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The purpose of this invited review is to promote understanding of fundamental health care finances, to gain acknowledgement of financial realities in our institutions, and to expand the “tool box” for cardiothoracic surgeons.

Our institutions, while of varied sizes, affiliations, networks, and associated medical and allied health schools, all have a strategic and operating plan cycle. In health care, just like any other entity, finances are not so much a direct strategic aim of any organization, but rather the means by which the goals of the organization can be accomplished. A sustainable margin is necessary for an organization to achieve its aims.

Understanding this linkage is critical to understanding how finance fits within any given entity. As demonstrated in Figure 1, our institutions have targeted strategies that have evolved from strategic plans to create strong operating performance, generate cash flow margins for reinvestment for one’s mission, as well as prudent capital investment both in bricks and mortar and human resources. One could view this as a series of additive realities (Figure 2), noting that a positive clinical margin can be used to create investment income, which then provides additional monies for investment in the future of the institution, whether the institution is an independent hospital or an academic medical center. In the complex settings of academic medical centers, which ultimately have multiple missions for which not all are financially accretive, it is the clinical margin that typically fuels the educational investment in the medical school and the research investment in basic science and health services research. In addition, philanthropy represents an additional source of cash that allows hospitals and academic medical centers to be able to invest in their future.

In today’s climate, with declining reimbursement, bundled care, and capacity constraints being major concerns, the ability to continue to invest in oneself, whether it be education, research, or patient care, may rely heavily on a team approach (not just gift officers!) to generating philanthropic support. Outside of operations, investment income, and philanthropy, an organization may also use debt to accomplish its strategic aims. However, when using tax-exempt debt, access to debt markets is often limited to particular projects, which ultimately have to stand on their own to generate margin to repay the capital as well as provide investment for the future.

Measuring the financial outcomes is critical to ensuring that the implemented strategies are having the desired impact. Performance is typically measured based on the ability by which inflows exceed outflows, which is discussed in greater detail later. A major teaching hospital, also known as an academic medical center, may be affiliated with a medical school, with the hospital functioning as a separate entity, or one in which the medical school is a part of a health system. In the latter arrangement, the measurement of performance becomes more complicated with a consolidated financial income statement as seen in Figure 3, listing revenue, expenses, operating and total margins, and ultimately, cash flow margin, noting the transfer that occurs in support of the medical school’s academic and research missions from the clinical operating margin. As is evident in an institution with a hospital functioning without a medical school, the financial statement, while “consolidated” and in which it may have funding of other aspects of the institution and affiliated community clinics, there would be no incremental transfer of funds to a medical school or school leadership. In the current environment, it should also be noted with progressive affiliations, mergers, and expansion of hospital networks, it would be anticipated that decisions regarding monies would be centralized, recognizing the realities of profit or loss at different individual institutions, with a centralized board deciding and controlling financial decisions, budgets, and investment plans.

With this brief background, all hospitals have a foundational approach to achieving excellence, which has a common thread across institutions, whether they be...
academic training institutions or rural community hospitals. These goals generally include:

1. Optimize quality and safety for patients
2. Develop employees into caring, expert, and successful leaders
3. Create value for the individual as well as populations
4. Enhance the patient experience
5. Improve diversity and inclusion
6. Demonstrate strong financial stewardship

Revenue Cycle
Regardless of entity structure, the ultimate measure of financial success for an organization is highly dependent on its ability to collect payment for services provided. It is essential to understand what institutional financial leaders recognize as the 3 components of the revenue cycle process and how a patient encounter “flows” through the system. The 3 components are:

1. Patient access and management
2. Patient services
3. Billing of services

Patient Access
While this may seem uncomplicated from the physician perspective, patient access is a critical organizational entry aspect for institutions and includes scheduling and preparation of the patient encounter, whether inpatient or outpatient. A patient record is generated, and financial clearance or vetting occurs. This necessitates accurate patient information, accurate insurance information, verification of insurance, and verifying that a referral has been created if it is considered necessary. Furthermore, obtaining prior authorization for the service to be rendered may be necessary, and clarification of the estimate for the patient’s responsibility for a portion of the bill should be estimated and shared with the patient when applicable. This then creates consideration of other alternative payment sources, including community sources and charity care when necessary. This part of the financial equation has become of increasing importance in recent periods given the impact of price transparency, Medicaid expansion in many states, and development of employers contracting directly with health systems as opposed to with a health plan.
Patient Services

This second component involves the appropriate charging and coding for the service and making sure medical necessity is met. In charging for the encounter, all services are recorded at standard charges. All charges are supported by physician orders and documented, and the charge structure must conform to third-party requirements (governmental payers and commercial insurance companies). All charges are then assigned a proper procedure code and diagnostic codes. Patients who are admitted must meet admission criteria. The complexity and breadth of the coding process has necessitated the use of technology, both now and in the future.

Billing of Services

The final aspect of the revenue cycle includes billing of services rendered and collection of payment from the payer. It is critical to generate timely, complete, accurate, and compliant claims and statements. Financial reality recognizes that earlier, more rapid claims submission equates to greater short-term cash flow and facilitates meeting the payer time frame for submission. It is imperative that the claims be complete and accurate without discrepancy. Patient care and procedures not billed cannot be collected, and payers may deny claims if inaccuracies exist.

If a claim is denied, this adds additional cost and expenses to the institution in the form of obtaining additional information on the claim and appealing the decision. The process by which an organization follows-up on denials as well as seeks to collect from those who do not pay is an important and often overlooked aspect to not only financial health but also the patient experience.

Compliance with billing time frames and documentation is payer specific and needs to be recognized and understood by the institution. Regardless of the setting, organizations need to also be prepared for audits or other oversight of the billing process that in some cases could extend years beyond the original patient encounter. The more efficient an organization’s revenue cycle process is will have a direct impact on its ability to meet its overall strategic aims.

Interpreting Performance

Institutional Revenue

When one looks at the facility (hospital) sources of revenue, they can be broken down into inpatient and outpatient. Often times, the main source of inpatient revenue is Diagnosis Related Group payments (fixed payments determined by payer formulas). There are also charge-based payments, capitation plans, flat-rate per diem plans, cost-based reimbursement plans, and pass through payments. In the outpatient realm, patients may have an ambulatory payment classification. Other outpatient sources include charge-based payment, capitation, fee-screen approaches, and pass through payments.
Every institution has a unique payer mix, based on such things as the patient population served and geography. Although two organizations may provide a similar set of services, the mix of payers may result in a different financial outcome. Organizations aim to have a higher percentage of their revenue come from payers that pay higher relative to others based on the contracts negotiated.

A unique and important aspect of health care systems to be understood is the payer and provider perspective on denial of claims. An estimated 9% of all claims are initially denied by the payer.1 There can be many reasons claims are initially denied, including lack of a preauthorization, coding errors, and incorrect procedure and International Classification of Diseases code categorization, among the many. Denials that lead to rework to process the claim in the hospital and resubmit for payment is estimated to cost $118 per claim and add more than $8 billion in appeals-related costs for hospitals in the United States in a given year.1 Success rates for the appeal process vary by hospital and can range from 55% to 98%.2 The reality is denials play a role in a payer’s profit. Given the negative impact to operating margin for hospitals and impact to patients who may have to pay for payer payment denials, denial prevention is a key strategy in margin improvement efforts.

Cost Accounting—What Is It and Why Is It Important
A cost accounting system is a framework that hospitals can use to ascertain actual costs of services provided within the organization, including labor and supplies, the two largest expense categories within a hospital. Expenses are determined for patient encounters through direct attribution or by standardized cost standards (allocation methodology). Having the ability to estimate accurate costs for services provided is a critical component to understanding profitability across the hospital spectrum. It is frequently used by hospital financial management teams to both understand the realities of profit and loss as well as to make informed business decisions, leading to improved understandings of margin by various service lines. Cost accounting systems can aid in the creation of hospital strategic/business plans and targets. Furthermore, when finite resources are a reality or concern (operating rooms, beds, etc), cost accounting systems can help pinpoint or facilitate understanding of which services provide the largest margin opportunity to improve the finances of the hospital.

As a part of understanding hospital costs, it is important to note the different types of cost and how each impacts financial performance.

1. Fixed direct costs. These are costs that do not change over a specified time horizon with an increase or decrease in activity. Categories for this include fixed labor, which includes physician salary and associated benefits. Also included in this category are fixed equipment, equipment depreciation and maintenance, and other fixed expenses such as administrative expenses, which include office supplies, travel, phone, and postage.
2. Variable direct costs. These are costs that change in direct relationship to increases or decreases in patient activity. Categories for this include variable labor, which includes nursing and technical staff personnel and associated benefits. Also included in this category are patient supplies, which include medical/surgical, pharmaceuticals, and other minor supply items.
3. Indirect costs. These are costs that are related to “doing business” that are not directly accountable to activity. This would include the building, utilities, information technology, insurance, medical records, and billing and registration.

The Budget Cycle
Each year, hospitals partake in budget cycles to determine expected revenues and expenses for the next cycle (typically a fiscal year or 12 months), yielding an overall margin target. Many budget cycles are 4 to 5 months in length due to the complexity involved, although some organizations have also implemented rolling forecast processes in the hopes of decreasing this cycle time. The first step in developing the budget is determining the overall activity expected in the coming fiscal year and making especially sure that the inpatient volume “fits” within the system. Once complete, the focus turns to developing the revenue and expense budgets pertaining to this activity expectation. Along the way, there may be periods where “gaps” need to be filled to achieve the targeted margin of the institution in that budget cycle. The budget encompasses all inpatient and outpatient activity and can be shown separately. Many advanced organizations will use the concepts from the budget and apply them over a long time horizon (usually 5 or 10 years) to allow for long-range cash generation and investment planning.

Key Financial Statements
When thinking about revenues and cost types, clarity and understanding is enhanced by viewing the income statement, which portrays the financial results of the institution’s operations during a period of time, such as 1 month, quarterly, or yearly. This is also often referred to as a profit-and-loss statement or statement of revenues, expenses, and changes in net position. The operating revenue is the total of all payments received for the rendering of services. The operating expenses are the costs incurred related to the rendering of services and other associated indirect costs.

Additionally, the balance sheet helps provide a clear picture of the financial health of a hospital at a given point in time. It is also referred to as a statement of net position. A balance sheet is made up of 3 components:

1. Assets
2. Liabilities
3. Net position
These 3 components make up what is known as “The Accounting Equation:” Total assets = total liabilities + net position.

Assets are “things” a hospital owns that have value and can be measured. Applicable assets in a hospital include but are not limited to cash, accounts receivable, supplies, buildings, and equipment. Liabilities are “obligations” a hospital owes to creditors and may include but are not limited to accounts payable, accrued payroll and benefits, and long-term debt for financed items. Net position, or net assets, can be referred to as the book value of the hospital as it equates to assets minus the liabilities.

Other key financial performance indicators at your hospital may include:

1. Operating margin = operating revenue – operating expenses
2. Total margin = operating margin + nonoperating items (ie, realized investment income)
3. Total cash flow margin = total margin + noncash depreciation
4. Unrestricted day’s cash on hand = a measure of liquidity that equates to the number of days that a hospital (or business) can continue to pay its operating expenses with only current cash reserves and unrestricted investments.

Lastly, an activity sheet, an example of which is shown in Figure 4 for the Frankel Cardiovascular Center at the University of Michigan, is presented monthly to an executive leadership group. It measures current fiscal year activity to previous fiscal year activity as a means of comparison for such things as discharges, observation cases, cardic procedures, unit cases, operating room cases, length of stay, and clinic visits.

COVID-19: Impact on Hospital Financials

With the coronavirus disease 2019 (COVID-19) pandemic appearing in the United States in 2020, hospitals rapidly began preparing for and accepting COVID-19–positive patients. Elective procedures and outpatient visits were limited or halted entirely in many hospitals across the country as COVID-19–positive patients occupied beds and consumed resources.

With the cancelling of both inpatient and outpatient visits and procedures, hospital operating margins plummeted, with the median hospital operating margin averaging −29%, down 326% below budget in April, the first full month of COVID-19 financial implications.

Although the majority of this shift may be related to inpatient and outpatient volume losses, the reality of patients’ own uncertainty regarding their safety in coming into a hospital played a suspected role as well, as evidenced by out-of-hospital deaths increasing in many states substantially year over year compared with the March/April 2019 time period.

With this dramatic refocusing of care at many institutions and the financial impact on hospitals, these institutions recognized a “COVID reality” as well as planning for post-COVID financial actualities. This institutional planning was more than bed planning and intensive care unit expansions; it included expanding virtual visits, including phone visits, attempting to create “COVID-free” zones for patients, and actual management to purposely reduce the institutional expense bases, recognizing that significantly reduced operating margins may exist for an unknown period of time. The specifics of this potentially include:

1. Workforce management: Furloughs and appointment reductions for employees, early retirement, and high potential for reductions in force (ie, layoffs)
2. Large purchase deferral, including capital investment
3. Supply chain risk mitigation
4. Deferment of pension/retirement contributions

As hospitals deal with the current financial strain and uncertainty to come relating to the pandemic, rather than move forward with a static budget, many are expected to adopt more of a flexible budget in the short-term future. This could mean reforecasting on a quarterly basis, within the fiscal year or a rolling 12 months’ budget/forecast, which would allow the budget/forecast the ability to adapt to an unknown future to come relating to peaks and valleys of the COVID-19 pandemic. This approach may lead to more precise estimates and targets for financial performance in the short term.

Understanding the capital of nonprofit institutions includes recognizing sources of monies, which typically include:

1. Revenues
2. Philanthropic opportunities
3. Investment income
4. Public market borrowing

In the COVID moment, other funds for hospitals include:

1. Governmental relief funds, such as those provided by The Coronavirus Aid, Relief, and Economic Security (CARES) Act
2. Medicare payment advances (a portion of which may be paid back)
3. Bank credit line
4. Public market borrowing (municipal bonds)

Recognizing the ongoing challenges and unknowns of COVID-19 for most hospitals, future realities and new norms may well evolve, including consolidations of hospital systems, potential closure of smaller rural institutions, low-rate major bond borrowing and changes in future payer and payment systems.

Conclusion

In conclusion, this review follows up on a presentation to “Early Career Surgeons” as a part of “The Leadership Summit” of The Society of Thoracic Surgeons meeting in New Orleans in January 2020. The purpose was to provide early career surgeons with a lexicon to enhance understandings of institutional finances, create a level of comfort in this arena, and enable surgeons to have a broader
Figure 4. An example of an activity sheet for the Frankel Cardiovascular Center at the University of Michigan.
recognition of financial realities and finally to use this information to recognize and facilitate service efficiency, team participation in institutional financial goals, and expand opportunities for surgeons as leaders in this domain.

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