HSG | HSG PHYSICIAN NETWORK
INTEGRITY ANALYTICS®

CUSTOMIZED PATIENT ACQUISITION AND RETENTION STRATEGIES USING UNIQUE ALL-PAYER CLAIMS DATA ANALYSES

HSG PHYSICIAN NETWORK INTEGRITY ANALYTICS®

INTRODUCTION

Many healthcare leadership teams struggle with measuring and managing patient acquisition and retention. Faced with poor internal data on patient behavior that limits strategic insight, health systems frequently find themselves going down one of three detrimental paths:

PATH	DESCRIPTION
Utilizing State Market Share Data	This strategy draws inadequate conclusions about where patients in their market seek care – a strategy that completely misses the competitiveness of the ambulatory landscape in each market and does not drive strategic decision making as it relates to patient retention
Relying Too Heavily on Internal EMR Data	The strategy of being too focused on identifying referrals leaving the network causes health system executives to find themselves confronting providers and their staff about patients not being referred in-network, creating animosity as providers and executives argue over root causes
Buying Into 3rd Party Data Platforms	Platforms provide out-of-date, incorrect or ultimately not useful data that the health system is unable to leverage to drive health system strategy, ultimately resulting in the data platform being used as a PRM tool to drive physician liaison behavior or other relatively low value activities

These approaches largely fail because they do not focus on, or are unable to accurately measure, the fundamental question of **"Where do patients go across the care continuum and why?"** – which, by definition, must include very detailed data on outpatient and ambulatory encounters and summarize that data in a way that is useful for executive-level decision making.

A PATIENT-CENTRIC APPROACH

HSG has developed **HSG Physician Network Integrity Analytics®** to help healthcare leaders get the **customized answers they need about patient acquisition and retention in their market**. As opposed to the inaccurate, obsolete, or otherwise superficial data provided by referral management or physician relationship management platforms, **HSG Physician Network Integrity Analytics®** provides **fully customizable analytics** that answer executive-level questions about patient and provider behavior in their market.

HSG leverages **a unique all-payer claims dataset** to track each patient across the care continuum and identify utilization of services and providers. This patient-level focus ensures any healthcare organization will receive insights that:

1. **Provide direction for a broad array of organizational strategies and initiatives – not just related to physician liaison efforts.**
2. **Are tailored to answer specific questions and/or monitor the ongoing impact of specific actions**
3. **Are fueled by a uniquely cultivated dataset with DRG, CPT and patient-level detail.**

This **patient-centric approach** also helps providers understand their patient panels and provides a broader level of provider engagement in helping change patient behavior. This is more effective than traditional efforts, which focus on questions solely related to physician referral management – did our primary care provider refer to our surgery group? Did the surgeon order testing within the hospital's imaging department? Did our surgery group bring the case to the hospital?

These physician-centric questions put providers on the defensive and take away the partnership needed by administrative and clinical leadership to ensure patients are retained within the health system. After all, physician referrals are just one of many factors driving where patients end up, as shown below:

PATIENT FACTORS	PROVIDER FACTORS

1. Prior experience and/or relationships with the consultant or health system
 	
2. Provider reputation
   • Word of mouth
   • Website
 	
3. Geographic considerations
   • Travel time, difficulty
 	
4. Timely access
 	
5. Insurance issues
   • Networks, including commercial, self-insured, CIN, and direct employer contracting
   • Covered benefits
   • Co-pays and deductibles
      ○ High deductible plans make patient essentially a self-pay
	1. Noted patient factors
	
	2. Existing relationships
	
	3. New relationships
	   • Provider/Consultant care/treatment philosophy
	   • Provider/Consultant communication patterns
	   • Interpersonal treatment of patient/family
	      ○ Consultant
	      ○ Consultant's office staff
	
	4. Health system relationship
	   • Own
	   • Other
	
	5. Timely access
	
	6. Insurance issues (including pre-authorization processes)

APPROACHES TO CLIENT QUESTIONS

With **HSG Physician Network Integrity Analytics®**, HSG leverages its expertise as the consulting leader in Physician Networks and Alignment to help clients not only identify areas of opportunity, but design strategies for addressing those areas of opportunity.

This is accomplished by applying one or more analytic approaches that are best suited to an organization's unique questions and goals. These approaches provide flexible frameworks that allow for efficient, yet customized analysis. Each approach is explored in depth over the following pages.

PATIENT SHARE OF CARE
Tracking a group of patients across the continuum of care over an extended timeframe.

PATIENT FLOW
Identifying patient relationships between providers and/or healthcare facilities.

PROVIDER SERVICE LOCATION ANALYSIS
Diving into the service location activity of single providers, or a group of providers.

MARKET INSIGHT
Studying procedure activity across an entire market or specific geographies.
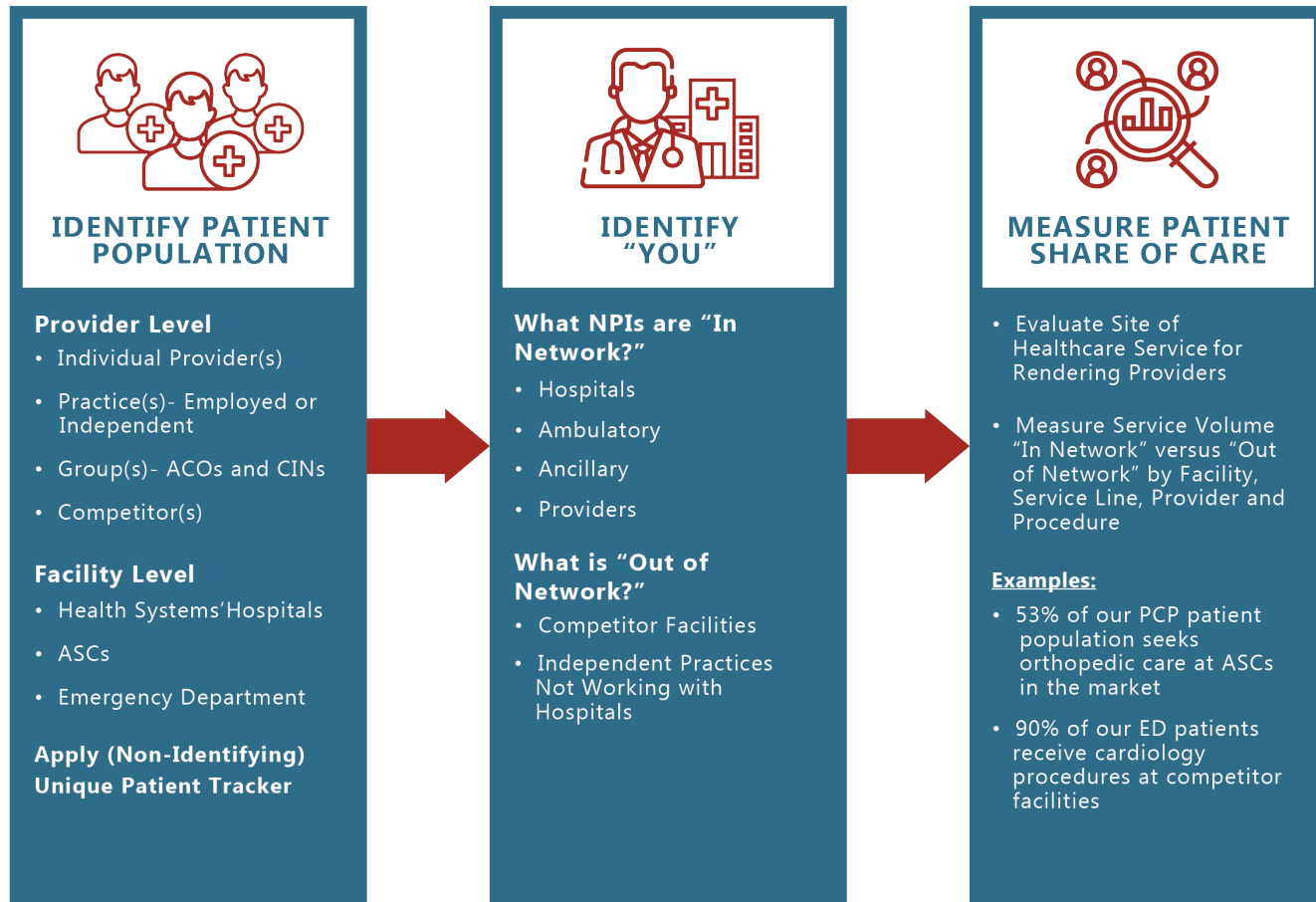
PATIENT SHARE OF CARE

HSG Patient Share of Care tracks individual patients throughout the entire continuum of care by utilizing a unique patient identifier and tracking that patient over an extended timeframe.

Patient Share of Care answers questions specific to patient loyalty and retention such as:

1. Where are our largest gaps in patient retention and what services are patients seeking when they leave our health system?
2. What is our market share for patients on our primary care provider panels?
3. How loyal are our established patients to our healthcare system?
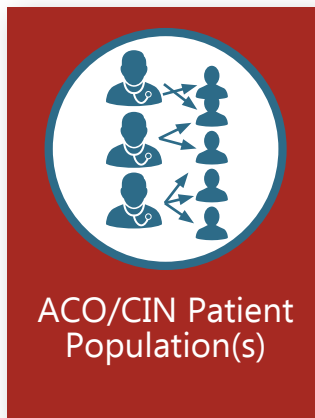4. What are our biggest opportunities to reduce patient leakage?

HSG measures **Patient Share of Care** through the following 3-step process that is customizable to answer specific health system network needs to support their patient retention strategies.

IDENTIFY PATIENT POPULATION

Provider Level
- Individual Provider(s)
- Practice(s)- Employed or Independent
- Group(s)- ACOs and CINs
- Competitor(s)

Facility Level
- Health Systems'Hospitals
- ASCs
- Emergency Department

Apply (Non-Identifying) Unique Patient Tracker

IDENTIFY "YOU"

What NPIs are "In Network?"
- Hospitals
- Ambulatory
- Ancillary
- Providers

What is "Out of Network?"
- Competitor Facilities
- Independent Practices Not Working with Hospitals

MEASURE PATIENT SHARE OF CARE

- Evaluate Site of Healthcare Service for Rendering Providers
- Measure Service Volume "In Network" versus "Out of Network" by Facility, Service Line, Provider and Procedure

Examples:
- 53% of our PCP patient population seeks orthopedic care at ASCs in the market
- 90% of our ED patients receive cardiology procedures at competitor facilities

The patient population(s) that organizations need to more clearly understand can vary drastically by organization. Common populations reviewed are areas in which organizations believe they should have the greatest opportunity to maximize patient retention. Examples include:

Employed Primary Care Patient Panel(s)	Emergency Department Patients	ACO/CIN Patient Population(s)	Independent Practice Patient Panel(s)

HSG PATIENT SHARE OF CARE USE CASE

MEASURING PRIMARY CARE PATIENT BEHAVIOR ACROSS A STATEWIDE NETWORK

A recent health system client with multiple community hospitals and a flagship academic center sought to more clearly understand patient retention as it applied specifically to their employed primary care providers. By studying **Patient Share of Care** at the service line and provider levels, the health system intended to gauge the effectiveness of recent and planned patient retention strategies.

HSG PATIENT SHARE OF CARE PROCESS
1. **All health system employed primary care providers (500+) were included and a patient cohort was created based on established office visits with any of the health system employed primary care providers.**
2. **Service facilities were categorized into "Owned," "Aligned," and "Competitive" entities as it related to site of service.**
3. **All claims associated with those patients were analyzed over a 2-year timeframe and rolled up by service lines and reviewed by individual provider(s) and service locations.**

WHAT HSG FOUND

For a region of interest, almost all inpatient stays (86%) were at system facilities, with 57% at the region's community hospital and 29% at the system's quaternary hospital in the neighboring region. Most specialist office visits were with employed (35%) or aligned (52%) specialty groups. There was minimal overall leakage (8%) to groups employed or aligned with competitive systems.

System-wide Share of Care was 55% to system-owned facilities with an additional 5% to system-aligned facilities. This indicates that 40% of total healthcare revenue from these patients is being captured by competitive facilities and systems. **Patient Share of Care** was extremely variable by service line resulting in identified need for additional focus and reassessment of organizational orthopedic service line strategy.

Measurement is planned to be ongoing to continually measure strategy success and increase patient retention.
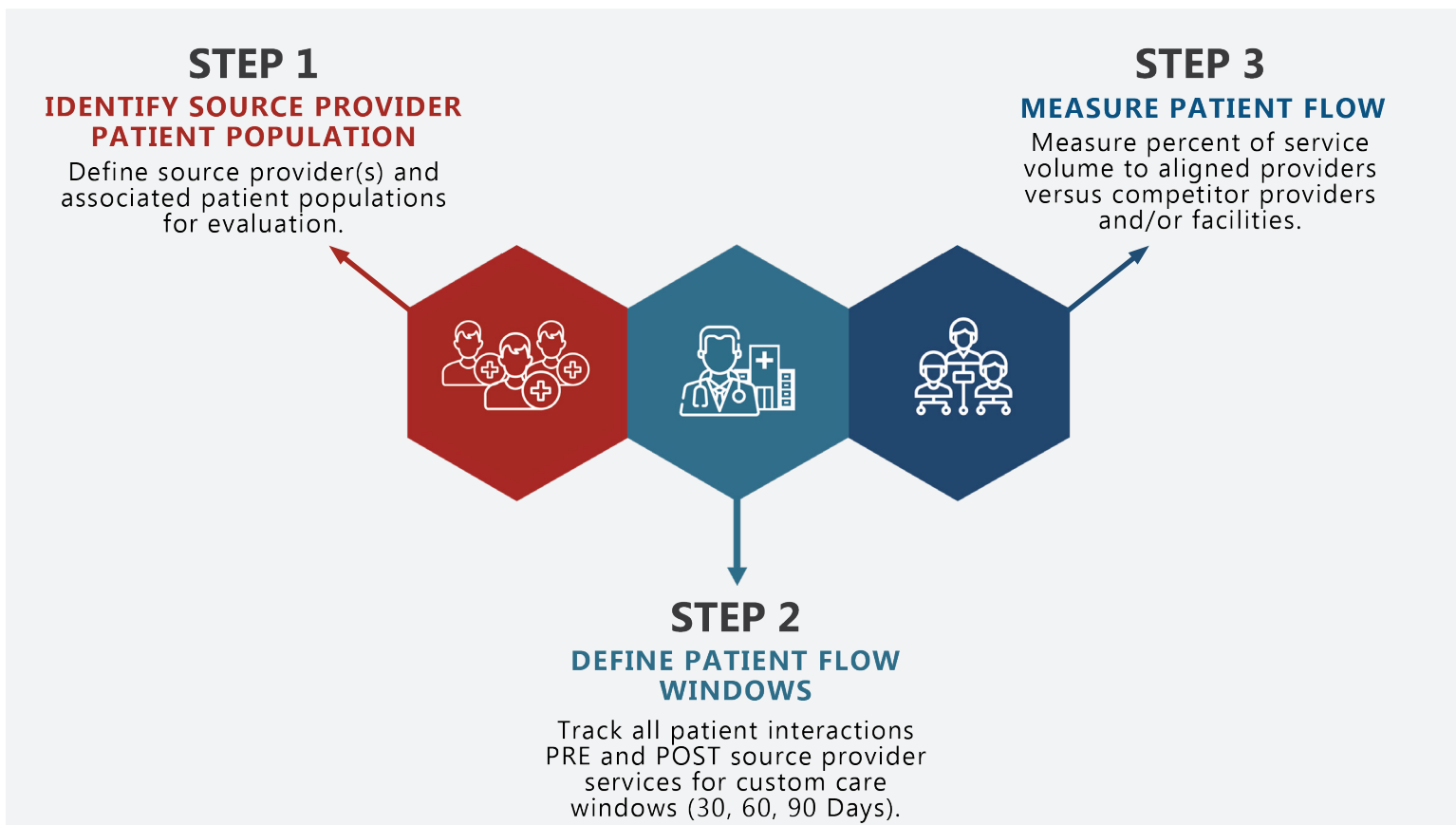
HSG Patient Flow systematically tracks patient relationships across defined time intervals between providers and healthcare facilities.

Patient Flow answers questions specific to patient loyalty and referral retention. Common questions addressed include:

1. Where are our biggest opportunities to reduce patient leakage?
2. Which primary care providers are feeding our aligned or employed specialists?
3. Where are patients receiving services once they are discharged from our emergency department?
4. Which practices should be targeted for alignment opportunities and how can we track effectiveness of previous alignment initiatives?

HSG measures **Patient Flow** through a separate and distinct 3-step process that begins with identification of source provider(s) and the associated patient population(s). Once again, patient populations are customizable to answer the specific business question presented.

Patient Flow windows are dependent on the question being asked but can be opened PRE and POST source provider service provision. As an example, if an organization is tracking patient leakage from primary care to specialist, they would want to utilize a POST **Patient Flow** window. Conversely, if interested in where a specialty group is receiving patient referrals, organizations would want to utilize a PRE **Patient Flow** window.

STEP 1
IDENTIFY SOURCE PROVIDER PATIENT POPULATION
Define source provider(s) and associated patient populations for evaluation.

STEP 3
MEASURE PATIENT FLOW
Measure percent of service volume to aligned providers versus competitor providers and/or facilities.

STEP 2
DEFINE PATIENT FLOW WINDOWS
Track all patient interactions PRE and POST source provider services for custom care windows (30, 60, 90 Days).

HSG PATIENT FLOW USE CASE

MEASURING EMPLOYED PRIMARY CARE TO SPECIALIST PATIENT LEAKAGE

A regional employed physician group sought to more clearly understand patient leakage from primary care to specialty care as it related specifically to their employed primary care providers within the region. With this data, the employed physician group intended to measure the impact of recent and anticipated primary care practice acquisitions in their market

HSG Patient Flow was utilized to measure referral activity from employed primary care to specialists at the overall, individual practice, and individual provider levels for five strategic service lines: cardiology, general surgery, oncology, orthopedics, and urology. Baseline patient leakage was measured prior to primary care practice acquisition and was updated 6-months post acquisition to measure progress over time.

HSG PATIENT FLOW PROCESS
1. **Employed primary care providers were identified (80+) based on practice location, provider type (MD, APP), and specialty type (FM, IM).**
2. **The specialists rendering services were categorized as "Health System Employed or Closely Aligned Specialists" or "Other Specialists in the Market."**
3. **All services related to the patient population were analyzed over a 2-year timeframe. Only relationships that occurred within a 90-day timeframe (POST) from the initial site of service with the employed primary care provider were incorporated into Patient Flow analyses.**
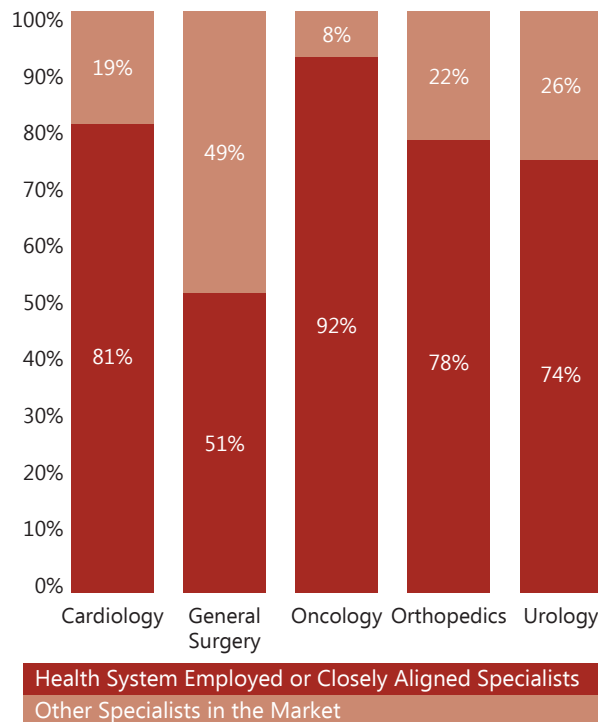
WHAT HSG FOUND

At the overall level, the health system region's employed primary care providers were mostly loyal to the employed or closely aligned cardiology, oncology, orthopedics, and urology service lines. Mostly loyal was defined as more than 75% of all patient service volume going from an employed primary care provider to an aligned specialist within the POST 90-day **Patient Flow** timeframe. Inversely, it was identified that loyalty levels were near 50% when measuring Patient Flow from employed primary care to general surgery at the overall level.

Measuring **Patient Flow** at the practice and individual provider levels to specialists provided valuable insight to the health system region leadership as they evaluated current and proposed practice structures that would be impacted by new primary care practice acquisitions.
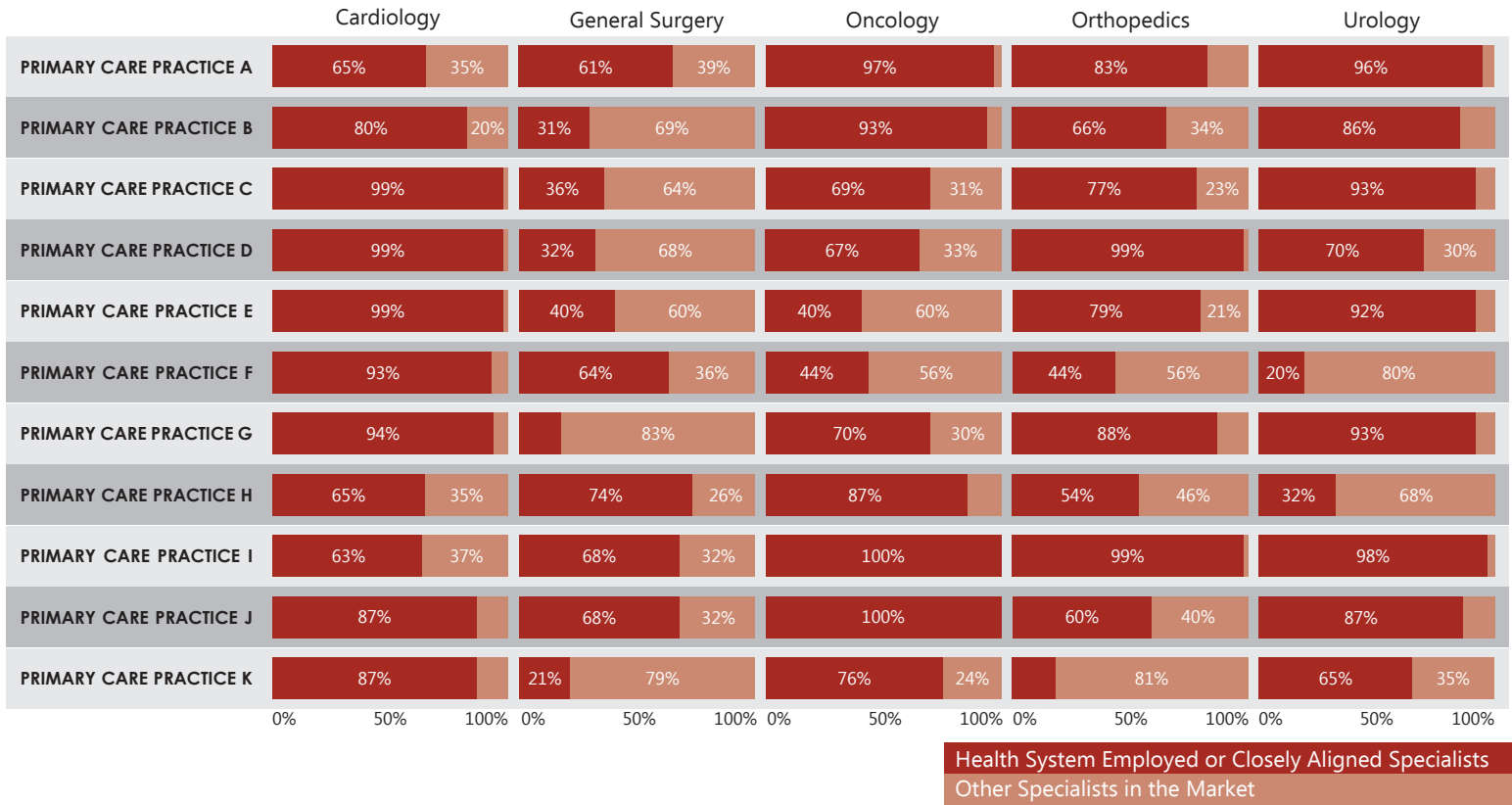
Loyalty from primary care to specialist varied greatly by practice with noticeable outliers for general surgery, orthopedics, and urology that would require immediate intervention. Practice locations and provider mix were reviewed in detail resulting in numerous restructurings based on outcomes of HSG's baseline **Patient Flow** analysis.

PRIMARY CARE TO SPECIALTY CARE - OVERALL

Service Line	Health System Employed or Closely Aligned Specialists	Other Specialists in the Market
Cardiology	81%	19%
General Surgery	51%	49%
Oncology	92%	8%
Orthopedics	78%	22%
Urology	74%	26%

Health System Employed or Closely Aligned Specialists
Other Specialists in the Market

PERCENT OF SHARED VISITS BETWEEN PRIMARY CARE TO SPECIALTY CARE – BY PRACTICE

	Cardiology	General Surgery	Oncology	Orthopedics	Urology
PRIMARY CARE PRACTICE A	65% / 35%	61% / 39%	97%	83%	96%
PRIMARY CARE PRACTICE B	80% / 20%	31% / 69%	93%	66% / 34%	86%
PRIMARY CARE PRACTICE C	99%	36% / 64%	69% / 31%	77% / 23%	93%
PRIMARY CARE PRACTICE D	99%	32% / 68%	67% / 33%	99%	70% / 30%
PRIMARY CARE PRACTICE E	99%	40% / 60%	40% / 60%	79% / 21%	92%
PRIMARY CARE PRACTICE F	93%	64% / 36%	44% / 56%	44% / 56%	20% / 80%
PRIMARY CARE PRACTICE G	94%	83%	70% / 30%	88%	93%
PRIMARY CARE PRACTICE H	65% / 35%	74% / 26%	87%	54% / 46%	32% / 68%
PRIMARY CARE PRACTICE I	63% / 37%	68% / 32%	100%	99%	98%
PRIMARY CARE PRACTICE J	87%	68% / 32%	100%	60% / 40%	87%
PRIMARY CARE PRACTICE K	87%	21% / 79%	76% / 24%	81%	65% / 35%

Legend (x-axis for each: 0% 50% 100%)

■ Health System Employed or Closely Aligned Specialists
■ Other Specialists in the Market

Lastly, **Patient Flow** measurement was also conducted at the individual provider level to each of the same five specialties. As would be anticipated, patient leakage by provider was the most variable. After data review with individual primary care providers there was quite a bit of surprise at which specialists patients selected for services in the market and surrounding areas. Many practitioners were able to incorporate feedback from reporting into their daily practice to further educate their patient populations on which specialists they have relationships with and will be able to continue open lines of communication with following specialty services.

Measurement was updated 6 months from primary care practice acquisition date showing stable **Patient Flow** for cardiology, oncology, orthopedics, and urology with a 3% increase in general surgery volume to aligned specialists. Measurement is planned to be ongoing to continually measure strategy success and minimize patient leakage from employed primary care providers.

		Number of Shared Visits	Percent of Shared Visits	Number of Unique Patients
Cardiology	**Employed Provider**	1,743	72.1%	58
	Other Provider	673	27.9%	26
	Total	**2,416**	**100%**	**77**
General Surgery	**Employed Provider**	954	56.3%	18
	Other Provider	739	43.7%	9
	Total	**1,693**	**100%**	**25**
Oncology	**Employed Provider**	512	89.4	15
	Other Provider	61	10.6	2
	Total	**573**	**100%**	**15**
Orthopedics	**Employed Provider**	644	86.4%	18
	Other Provider	101	11.6%	6
	Total	**745**	**100%**	**22**
Urology	**Employed Provider**	556	93.8%	17
	Other Provider	37	6.2%	4
	Total	**593**	**100%**	**20**

HSG Provider Service Location Analysis helps healthcare leaders remove the black box of what independent and competitor providers are doing in the market by identifying what patients they are interacting with, all sites of service those providers are seeing those patients in, and what services are being performed in the identified sites.

HSG Provider Service Location Analysis answers questions specific to understanding the practice patterns of non-employed providers, such as:

1. How many Orthopedic Cases are being done by a local independent Orthopedic group at a competitor facility? At their Ambulatory Surgery Center?
2. What cases are specialty clinic physicians keeping at our facility versus taking the patients out of market to another facility?
3. How much of an Independent Cardiology Group's interventional cardiac catheterization volume is being done at our facility versus others?

HSG conducts **Provider Service Location Analysis** through a 3-step process that begins with identification of source provider(s) and identifying all patients that saw the source provider, what service(s) they received from the provider and the site of those services (office location, acute care facility, ambulatory surgery center, etc.).

STEP 1
IDENTIFY PROVIDERS

Define source provider(s) and associated patient populations for evaluation.

STEP 2
IDENTIFY SITES OF SERVICE

Measure site of service location (Office, Acute Care, Ambulatory) for the patient population.

STEP 3
IDENTIFY SITES OF SERVICE
BY PROCEDURE

Measure site of service for ICD-10 and CPT-level procedures.

HSG PROVIDER SERVICE LOCATION ANALYSIS USE CASE

EVALUATING THE POTENTIAL BENEFITS OF PURCHASING AN INDEPENDENT CARDIOLOGY GROUP

The leadership of a tertiary health system in an urban market was evaluating its opportunities for market share growth with a focus on Cardiology. A large independent cardiology group in the market was known to be working with at least three other health systems in the market – resulting in patients being split four ways from a market share perspective. Our client health system desired to understand what percentage of cases were being taken to competitor health systems, with a focus on identifying the potential return-on-investment on an alignment strategy with the cardiology group.

HSG Provider Service Location Analysis was utilized to identify all patients who had interacted with the Cardiology practice's providers in the past calendar year. For this group of patients, HSG evaluated site of service for all Cardiology-related claims performed by one of the practice's providers, as well as the specific service(s) performed at those sites.

HSG Provider Service Location Analysis Process
First, HSG broadly grouped the services performed by the group into specific service-lines within Cardiology: Electrophysiology, Cardiac Catherization, Medical Cardiology, Nuclear Medicine, and general Evaluation and Management codes to understand what percent of the group's volume each service line was.

Next, HSG evaluated specific types of services and where those cases were performed. In the instance of Cardiac Catheterization, our client learned that roughly 50% of the group's total catheterizations were being performed with the client facility, while the other 50% were largely equally spread among the three competitor systems.

Finally, HSG incorporated **HSG Patient Flow** and evaluated the sources of referrals for the group by evaluating what primary care providers the Cardiology group's patients had visited PRE 90 days of their Cardiology visit. Our analysis showed that approximately 33% of the group's referrals came from Primary Care providers employed by the client health system. Of the other 67%, competitor primary care groups were not a significant factor, providing under 20% of all referrals to the Cardiology group.

WHAT HSG FOUND

Overall this analysis gave the client a deep understanding of the potential patient volume it was not capturing from the group, while also identifying potential issues with referrals being cut off by competitor primary care providers should our client move forward with an acquisition or other significant alignment activity with the group. The analysis overall showed large potential gains in market share through patient referral capture by alignment with the group as well as relatively low-risk of the Cardiology group's referral patterns shifting post-alignment.

HSG Market Insight provides health systems with inpatient, outpatient and ambulatory market share calculations that they've always wanted but have never been able to calculate. These market share calculations are available at the health system, service line, specialty or procedure level for an entire market.

This allows health systems to answer such questions as:

1. What percentage of colonoscopy volume do we capture in our market?
2. What percentage of primary care visits in our market are performed by our employed providers?
3. How many imaging studies are done at our facility versus free-standing centers in the market?
4. What cases are being performed at the Ambulatory Surgery Centers in our market?

HSG Market Insight is executed through a three-step process focused on the following:

- Identifying the type of Visit or Procedure our client wants to understand better
- Defining the providers in the market performing those services
- Identifying where those visits or procedures took place. With those three data points, HSG can calculate a market share figure for any metric that a health system wants to measure on an ongoing basis

STEP 2
DEFINE MARKET
(PROVIDER OR LOCATION/ BILLING ENTITY)

Define market for assessment based on facility type or geographic location.

MARKET INSIGHT

STEP 1
IDENTIFY PROCEDURE(S)

Define procedure(s) for market evaluation.

STEP 3
CALCULATE SHARE OF SITE SERVICE

Calculate market share for procedure based on market site of service.

HSG MARKET INSIGHT USE CASE

IDENTIFYING PRIMARY CARE MARKET SHARE

A regional health system client in a competitive market had historically struggled to understand the effectiveness of its primary care strategy, particularly in markets where it was making new investments as part of an overall growth strategy. The client had used growth in inpatient market share as a proxy for success, but found that this did not reflect their success in penetrating these outlying geographic markets.

HSG Market Insight was leveraged to look at all visits billed with a Primary Care Evaluation and Management (E&M) code within the past two years, past 18 months, and past year in each market that the health system was focused on, and identify 1) what percentage of total primary care visits were being provided from the health system's employed primary care providers that had been established in the market, and 2) was that percentage changing over time?

HSG MARKET INSIGHT PROCESS

1. **Identify all providers in each market who were producing primary care E&M visit codes (independent, competitive and health system employed)**
2. **Identify all patients who had seen those providers within the last two calendar years**
3. **Evaluate all E&M codes produced for those patients**
4. **Calculate a total volume for the market for primary care E&M codes as well as what percentage of those codes were being generated by the health system's employed providers, resulting in a market share calculation.**

In addition, based on the data collected during this process, **HSG was able to identify the following items crucial to understanding the primary care market:**

1. **Each provider's approximate patient panel size –** providing insight on who the dominant providers in each practice were, along with the visit intensity for the patients in each providers panel
2. **Each provider's approximate payer mix –** identifying the populations served by each provider
3. **Each provider's coding distribution–** resulting in insights about the complexity of patients in each provider's panel, as well as potential compliance concerns

WHAT HSG FOUND

The data generated from **HSG Market Insight** exponentially increased the client's understanding of the market, and informed future primary care strategy and potential acquisition opportunities.

The data showed that the client's perceptions of their success in penetrating the primary care market in a handful of key growth areas was not as successful as perceived. One specific geographic area the client had targeted for geographic growth and opened a primary care location in within the past 24-months was producing less than 15% of the primary care market share for all providers in region. This was much lower than anticipated as they believed there to be significant growth opportunity when opening the practice. They were falling behind in a race to keep up with a market that was quickly growing with commercially insured family patients and needed to reinforce their primary care strategy.

Based on the data provided, they increased recruitment to the market and added Advanced Practitioners. Guided by the competitive data they received from HSG, they also pursued an acquisition of an existing private practice in the market that had a solid payer mix and productive providers.

HSG Physician Network Integrity Analytics® was developed to address common client challenges. We understand there is not a one-size-fits-all approach, but multiple analytic approaches are required to comprehensively evaluate markets and build customized strategies for patient retention and acquisition.

All four analytic approaches are necessary if your organization wants to fully understand patient dynamics in your marketplace.

1. **Patient Share of Care** comprehensively measures all patient purchasing decisions related to healthcare services in your market.
2. **Patient Flow** identifies the relationships of how patients are moving from one site of service to the next.
3. **Provider Service Location Analysis** clearly defines where providers render their specific services.
4. **Market Insight** is the constant gauge for effectiveness of your strategies by measuring ambulatory market share down to the procedural level.

GETTING STARTED

While other consulting companies may want to sell you data, HSG partners with health system leadership teams to utilize differentiated data to make strategic decisions. **HSG Physician Network Integrity Analytics®**, when combined with HSG's expertise in Physician Networks and Alignment, provides a superior approach to address the Patient Acquisition and Retention issues that drive health system's bottom line.

To learn more about **HSG Physician Network Integrity Analytics®** and to receive a complimentary sample evaluation report for any of the analytic approaches outlined, contact DJ Sullivan or Eric Andreoli.

We Build High-Performing Physician Networks
so Health Systems can Address Complex Changes with Confidence.

HSG

DJ's focus at HSG has been on physician network strategic planning with physician relationships as the main area of emphasis. He has partnered with clients to provide ongoing support in defining optimal areas for geographic growth and development, identifying physician need within markets, developing service line specific strategies and tactics, building long-term plan to achieve organizational objectives, and optimizing network integrity using **HSG Physician Network Integrity Analytics®** among providers within hospital networks.

DJ obtained his Master's of Business Administration and Master's of Healthcare Administration degrees from the University of Utah. He also holds a Bachelor's of Science degree in pre-medicine from Brigham Young University.

DJ Sullivan

MBA, MHA

Director

Email: DJSullivan@HSGadvisors.com
Office: (502) 814-1198
Cell: (502) 322-6383

Eric Andreoli is a Director at HSG. In this role, he supports a variety of projects including strategic planning, operational assessment, due diligence, and physician compensation. He draws from a technical background to provide rigorous data analysis and practical solutions to complex problems. He has been integral with building the processes involved in optimizing network integrity using **HSG Physician Network Integrity Analytics®**.

Prior to obtaining an MBA from the Kelley School of Business at Indiana University, Eric worked as a research assistant at IU Health in Indianapolis. He holds a Bachelors of Science in biotechnology from Indiana University.

Eric Andreoli

MBA

Director

Email: EAndreoli@HSGadvisors.com
Office: (502) 814-1193
Cell: (502) 322-2087

HSG