

Decision Support Strategies to Drive Better Health Outcomes

KEY FACTS & FIGURES

- 12 million people a year experience a diagnostic error
- Medical errors are the third leading cause of death in the U.S.
- \$750 billion is wasted annually on inappropriate care and other inefficiencies
- 77% of health advisory interventions led to a change in diagnosis, treatment, and/or provider

Introduction

Serious illness takes a significant toll on both individual health and healthcare costs. However, there is another important health issue that must be considered in any discussion of the human and financial costs of illness. A recent Johns Hopkins study¹ reports that medical errors, many caused by inadequate communication amongst healthcare providers and between providers and patients, are in fact the third leading cause of death in the United States. The negative impact of these errors on individual patients cannot be overstated.

Research continues to demonstrate that misdiagnosis and the delivery of inappropriate care are ongoing problems, affecting most Americans at least once in their lifetime. Patients diagnosed with a serious illness face increased health and financial risk at a time when they are stressed, vulnerable, and least equipped to effectively understand and mitigate these risks. This complex situation highlights the essential role that decision support strategies have to play in supporting patients and helping them to become active, informed participants in their healthcare decisions.

This paper brings together current research related to the complexities of treatment decisions and the associated rising costs. It also examines current research and new data on how a range of decision support strategies can help manage risk, drive patient engagement in healthcare decision making, and improve medical outcomes.

Background

Medical errors continue to be a significant problem, with researchers at Johns Hopkins estimating that more than 250,000 Americans die each year due to preventable medical errors.¹ Table 1 highlights the contribution of misdiagnosis and treatment errors to these deaths, along with their associated costs. The Institute of Medicine notes that each year, approximately 12 million people in the U.S. who seek outpatient medical care experience some form of diagnostic error and that most Americans will experience an inaccurate or late diagnosis at least once in their lifetime.²

Table 1: Impact of Misdiagnosis and Inappropriate Treatment

Key Statistics	U.S. Trends	Cost Impact
MISDIAGNOSIS		
Patient deaths from medical errors	251,454 a year	
Patient deaths from diagnostic errors	40,000 - 80,000 a year	
Frequency of diagnostic errors	12 million patients impacted annually	
Misdiagnosed Cancer Cases	1 in 71	
Misclassified Cancer Cases	1 in 5	
Cost of diagnostic errors and other inefficiencies		\$750 billion a year (30% of annual healthcare spend)
INAPPROPRIATE TREATMENT		
Procedures performed with unsupported clinical evidence	30%	
Cost of overtreatment		\$210 billion a year

Other studies find the incidence of misdiagnosis even higher, noting that:

- 10 to 20% of cases are misdiagnosed³
- 47% of clinicians encounter preventable diagnostic errors monthly⁴
- One in four breast biopsies may be misdiagnosed⁵

Misdiagnosis can result in delayed treatment or patients receiving the wrong diagnosis or treatment, which can cause serious harm, disability, and even death. One study found that 40,000 to 80,000 people a year in the U.S. die as a result of diagnostic errors.⁶ The financial cost of misdiagnosis is also significant. An estimated \$750 billion, representing 30% of annual healthcare spending in the United States, is wasted on unnecessary services and other inefficiencies.⁷

“Researchers estimate that more than 250,000 Americans die each year due to preventable medical errors.”

Another aspect of medical error is inappropriate treatment, which can take several forms. Patients may receive treatment that does not meet the appropriate standards of care or is not supported by clinical evidence. Patients are also at risk when they undergo unnecessary procedures or surgeries that present a high risk of complications or do not deliver the desired results.

For example:

- Only 37% of women diagnosed with ovarian cancer receive care that meets guidelines developed by the National Comprehensive Cancer Network, lowering their survival rates.⁸
- Nearly 12% of patients with stable cardiovascular disease undergo inappropriate angioplasty and stent placement. These unnecessary stents can put patients at risk for blood clots, post-operative bleeding from anti-clotting medications, and artery blockages caused by scarring. Unnecessary stents cost the U.S. healthcare system \$2.4 billion a year.⁹
- Approximately 30% of common surgical procedures are provided for reasons not supported by clinical research and may be harmful to patients who undergo these procedures.¹⁰

Patients receive inappropriate treatment for a range of health problems, including some types of cancer, back pain, heart disease, and knee pain. In its worst form, inappropriate care can cause complications and sometimes permanent disability or death. It also can hinder productivity, result in significant legal costs and malpractice payouts, and lead to considerable spending on unnecessary or misguided care, a cost that the Institute of Medicine estimates to be more than \$210 billion a year.⁷

Evolution of Decision Support Strategies to Manage Risk

With the high human and financial cost of misdiagnosis and inappropriate treatment, patients need effective strategies to help manage and mitigate these risks. One strategy is to seek a second opinion when facing a serious diagnosis or recommendation for surgery. Second opinion services can provide patients with access to experienced specialists to review their case and confirm or refute the diagnosis and/or treatment recommendations. These services can have a significant impact on patient outcomes:

- Seven different studies on the outcomes of patient-initiated second opinions found that 10 to 62% of the opinions yielded a major change in diagnosis, treatment, or prognosis.¹¹
- Another study that focused on second opinions of pathology in cancer cases found discrepancies between the original pathology report and the second opinion in 25% of the cases. In total, 6.2% of patients received a change in diagnosis that potentially affected treatment plan and patient care.¹²

For many years, second opinion services have been positioned as a tool to guide patients to higher quality care. In organizations that have integrated conventional second opinion services into health benefit programs, there have been challenges associated with utilization and follow-through on the recommendations provided. One study examining 6,000 virtual second opinion cases found that only 61% of those who received a second opinion planned to follow the recommendations. Not only that, but only one out of a thousand who had access to this service as a free benefit actually used the service.¹³

In the past, most patients did not question their physician's diagnosis and treatment recommendations nor seek a second opinion. That trend seems to be shifting. With the growing prevalence of high deductible health plans and studies that report the continued prevalence of medical errors and misdiagnosis, people are paying more attention to the impact of healthcare decisions on their outcomes and costs.

Second opinion services are evolving in response to these changes. Some innovative strategies now encompass a more holistic and comprehensive concierge or health advisory approach that supports increased engagement and follow-through. They also have incorporated physician-directed second opinion services for ongoing support to ensure that the right questions are asked and answered, that the cases submitted are for serious or complex issues, and that the patient fully understands the opinion after it is delivered.

Concierge health advisory programs have their roots in a private-pay model that connects individuals and their families with a professional health advisor who helps manage their health risks and guides them through the healthcare decision-

making process. The advisor interfaces with the healthcare system, making the process more efficient and alleviating some of the stress that accompanies a serious illness or injury. To that end, health advisory services are now being offered in a high-touch concierge manner through group benefit programs. This presents an affordable and effective alternative to more narrowly defined benefit options such as second opinion and other decision support services.

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As decision support needs intensify, health advisory services are evolving to address a broader spectrum of medical conditions and treatments, reaching beyond traditional services to include:

- *Unrestricted access to a broad range of specialists for expert medical opinions and second opinions that are delivered in a timely manner*
- *Scheduling of appointments for in-person visits and coordination of remote virtual consultations*
- *Customized research and profiling of top healthcare providers to address specific conditions and treatments*
- *Evidence-based information about a disease, treatment options, risks/benefits of different approaches, and clinical trials*
- *Administrative support to confirm physician availability and insurance network coverage when facilitating appointments and transfer of medical records*
- *Collection, review, and organization of relevant medical records to improve patient-provider communications for better outcomes*
- *Ongoing contact with the patient between appointments to encourage follow-through on prescribed treatment plans*

Research has validated that decision support strategies incorporating second opinions have the potential to improve the quality of care while avoiding wasteful or unnecessary spending. To be deployed on a large scale, however, mechanisms should be in place to encourage greater patient engagement in the decision-making process and follow-through on the recommendations provided.

Methods

To examine the effect on patient outcomes when using a case-based health advisory approach to decision support, PinnacleCare reviewed data from a sampling of 1,373 cases with known outcomes from 2012 to 2015. Encounters were

defined by patient demographics, and the type of episodic health advisory service provided. ICD-9/ICD-10 codes were captured for the diagnosis both pre- and post-intervention. Each step of the health advisory service was tracked based on patient feedback and the ongoing collection of medical records documenting the final outcome.

As part of the service delivery, patient feedback was obtained through direct contact (calls or emails between the patient and the advisor) and a written customer survey, which was automatically sent to every patient at the conclusion of their encounter. Medical records were collected at the start of the encounter to confirm the diagnosis in question and gather specific details and nuances about the diagnosis. Medical record collection continued after scheduled appointments to ensure an accurate and objective determination of outcome.

Results

Recorded outcomes were analyzed and categorized as follows:

- **Avoided unnecessary testing:** *An informed decision to abandon diagnostic testing advised by the original treating provider*
- **Avoided surgery:** *An informed decision to proceed with a non-surgical approach rather than surgery recommended by the original provider*
- **Change in surgery:** *An informed decision to proceed with a different surgical approach than that recommended by the original provider*
- **Change in diagnosis:** *A different clinical diagnosis based upon expert review of diagnostic imaging, pathology tissue slides, and/or an in-person evaluation*
- **Change in treatment plan:** *An informed decision to proceed with a different treatment approach than that recommended by the original provider*
- **Transfer of care:** *Complete transfer of care from original provider to recommended expert provider or Center of Excellence (COE)*

Results from the outcomes analysis of health advisory interventions are presented in Table 2.

Table 2: Outcomes from Health Advisory Interventions

Intervention Results	Number of Cases	Percent of Total
Avoided unnecessary testing	15	1.2%
Avoided surgery	30	2.2%
Change in diagnosis, surgery, or treatment plan	411	30.0%
Transfer of care to an expert provider or COE	595	43.3%
TOTAL PINNACLECARE INTERVENTIONS (N=1,373)	1051	76.7%

Examination of the data showed that 33% of interventions resulted in a change of diagnosis or treatment and 43% involved transfer of care to an expert provider or COE. In aggregate, 77% of interventions resulted in a change in diagnosis, treatment, and/or expert provider.

A significant number of these changes in diagnosis or treatment helped patients avoid serious, unnecessary surgeries related to orthopedic, cardiac, and other conditions, as outlined in Table 3.

Table 3: Treatment Classification for Avoided Surgeries

Type	Treatment Classification	# of surgeries avoided
Orthopedic	Joint Replacement	3
Orthopedic	Sports Medicine/Arthroscopies Knee, Hip, Shoulder	3
Orthopedic	Spine Surgery	4
Orthopedic	Trauma	3
Cardiac	Congenital Heart	3
Head/Neck	Thyroidectomy	6
Gastrointestinal	Bowel resection	3
Genitourinary	Urologic / Gynecologic	3
Other		2
TOTAL		30

Conclusions

Decision support strategies that incorporate health advisory services can expand the impact and utilization of conventional second opinion services. Health advisory services delivered in a concierge-like manner can take on a greater share of the administrative burden for the patient and facilitate face-to-face appointments with expert providers. As a result, they enhance patient engagement and help instill greater confidence in healthcare decisions. Ultimately, patients are more likely to consider their options and follow-through on expert opinions when they have met the right provider and feel supported by a team that they trust to guide them through the decision process.

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For more information about decision support strategies to drive better outcomes, please contact PinnacleCare at www.pinnaclecare.com/info/outcomes.



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