

How to Pitch an Antibiotic Stewardship Program to the Hospital C-Suite

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Hospitals will soon require antibiotic stewardship programs. Infectious diseases specialists must craft business plans to engage hospital leadership to fund such programs. In this article, we review key cost and revenue elements that should be covered in such plans.

Society is placing increasing emphasis on the importance of antimicrobial stewardship programs (ASPs). New regulatory standards require hospitals to implement ASPs. Infectious Diseases (ID) specialists will need to help design and implement such programs at hospitals. A critical component of establishing such programs is submitting a business plan to hospital leadership justifying the cost and structure of the ASP and explaining what benefits the hospital will gain in return. In this article, we explore typical elements of such business plans and describe how hospital leadership may evaluate and determine the value of such plans. Understanding hospital costs and revenue models is critical to creating a viable and realistic business plan to support ASPs.

Keywords. Antibiotic stewardship program; business plan; C-suite; cost efficacy; hospital.

At long last, there is global recognition of the crisis in antibiotic resistance. In the United States, the White House convened an action team in March 2015 to tackle the problem [1]. One tangible result was the creation of an ASP “playbook” by the US Centers for Disease Control and Prevention and others that describes 7 basic elements of an ASP. The playbook was extensively vetted by the National Quality Forum and was officially released in May 2016 [2].

Of import to consultants in ID, the playbook requires designation and funding of an ASP team to be led by an ID consultant and/or a pharmacist with some measure of ID training. The playbook is now endorsed by the Joint Commission, the Centers for Medicare and Medicaid Services (CMS), and other third-party payers. The CMS has also initiated a coming requirement that hospitals implement ASP as a condition of participation. Thus, institutions will soon need to fund ASPs.

The question raised here is how to present the case for budgetary support to the medical center’s administrative leadership (“the C-suite”). As 2 former Division Chiefs and a current hospital Chief Medical Officer, we decided to address the question from several perspectives. First, we present a typical, straightforward “pitch” by an idealistic but administratively naive ID

consultant. Then, the real-life perspective and response of a C-suite member is provided. Finally, we offer suggestions as to how to pitch the ASP in a way that recognizes the realities of paying for medical center healthcare programs.

A TYPICAL ANTIMICROBIAL STEWARDSHIP PROGRAM PITCH

The standard pitch to hospital administration goes something similar to the following:

1. There is global recognition of the need to preserve effective antibiotic therapy [3].
2. Our hospital (or medical center) needs to address this crisis with a robust and impactful ASP. An effective ASP will require people and money. We propose one full-time equivalent (FTE) ID physician and one 0.5 FTE ID-trained clinical pharmacist for every 500 acute care hospital beds.
3. If funded, the ASP will do the following:
 - a. Reduce antibiotic days of therapy, length of therapy, and associated antibiotic expense
 - b. Attenuate and/or reverse the rate of emergence of resistant bacteria
 - c. Increase access to state-of-the-art molecular diagnostics and biomarkers to ensure that patients get individualized specific therapy rather than clinician’s having to guess the microbial etiology of the patients’ infection and overuse empiric therapy [4–7]
 - d. The result is better patient care and fewer readmissions
 - e. Ensure compliance with Joint Commission-mandated standards on ASP [8]
 - f. Avoid CMS discounts for an inadequate ASP program [9]

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4. In short, with your help, funding an ASP will result in a solid return on investment manifest as better patient care coupled with less antibiotic exposure. The results will include fewer adverse drug reactions, less antibiotic resistance, and less expense to the medical center.

C-SUITE RESPONSE AND ADVICE

The C-suite of the hospital, as for any business organization, comprises Chief Officers of administrative departments, such as the Chief Operations Officer, Chief Financial Officer, and Chief Medical Officer. Any of these Officers may be the recipient of the business proposal supporting ASP. Indeed C-suite officers frequently receive business plans to fund a variety of new, desirable initiatives. Typically, business plans argue to support funding because of the following: (1) the plan is critical to optimal patient care; (2) the plan will help reduce costs for the hospital by shortening length of stay (or reducing readmissions, etc), and thus will pay for itself; and (3) the plan is cost-effective based on published medical literature or analyses.

Unfortunately, these arguments often are not convincing to C-suite officers. To understand why, it is necessary to understand both the environment in which C-suite employees work and the determinants of hospital “costs.”

Submitting your proposal is an unusual experience for you; receiving them is a nearly daily (and sometimes multiple times per day) experience for your C-suite officer. Every proposal emphasizes how failure to fund will put clinical care of patients into dire straits. C-suite professional staff understand well the role that a strong pitch plays, and we are fairly accustomed and inured to the sense of urgency that all such plans put forth.

Furthermore, even in cases of present and urgent need, C-suite officers tend not to have a readily accessible source of discretionary funds to fund most proposals. One of us (B. S.) is the Chief Medical Officer of a safety net hospital. I have very limited discretionary dollars. My budget is already fully committed. To fund a new initiative means defunding an existing initiative. I am an ID academician. I understand the importance of ASP. Nonetheless, should I defund a primary care clinic to pay for ASPs? Should I defund an intensive care unit? Should I reduce staff for radiology transport, or magnetic resonance imaging technicians, or phlebotomy services to specialty clinics? I manage in a budgetary zero-sum game. All new expenses must be offset by cuts elsewhere.

Hospital administrators in for-profit or not-for-profit, private hospitals may not face quite the same degree of budget rigidity. Regardless, they uniformly must live within a budget. They are expected to optimize expenditures such that operating margins improve or at least are not harmed. Failure to stay within budget leads to negative performance evaluations, and, if severe, this can destabilize the entire clinical enterprise. Thus, in a real way, even in private hospitals, there are massive budgetary pressures that limit the ability of C-suite officers to fund many worthy initiatives.

It is not a choice of which exciting new proposal should we fund? Rather, the choice is whether any of the new proposals are more important than existing programs, such that we should redirect expenditures that support an existing program to fund the new program, and, if so, how can we do this in a way that minimizes the damage to existing programs: eg, how can we keep costs of the new program down?

This reality is critically important. An ASP business plan is not going to be funded just because it is important; an ASP program will be funded if such funding does not harm existing operations that are equally, or more, important to the financial and operational stability of the healthcare system. An ASP program is not just competing against other business plans that are submitted to C-suite; the ASP program is competing against all current operations funded by the hospital or healthcare system.

COST-EFFICACY MEASUREMENTS

Business plans often seek to secure buy-in from C-suite members with presentation of favorable cost-efficacy analyses. However, cost-efficacy analyses are typically not important, or valuable, to C-suite officers or the hospital. An intervention is deemed cost effective if the additional cost to society required to implement the intervention meets some generally accepted national benchmark, such as cost per quality adjusted life-years saved, or incremental cost-effectiveness ratios [10, 11]. Unfortunately, the cost cutoffs per desired output that society has deemed cost effective have nothing to do with what might be feasible at the level of the healthcare facility. More importantly, “cost-effective” is not the same as “cost-reducing.” If 1 million dollars is spent to implement a new diagnostic testing strategy that is cost effective per the perspective of society, the million dollars must come from some other existing program. Existing programs are already funded for a reason: eg, because we need them. As long as added costs are required, it is not possible to gut an existing, needed program to fund a new initiative no matter how cost-effective the new program.

Finally, providers frequently lack a thorough understanding of hospital cost structures. In most organizations, the large majority of costs in a hospital are fixed and cannot be reduced by shortening lengths of stay, reducing readmissions, etc. Fixed costs derive from salaries and employee benefits and other overhead (eg, utilities, land, maintenance). If the average patient length of stay is shortened, there are more open beds. The only way open beds reduce fixed costs is if employees can be laid off (or registry staff eliminated), or other fixed overhead can be reduced (eg, spend less on electricity). In many organizations, an ASP business plan will be interpreted as naive if the proposal calculates societal cost savings by reducing lengths of stay and claims it will thereby reduce hospital costs.

Daily costs are not recouped by the hospital because the bed is open—they are only recouped if the bed is unstaffed by nurses, phlebotomists, technicians, clerks, doctors, etc. Instead

of cost reduction, if beds are emptied more quickly and can be filled with more paying patient, a shorter length of stay can be viewed as promoting generation of revenue. To make the argument that an ASP will increase revenue by decreasing lengths of stay, you need to know the payer mix for patients cared for at the hospital. Different payers pay for services we provide very differently, and these differences must be accounted for in your business plan.

Medicare

Hospitals are paid for caring for Medicare patients by a bundled payment based on the relative weights of the assigned Diagnostic Related Groups (DRGs). Each new admission triggers a single bundled payment calculated by multiplying the DRG relative weight by the hospital's base pay rate from Medicare. Thus, backfilling an empty bed with a new Medicare patient will increase revenue. Additional Medicare admissions enabled by emptying beds due to shortened length of stay will increase revenue by an amount equal to the number of extra Medicare admissions multiplied by the Medicare Case Mix Index (CMI). The CMI is the average of the DRG relative weights for all Medicare patients seen at the hospital. The finance team of your hospital can provide the hospital's Medicare CMI. Be sure to use the hospital's Medicare CMI, rather than the overall CMI (which includes values for non-Medicare patients), when you do your calculation. Because Medicare patients are typically older and have more comorbidities, the hospital's Medicare CMI will be higher than its overall CMI. Thus, revenue generation we will be underestimated if you base your calculation on overall CMI.

Medicaid

Medicaid patients are funded differently. In some states, some Medicaid patients remain fee-for-service, and there is a flat daily rate paid by Medicaid to the hospital for their care. However, the daily rate is only paid if the patient meets criteria for acute illness—otherwise the entire payment for the day is “denied” and the hospital gets nothing for that day. To calculate incremental revenue from Medicaid, you must know the daily pay rate and the rate of denied days at your hospital—again, ask your hospital's finance team if you do not know these numbers. Many state Medicaid programs are switching to paying in a DRG model, similar to Medicare; in such states, calculation of the revenue per patient is akin to the explanation for Medicare above, only using the Medicaid case mix index and patient percentages. Furthermore, Medicaid patients are increasingly reliant on funding from managed care capitation. Healthcare systems are paid a per-member-per-month rate for capitated patients and typically receive no additional funds from the payer for such patients. Thus, backfilling an empty bed with a capitated Medicaid patient brings no new revenue to the hospital. Finally, private insurance companies likely have contracted rates with the hospital, and they may bundle or pay a daily rate but again will try to deny payment if they perceive the stay is not acutely needed.

Thus, the payer mix of most hospitals is very complex, and it is not simple to calculate potential revenue generation by opening up beds by shortening lengths of stay through an ASP. Given the complexities of hospital reimbursement and cost structure, we strongly recommend that your business plan supporting an ASP be developed in partnership with financial experts at your institution. The many advantages of working with your finance people include the following: (1) learning from them the top financial priorities in the organization's strategic plan so you can target those priorities in your ASP plan; (2) having accurate payer rates and patient case mix estimates in your plan; (3) developing a rapport and establishing credibility with leadership of the hospital, including finance, so they can help you advocate at the C-suite level.

HOW CAN AN ANTIMICROBIAL STEWARDSHIP PROGRAM BUSINESS PLAN BE OPTIMIZED TO INCREASE CHANCES OF FUNDING?

Several elements should be emphasized. First, it is important to clearly spell out national regulatory or legal standards that require implementation of your program. Hospitals must comply with regulations and laws. That gets your foot in the door. C-suite officers are forced to take action on business plans that are in response to a nonvoluntary changes in regulations, such as implementing an ASP. However, administrators are likely to try to figure out the least expensive way to meet the requirement(s). Antimicrobial stewardship program advocates need more than regulations and laws.

Second, write a credible plan that addresses costs and revenue. Generally speaking, do not claim you are going to save the hospital money by shortening lengths of stay, which may come across as naive. However, there are other advantages of shortening lengths of stay and reducing readmissions, including improved patient flow, reduced hospital-acquired adverse events, avoiding Medicare financial penalties for readmissions, and, most importantly, increasing revenue by enabling more paying admissions to the hospital. Such advantages can and should be included in the ASP business plan, with support from your organization's financial staff.

Do emphasize the variable costs of the hospital that could be reduced by your proposed program. Modifiable variable costs for hospitals include pharmacy (eg, days of antibiotic therapy), supplies (eg, catheters, intravenous [IV] tubing, implants), laboratory testing (complete blood counts, blood culture bottles, laboratory reagents, etc), and blood bank. You should have projections for pharmacy savings that will result from reducing overall use of antibiotics, particularly the more expensive ones. These are real dollar offset projections that can be used to argue that the plan will ultimately pay for itself. If the ASP emphasizes IV to oral switch, variable cost savings should also include costs of IV tubing and infusions and home IV costs. Estimate those cost savings. Keep in mind that if your ASP is going to

use diagnostic tests (multiplex polymerase chain reaction platforms) or biomarker assays (eg, procalcitonin), the added variable costs of these tests are important to include. Failing to discuss the costs and benefits of diagnostics will reduce your credibility when a C-suite officer delves into the details of the ASP proposal.

If you want to claim increased revenue by freeing up hospital beds by shortening lengths of stay, you can create a reasonable revenue model calculation. You need to know how many bed-days you think will be freed up per year, what your payer mix is at the hospital (%Medicare, %fee-for-service Medicaid, %private), the hospital's Medicare Case Mix Index and the Medicare base pay rate, and, lastly, how your hospital's Medicaid patients are reimbursed.

A reasonable estimate of additional revenue that is likely relevant in many organizations could be calculated as follows:

(number of incremental bed days freed up/average length of stay in days) × [(%Medicare patients × Medicare CMI × base Medicare rate) + (%fee-for-service Medicaid × Medicaid daily pay rate × average length of stay × (1 – denied days percent rate)) + (%private insurance × insurance contracted pay rate × average length of stay) × (1 – denied days percent rate)].

Note that for states using DRG payments for Medicaid, you would replace the Medicaid parenthesis above with (%Medicaid × Medicaid CMI × base Medicaid rate).

For example, let us assume you have evidence that your ASP will result in an average of 1 day reduction in length of stay for approximately 500 patients per year that the ASP rounds on. Thus, the ASP will free up 500 bed-days. If the average length of stay for all patients at the hospital is 5 days, that means you will enable 100 new admissions per year with your program. If 25% of your admissions are Medicare patients, 25% Medicaid fee-for-service, and 25% private, your Medicare CMI is 1.80 with a base rate of \$10 000, Medicaid daily rate is \$1500, private insurance contracted rate is \$2500, and you have a 10% denied day rate, you can calculate additional revenue enabled by the ASP as follows:

$$(500 / 5) \times \{ [25\% \times 1.8 \times \$10,000] + [25\% \times \$1500 \times 5 \times (1-0.1)] + [25\% \times \$2500 \times 5 \times (1-0.1)] \} = \$900,000 \text{ per year}$$

Third, add specific, structured job descriptions for each of the types of personnel in your plan (eg, ID physicians, pharmacists, fellows, etc), so that the C-suite understands the actual day-to-day functions for which they would be paying. Keep in mind that the C-suite will scrutinize every member of your proposed team to ask why so many are needed and if we need someone at that level or can use less expensive alternatives. Why should we spend more money on a physician if we can get the same service from a less expensive pharmacist? Won't use of physician extenders, such as nurse practitioners, be less expensive? Why

do we need 1 provider for every 500 beds—how is that ratio justified? Justify each member of the team and the numbers of personnel needed.

Fourth, offer several levels of intensity of the intervention so the C-suite can match desired degree of sophistication to resources that can be freed up. Each level of intervention should have a description of staffing, cost, and revenue, and a description of what could be achieved. For example, if you have a FTE ID physician and an FTE pharmacist, plus ID fellows rotating through the program, you will likely be able to take on more innovative measures and intervene more often and thereby make a bigger difference than if you have an FTE ID physician with fellows only, or an FTE ID physician with a half FTE ID pharmacist. The more intensive the program, the more variable costs you should be able to save, and possibly the more potential revenue you can project. On the other hand, more human resources will cost more. Be honest and explicit about what is gained and what the cost is at each level. The greater the detail the greater the likelihood that the C-suite will understand what they will gain by trying to free up more resources to put into the program.

Fifth, of course you should emphasize the clinical importance of making sure antibiotics are used judiciously. The importance is to the individual patient, to society, and to the hospital. More judicious antibiotic use will lead to better publicly reported data: eg, lower rates of *Clostridium difficile* colitis and lower risks of news stories about extreme drug-resistant pathogens at the facility.

Finally, sixth, establishing credibility with C-suite decision makers is critical. Your ability to push your agenda across their very crowded desks, full of competing priorities, may well ultimately boil down to your ability to personally influence the decision makers more effectively than champions of competing proposals. Such credibility is established over prolonged periods of interaction, so you should get to know the decision makers early and interact with them often. You should also develop “talking points” and a 1-minute “elevator speech” so that when you see them you can prime them for the proposal before they even receive it and reinforce its importance when you subsequently meet with them.

FINAL THOUGHTS

Ultimately, all hospitals will need to implement ASP as regulatory standards are implemented. Nevertheless, regulations do not mean that ASPs will be effective or adequately staffed. Antimicrobial stewardship program outcome measures are not included in the regulatory requirement at this point. It will be tempting for C-suite officers to check the box and spend as little as possible to meet the minimal regulatory requirements. A meaningful ASP will require a credible and detailed business plan. Remember, the C-suite officer is confronted daily by urgent problems critical to keeping the

facility operating. Hence, the ASP business plan needs comprehensive, meaningful, and thoughtful details to achieve a level of funding that will benefit patient care and society.

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