Critical Decision Making: The Decision to Deploy a Clinical Management System, Part 2

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The first part of this article presented the clinical, financial, and operational reasons to invest in a clinical management system. This conclusion describes the formation of a structured selection process for a clinical management system. This decision process offers the best way to achieve the identified benefits and goals of a clinical management system. The

decision support system that is described here is the Analytical Hierarchy Process (AHP). In addition to facilitating the decision process, the AHP also develops the metrics that will be monitored after implementation to assure and document that the actual value generated is compared with the desired clinical, operational and financial outcomes.

Decisions or Intuitive Guesses

It is widely recognized that “decision making is undoubtedly the most difficult and most essential task a manager performs.”¹ Informal decision processes are widely used in many businesses and are prevalent in the management decisions of physician-owned practices.

“Many successful executives rose to the top using their intuitive strategies so they are resistant to any information that his/her judgment is deficient in some observable manner. This judgment has usually included the intuitive use of common simplistic strategies for crucial decisions. Thus, while improving intuition should be an important activity for successful managers, cognitive resistance to change is a predictable pattern.”² These intuitive processes have served the clinical decision makers quite well and it is natural to fall back on them for making important decisions. “However, when executives rely upon such (intuitive) rules to make important decisions, they save time and effort at the cost of risking being stuck with an ill-conceived choice entailing disastrous consequences that could have been avoided.”³ The selection of a clinical management tool is arguably the most important decision a practice can make; lives literally depend on it. Using a structured decision process, illustrated in Figure 1, will ensure that you make the best decision for your practice.

Avoiding Decision Traps

Using the AHP structured approach to decision making, you can avoid the 10 most common decision mistakes:

1. **Plunging in:** Gathering information and reaching conclusions without thinking about the crux of the issue or how decisions like this one should be made.
2. **Frame blindness:** Setting out to solve the wrong problem because your framework causes you to overlook attractive options or lose sight of important objectives.
3. **Lack of problem definition:** Failing to define the problem in more ways than one, or being unduly influenced by the definitions of others, frequently vendors of particular solution alternatives.
4. **Overconfidence in your intuitive judgment:** This leads to a failure to collect key factual information because of overconfidence in your assumptions and opinions.
5. **Shortsighted shortcuts:** Relying on rules of thumb for crucial decisions, or on the most readily available information or the information that supports preconceived notions.
6. **Shooting from the hip:** Trying to keep straight in your head all the information relating to the decision rather than relying on a systematic procedure.
7. **Group failure:** Assuming that a group of smart people will automatically make a good decision even without a good decision process.
8. **Fooling yourself about feedback:** Failing to learn from evidence of past outcomes either because you are protecting your ego or because you are tricked by hindsight.
9. **Not keeping track:** Assuming that experience will make lessons available automatically.
10. **Failure to audit your decision process:** Failing to create an organized approach to understanding your own decision process.

The AHP, supported in this work by the use of Expert Choice⁴ software, will systematically document the relative importance of each of the three domains of oncology practice to the product selection. Then similarly, we will evaluate the criteria that are important within each domain, and finally evaluate the individual products on their ability to deliver on each criterion in each domain. Mathematical analysis of these judgments will then highlight the clinical management system that best matches the AHP model. I present criteria and product alternatives in this discussion, but each practice facing this decision should create its own set of criteria to evaluate the product alternatives that are relevant in its particular situation.

Clinical Domain

The attributes of a clinical management tool that are likely to be important to every practice when considering the clinical domain are that it:

- speeds up the adoption of new therapies into the practice so that patients are getting the most effective therapies.
- promotes uniform delivery of care so that the practice can know that it is giving the latest therapy in an appropriate way for every patient every day.
- supports clinically driven alerts so that when a specific event occurs, such as the result of a specific lab test or a patient-reported symptom, it is brought to the attention of the clinical staff so that an appropriate intervention can always be considered.
- monitors patient safety to reduce the chances of drug interactions, overdoses, or other potentially dangerous concerns.
- measures outcomes so that it is possible to retrospectively seek and find the answers to questions about what is accomplished in particular therapies.
- provides segmented comparison reports so that treatment trends can be evaluated over time by diagnosis, stage, laboratory values, drugs used, treatment selected, patient demographics, or any other data element that may become relevant in the future.
- captures chemotherapy encounter data so that medical oncology can be properly supported, chemotherapy flowcharts are automated, and all nursing entries can be recorded.

Operational Domain

In the operational domain, the desired attributes will speed up work flow and contribute to operational efficiencies, likely by:

- allowing patient-entered information so that the practice can “outsource customer satisfaction to the customers” so they can maintain their own information.
- promoting chemotherapy inventory management through automation at the point of drug administration to capture units administered and/or wasted.
- speeding billing information to the practice management system so that charge capture is both complete and instantaneous.
- speeding up patient flows both in the chemotherapy suite and in processing patients from the waiting room through checkout.
- reducing transcription time by creating the progress note as the patient is moving through the clinic.
- accelerating billing processes so that billing is complete as the patient is leaving the building.

Fig 1. Sequence of the structured decision

Financial Domain

Total medical revenue and revenue after operating cost are both significantly higher and lower per full-time equivalent physician in practices spending increasing amounts on information systems.⁵ The important attributes in the financial domain that will help to assure that the promised return on investment (ROI) is realized include

- low initial cost of one system as compared with another will be a selection advantage because ROI can be significantly increased through a reduction in investment.
- support for product line expansion by aiding in the addition of new revenue sources to the practice through new service offerings, promoting lower cost for clinical trial participation, or direct data sales.

- support for private payer negotiations by allowing the practice to objectively demonstrate cost-effective, high-quality care.
- improvement of referral source communications, which will help to increase the rate at which new patients are brought into the practice—a real boost to overall financial performance.
- reporting with standard tools to facilitate the integration of clinical information with financial information from the other information systems of the practice.
- output to standard file types, which will again support the use of clinical information in all aspects of practice management.
- use of data resources for new revenue generation by not restricting the practice from using the clinical information in their own system in any way, including direct data sales.

Pairwise comparisons of the relative importance of the domains of practice management

Expert Choice structures these comparisons to monitor and reduce inconsistency and promote the full consideration of every element of the decision. First, we need to judge the relative weights that each domain will contribute to the overall decision. Figure 2 shows the relative importance that I attributed to each domain.

In this model, the attributes in the clinical domain contribute 44% to the overall product selection; the operational issues about 30% and the remaining 27% in the financial domain. Thus a strong performance on the attributes that are sought in the clinical domain will be important in the final selection of a product.

A similar ranking, shown in Figures 3, 4, and 5, occurs for the separate attributes in each domain, sorting out the relative importance of each of these to the overall decision model.

Comparison of the Alternatives on Each Attribute in Each Domain

With the completion of the weightings of the domains and the individual attributes within each domain, the decision model is ready to apply to the specific clinical management

Fig 2. Priorities of the domains in driving the product choice

Fig 3. Priorities of the attributes within the clinical domain

Fig 4. Priorities of the attributes within the operational domain

Fig 5. Priorities of the attributes within the financial domain

products that the practice is considering. Each of these alternative products is evaluated pairwise to the other products with respect to preference for each attribute in each domain. For example, in the clinical domain, we would indicate our relative preference for clinical system A over clinical system B with respect to the ability of the program to provide segmented comparison reports, then of system A to C, and finally of system B to system C. A similar evaluation is made for each attribute. Costs can be entered as actual numbers.

Final Steps

When complete, the program calculates the alternative that scores highest on the combination of all the selection criteria and the full decision model with the relative importance of the domains and attributes is shown in Figure 6 and in Table 1. In the sample program that I ran with hypothetical alternatives, these were ranked as follows:

Alternative	Priority
Clinical System A	.397
Clinical System B	.286
Clinical System C	.318

Sensitivity Testing

With product A clearly in the lead, it would be helpful to know how sensitive the decision support model is to re-weightings of the three domains that were used to build the model. That is to say, suppose we increase the relative importance of the financial domain and decrease the importance of the other two domains; will the software then select C or B rather than A? The Expert Choice software allows for this sort of analysis with a drop-and-drag feature that will allow changes in the relative weightings of any variable with the simultaneous re-weighting of the alternatives. This allows the decision makers to see exactly which selection criteria are most powerful in driving the choice.

Fig 6. Decision model with relative importance of domains and attributes

Table 1. Criteria in descending order of relative importance to the product selection

Domain	Weight (%)	Criteria	Weight in Domain (%)	Overall Weight (%)
Clinical	44.30	Captures chemotherapy encounter data	17.20	7.62
Clinical	44.30	Provides segmented comparison reports	16.00	7.09
Clinical	44.30	Monitors patient safety	15.40	6.82
Clinical	44.30	Measures outcomes	15.10	6.69
Operational	30.10	Promotes chemotherapy inventory mgmnt.	21.20	6.38
Clinical	44.30	Supports clinically driven alerts	13.90	6.16
Operational	30.10	Speeds patient flows	18.90	5.69
Clinical	44.30	Promotes uniform delivery of care	12.70	5.63
Operational	30.10	Speeds information to practice mgmnt. sys.	17.00	5.12
Operational	30.10	Reduces transcription time	15.00	4.52
Operational	30.10	Allows patient entered information	14.60	4.39
Financial	25.60	Supports private payer negotiations	16.80	4.30
Clinical	44.30	Speeds up adoption of therapies	9.70	4.30
Financial	25.60	Improves referrals source communications	16.70	4.28
Operational	30.10	Accelerates billing processes	13.30	4.00
Financial	25.60	Allows use of data resources for new revenue	13.40	3.43
Financial	25.60	Supports product line expansion	11.70	3.00
Financial	25.60	Allows reporting with standard tools	10.60	2.71
Financial	25.60	Lower initial cost	10.40	2.66
Financial	25.60	Lower maint. & support cost	10.20	2.61
Financial	25.60	Produces output to standard file types	10.20	2.61
TOTAL				100.00

This particular model is very resilient to changes in the weightings of the importance of the three domains. Increasing the relative importance of either the financial or the operational domain over the other domains does not change the order of the product selection: In this decision model, even dramatically increasing the overall importance of the financial components of the decision does not alter the choice. Sensitivity testing can also be performed on the criteria in any domain. In this model, increasing the relative importance of patient safety from 15% to 52% of the decision will alter the product selection from A to C. Sensitivity testing is important in building confidence that the right decision was made and avoid second-guessing later in the implementation process.

Role of the Physician Practice Executive

Dwight Eisenhower said, “You do not lead by hitting people over the head—that’s assault, not leadership.” The physician executive must lead with consistency and clear direction in the selection of a clinical management system and the subsequent implementation. The structured decision process provides tools that will make this easier but the physician executive must lead the group to carefully define the goals and

objectives of the system implementation. “Why are we doing this?” will come up over and over again. During the decision-making process, the physician executive must reinforce to the partners the importance of taking time to make a good decision and to work toward consensus among the partners to establish and rank the objectives and criteria within each of the domains that are important to success in that domain. When a decision is reached, the physician executive is the one to reinforce the importance of the objectives. The physician executive is the standard bearer of the “unfreeze-and-change” process. To keep the change process moving, the physician executive will also be responsible for reporting the successes and failures of the clinical management system to deliver the desired goals, and for working with the partners to maximize the benefits of the new system.

Role of the Practice Administrator

There is a great deal of basic research that goes into building the decision model, and this is either done directly by or at the direction of the practice administrator. The administrator must systematically identify the clinical management products that are available in the market, gather the objective data necessary to inform the comparisons along the specific criteria

and attributes built into the model, ensure that appropriate staff is involved in determination of the relative importance of criteria and the evaluation of the alternatives so that there is broad support of the final decision, and champion the unfreeze-and-change process throughout the organization. The administrator will work cooperatively with physician leadership in assuring that the organization really does believe that the decision is right and the goals are worthy. The administrator will also be responsible for gathering and reporting monitoring statistics to see if the clinical management system is delivering the desired benefits, and then make adjustments to the implementation so that the best outcome possible is produced along the top criteria that were used in the decision model.

Monitoring Progress

The important expectations of the clinical management system were identified and ranked in the structured decision process. These become the measurable outcomes that can be monitored as the implementation proceeds and is completed. Objective measurement of these expectations is important to producing the results that were sought in the first place. In this example, the most important attribute was identified to be the ability of the program to capture chemotherapy encounter data. This attribute accounted for 17.2% relevance importance within the clinical domain, and the clinical domain represents 44.3% of the overall importance to the goal of selecting the best system, so the overall contribution of this variable to the success of the project is the product of

these two, about 8%. One way to gather objective information about the success of the system in capturing the necessary data would be to produce a weekly variance report that counted the number of incomplete chemotherapy data elements generated in that week. These measurement criteria and the mechanisms to gather these data should be established with the vendor as part of the implementation planning. Monitoring these will assure that all the important benefits are maximized from the clinical management system.

Conclusion

You can do this! Although the need to move to an automated clinical management system is clear to every practice that is committed to clinical improvement, it is less clear how to proceed. Using structured decision making will provide assurance that the right system is selected for the right reasons and that you get the desired results. Follow this well-established decision process, and you will be successful.

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