a balance between emphasis of drawbacks of disloyalty and making the patient feel confined is extremely important. HMOs were rejected by the public because of the feeling of confinement and restriction that these organizations were built upon (Faber, 2014). Insurance companies and their restrictions can help keep patients in a system, yet it is important how these restrictions are portrayed, otherwise consumers may leave the system altogether for another if they feel their choices are restricted.

 Keeping the patient engaged can also result in enhancing the patient experience and keeping them loyal to the healthcare organization. Studies have shown that younger consumers are more likely to leave a healthcare organization as are women, regardless of their age (Carlin, 2012). Members of the Medicaid population are also a source of volume leakage as they are more likely to “shop” and move between systems for better prices. Using trends and data such as this can help build strategies to engage consumers in these populations. For example, social media and smartphone aps can be used to connect with younger patients and keep them connected to the organization. Transparent pricing systems can be used to keep Medicaid patients from trying to find less expensive options elsewhere.

**IX.b.1. Financial Incentives**

The greatest factor influencing the consumer to stay within the system is the financial aspect of healthcare (Robertson, 2012). Staying within the system most often results in lower costs and receiving care out of network results in higher costs for the consumer. Communicating the benefits of staying within the system to the consumer is critical in influencing behavior (Robertson, 2012). However, there should be an emphasis on communication of the benefits of in-network care versus the patient discovering restrictions when they receive their bill. This approach of patients “learning their lesson” can greatly impact the consumer’s image of the organization as restrictive or bullying (Zismer, 2012). Healthcare organizations should instead take a positive approach to relaying to their patients the *benefits* of staying within the system, which can be achieved with a strong payor partnership.

**IX.b.2. EMR/ IT and Patient Engagement**

The importance of electronic medical records and information technology in healthcare is exponentially growing as discussed earlier. While EMR systems contribute to better delivery of care for the health system, it can also contribute to better outcomes and increased engagement on part of the patient (Miller, 2014). Organizations with effective and easy to use systems engage and empower the patient to be a participant in their own care. IT infrastructure can be used by healthcare consumers for appointment-setting, access to lab results and medical records, wellness education, and so on. The organization’s online features keep the patient engaged and also establishes a connection between patient and provider, creating a constant link to their healthcare system (Huerta, 2009). Setting up healthcare consumers with the EMR system also makes it more difficult for the patient to leave the system for another, as all their information and history is stored with their primary healthcare organization.

**X. Coordinated Care and Multidisciplinary Teams**

 The multidisciplinary approach to care is gaining popularity as it implemented across health systems nationwide. Multidisciplinary teams centered on a specific condition help provide coordinated, comprehensive, and high quality care to the patient. The multidisciplinary approach takes the idea of a “team” approach in care as many different specialists come together to care for the patient (Nicoloff, 2013).

 Multidisciplinary teams, therefore, can serve as an important tool in preventing leakage. It is much more difficult for a patient to fall out of a system if their care is coordinated by a group of experts, resulting in an overlapping net of delivery of care. The multidisciplinary approach to care is also beneficial for the relationship with the PCP as it draws the PCP into the continuum of care as a team member. The engagement of the PCP in patient care across the system will make them more involved in patient keepage and referrals (Cohn, 2005).

**XI. Vertical and Horizontal Integration**

Convenience, quality, and accessibility are key features patients look for when staying with a healthcare system. If a system is lacking particular services or specialties, it is important that the organization takes steps to develop a comprehensive network or at least partnerships with providers that can provide the needed care (Huang, 2012). The comprehensiveness of the network reduces the need for the patient to seek care elsewhere and potentially be permanently lost from the system. According to a study conducted by the Health Service and Research Trust, consumers that are part of a larger healthcare system are less likely to leave the system for another (Carlin, 2012). Most, if not all, of the services needed exist within their healthcare network increasing ease of accessibility and convenience.

In addition to possessing an extensive service line, health organization must proactively make consumers aware of these services. Aggressive marketing must continuously occur so that both consumer and referring physicians are aware of the specialties and services available within the system. In their article, “Perceptual Market Orientation Gap and Its Impact on Relationship Quality and Patient Loyalty: The Role of Internal Quality”, the authors suggest a triangular relationship of service marketing be employed by organizations. This approach to marketing the organization’s services includes: 1) external marketing- relations between customers and the organization, 2) interactive marketing: relations between customers and employees, and 3) internal marketing: the relations between organizations and employees (Huang, 2012). Creating awareness among all points of access to the system is a fundamental step in bringing in and retaining patient volume. Figure 2 below shows this three-pronged approach to marketing.



**Figure 2: Three-pronged approach to marketing services**

**XII. The ACO Model**

 Accountable Care Organizations are becoming increasingly popular in the healthcare landscape. An ACO is a group of physicians, hospitals, and other healthcare providers that work together to serve a specific patient population. The coordinated care results in cost savings, greater efficiency in care, and higher quality care. (Punke, 2013) Since the patient population is required to stay within the ACO for their care, leakage is greatly reduced. Systems that feel that they have the elements necessary to become an ACO can approach payors and Medicare for approval to serve as a model for this new innovation in healthcare (Punke, 2013). ACOs take on greater responsibility in spreading the risk of a patient population across their system of providers (Showalter, 2012). Keeping patients within their system is integral to providing the continuum of care necessary for reimbursement. Even if an organization does not become part of an ACO, there are several lessons in system framework that a healthcare system can learn from the ACO model to help prevent patient leakage.

 For example, aligning consumers’ and physicians’ priorities with those of the accountable care organization is crucial to keeping patients within the organization. Cost savings and efficient care are the basic principles that ACOs are built upon and so integrated care is critical in increasing quality, efficiency, and better outcomes (Sinaiko, 2010). Non-ACO organizations can also adopt these values and also educate and align their members about how integrated care will benefit everyone. In fact, with the wave of healthcare reform moving in this direction already, healthcare organizations should already be adopting efficiency and quality of care as priorities already. This collective focus inadvertently contributes to preventing patient leakage (Punke, 2013).

**XIII. Clinically Integrated Networks**

Expanding upon the ACO model is another effective means of aligning care and preventing patient volume leakage- clinically integrated networks (CIN). A clinically integrated network is a health network that comes together and uses proven protocols and measures to improve patient care, decrease cost, and demonstrate value to the market (Butts, 2012). Although CINs sound exactly like ACOs in that they are set up in the same way, they differ in that any healthcare system can organize itself into a CIN without taking on the tile and government-monitored responsibility of an ACO.

Clinically integrated networks allow the healthcare system to align its employed and independent physicians around the same performance measures. Based on performance and they new payment system, physicians will be incentivized to work together as a network to provide quality care (Butts, 2012).

**XIV. Recommendations**

 After conducting an in-depth analysis of the reasons for patient leakage and methods of preventing it, it is clear that the subject of system leakage is complex with no simple blanket solution. However, just as a leaky pipe must be fixed immediately, the first step in fixing this problem is for health care organizations to set up barriers for leakage and work towards care alignment. First and foremost, sources of leakage must be identified as these are unique to each individual organization. Physician alignment, networking, and education are then vital in providing a first barrier to leakage. In addition to these methods, more aggressive means must be used such as physician contracting, economic credentialing, and incentivizing. These methods are most appropriate for the most influential physicians in a system who are identified through an extensive data analysis.

 Patient focus is the next step in incentivizing patients to stay in the system through financial benefits and savings as well as providing a network of providers and care that does not allow the opportunity to leave the system.

 Once the leak itself has been “fixed”, the healthcare organization must work to strengthen their actual framework so that future leaks are prevented. This step in the process includes strengthening of the system- strong integrated delivery of care, accessibility both for patients and physicians, better quality outcomes, and a sense of engagement for both patient and provider.

 Each of these initiatives can and will contribute to a reduced number of patients being lost from a healthcare system. Identifying which departments and roles can make operational enhancements in regards to each is key but the entire system must then work to integrate the new efficiencies and steps into their operations.

 The figure below summarizes methods of prevention health organizations can employ to stem patient volume leakage.

**Figure 3: Summary of methods of volume leakage prevention by category**

**XV. Conclusion**

 The various contributing factors combined with staggering numbers show that patient leakage is in fact a very pressing problem in the healthcare industry today. Healthcare administrators must work to identify sources of and reasons for leakage and then do what is necessary to stem the problem in ways that work with their organization. While there will never be a complete and total solution to this problem, healthcare organizations must start to take aggressive strides in protecting their bottom line and their organization.

 In addition to lost revenue, patient leakage results in broken, uncoordinated care, which in turn leads to poorer outcomes for the healthcare organization. Most solutions to leakage directly or indirectly lead to patient-centered care, which results not just in better outcomes for the organization, but higher quality care delivered to the population the organization serves. More resources are spent on healthcare delivery rather than recovering from volume leaks. Looking closely at the outcomes that result from stemming patient leakage, it is apparent that the public health consequence that occurs is a ripple effect that leads to better delivery of healthcare and overall improved health status of populations across the country.

 Once the problem has been addressed as a priority and the leak has been “plugged”, a cultural change should happen within the organization that makes both physicians and patients *want* to stay within the system rather than *forced* to stay. This culture change can be brought about by proactive, patient-centered care that results in better outcomes- a result that all members of a healthcare organization will benefit from.

As Dr. William Faber, Chief Medical Officer for Health Directions states, “Rather than focusing on referral leakage, which implies that system providers and staff are not referring patients to other network providers, systems should focus on keepage, or the fundamental principles that will make patients *want* to go where they are referred” (Faber, 2014).

This shift in the perception of how patient leakage is viewed can be tantamount in solving the pressing issue. Patient leakage will no longer be seen as a problem that looks to “patching up” the leaks but rather as a system-wide improvement that will result in the strengthening of the overall framework of the system, where leakage is not problematic.

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