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### Tackling No-Show Behavior

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# Tackling No-Show Behavior: A Market-Driven Approach

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The problem of no-show appointments in healthcare institutions has been clearly defined and is of significant importance to the clinical practitioner as well as the office and hospital administrator. The abundance of research and commentary that has accumulated for the past 30 years further highlights the importance of the problem. Despite the great amount of attention devoted to no-shows, however, the problem has continued to persist and grow, eating away at both the general health status of the population as well as the bottom-line of healthcare provider organizations. According to a recent study,<sup>1</sup> the average rate of compliance with appointments, as estimated from a comprehensive evaluation of recent published studies, was approximately fifty-eight percent. Forty-two percent of scheduled appointments with health care providers in the general population were not kept. The impact of such a statistic on the physical well-being of the population and the economic well-being of providers speaks for itself.

Much energy, time, and resources have been devoted to addressing the issue of no-shows, their underlying causes, and the potential solutions. Earlier studies have characterized the no-show population extensively, focusing primarily on demographic characteriza-

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tions with a smaller emphasis on the particular causes of no-show behavior (NSB). Later reports have attempted to propose particular interventions, seeking to measure and estimate the effects of these interventions on the lowering of no-show rates. Unfortunately, the cumulative effect of such studies has been less than would have been hoped, as the continued existence of the problem attests.

There are two major problems with the current base of information; the poor correlation between research findings in different studies, and the poor generalizability of the conclusions reached in each of these studies to different patient populations. For example, Becker et al., Pierce, O'Shea, and Wessen (1977) found that patient satisfaction was a strong predictor of no-show behavior.<sup>2,3</sup> Goldman et al. (1982) found no statistical correlation between the two.<sup>4</sup> Barron (1980) found that continuity of care from a single service provider was an important predictor of appointment compliance;<sup>5</sup> Lanska et al. (1986) found the opposite.<sup>6</sup> Dervin (1978), Fosarelli (1985), Irwin (1981) and several others concluded that the number of days between the scheduling of and occurrence of the appointment was a significant predictor of no-show behavior.<sup>7,8,9</sup> Cave-nough (1990), Benjamin-Bauman (1984), and Bickler (1985) all found days to appointment to be a poor predictor.<sup>10,11,12</sup> The number of issues on which different studies disagree is by no means limited to these, and further examples will be illustrated later.

The poor generalizability of research findings also bears brief attention. There are many sources of heterogeneity in no-show studies. The most basic is the definition of a broken appointment; do we include just those patients that didn't cancel and didn't show, or do we include patients that canceled ahead of time, as well? If the later is chosen, how much time between the cancellation and the appointment should be allowed? Different researchers have defined such parameters differently. Another source of heterogeneity is in the type of medical facility at which the study was performed. Can the conclusions drawn from studies at an urban family practice clinic, a pediatric allergy clinic, a public inner-city maternity hospital, a mental health clinic, and an ambulatory care center be expected to be the same, or even similar? This issue relates to the question of demographics, which can vary markedly even within the same community, based on type of specialty services, type of insurance and

prevalence of uninsured patients, as well as many other factors. Such sources of heterogeneity are endless.

One of the most important reasons for the current failure of institutions to sufficiently resolve the no-show issue, however, is more serious. It lies in the surprisingly sparse number of studies attempting to match the *specific causes* of no-show behavior with *cause-specific solutions* to these problems. Perhaps more importantly, the failure of recommendations to emphasize the importance of each particular institution endeavoring to define these two parameters for its *own patient population* has led to poor results. That is not to say that the findings of other researchers and other institutions are not important; in fact, these findings represent a critical stepping stone. However, policy-makers must consider such findings as background information only, and endeavor to develop their own system of anti-non-compliance (ANC) measures for no-shows to whatever extent resources, institutional objectives, and patient population characteristics will allow.

Based on this rationale, the article is organized as follows. First, we will first briefly examine research findings identifying specific predictors of no-show behavior. In Section 2 we will examine the results of efficacy studies on the value of particular interventions in decreasing no-show behavior (NSB), categorizing them based on the specific causes they are attempting to address. Finally, and most importantly, we will identify a rational and systematic approach that the individual healthcare institution can follow in quantifying, characterizing, and developing strategies to address NSB within their specific and unique patient populations. The purpose of this article is not only to provide background information on those factors and interventions that have been empirically tested in the recent literature, but also to provide a method by which the individual manager can intelligently choose, in a systematic and cost-efficient manner, which among a vast number of potential strategies will best address *the particular and unique needs and characteristics of their particular healthcare institution*.

### ***SPECIFIC PREDICTORS OF NO-SHOW BEHAVIOR***

As stated previously, identifying factors predictive of NSB are important first steps. Before delving into an analysis of the data,

however, a moment should be spent considering the advisability of using certain demographic characteristics (e.g., gender, age) as the primary basis on which to predict NSB; it is not advisable. In attempting to identify factors that predict NSBs, one seeks not to simply correlate different factors to NSBs, but rather to determine the *underlying reasons* behind the phenomenon. True, younger patients may be more likely to no-show than older-patients, but does knowing this information give the decision-maker any useful information? Can the manager change the age of the patients seen at the institution, or provide services that only older people will need? Of course not. The more valuable piece of information would be that a major reason for no-show behavior is a lack of transportation to the facility, and that of those patients for whom transportation is a major issue, many of them happen to be young. This example highlights the inherent weakness of previous attempts to base policy and decision-making on purely demographic issues; population demographics, rather than underlying reasons, have been the basis of patient segmentation in the past. The more effective strategy is to utilize the underlying reasons as the basis of segmentation, and to use population demographics to *describe* the segments that emerge. Using this approach will not only allow the policy-maker to focus on the true causes of non-compliance, it will greatly facilitate the development of strategies to address the problem. It will be much more difficult to develop strategies to decrease NSB in young patients, as opposed to developing strategies to increase the availability of transportation to a population that happens to be young. The approach is also useful because it takes into account the issue of cross-segmental needs and solutions. This issue will be discussed in greater detail in the third section.

Table 1 represents a synthesis and summary of the literature described earlier. It shows the major predictors of NSB that researchers have studied, and how many times independent studies found these factors to be significant or insignificant statistically.

As can be seen from the data, factors such as waiting time, payer-type, number of visits, previous no-show behavior, referral source, and day/time of appointments have been shown to be consistently successful in predicting NSB. Other factors such as transportation and education/socio-economic status are also reasonably

good predictors. Age, gender, and race have questionable predictive value, and changes in physician have no documented predictive value.

What lessons can be drawn from such results? The factors at the top of the list are useful guidelines on which policy and decision-making can be made. These will form the basis for the segmentation process described in Section 3. The data also clearly shows that demographic factors, although frequently identified and analyzed, are not as consistently predictive of no-show behavior, especially *relative to other, cause-related factors*. Having performed this exercise, we have created the valuable stepping stone spoken of earlier. Again, it must be stressed that the value of purely demographic predictors should not be used as the primary basis of segmentation when developing intervention strategies. In Section 2, we will perform a similar exercise to evaluate the conclusions of the literature

TABLE 1. Predictors of No-Show Behavior

PREDICTING PARAMETER	NUMBER OF STUDIES		REFERENCES
	significant	not significant	
Waiting Time	7	0	13-19
Payer-Type	6	0	18,20-24
Number of Visits	5	0	15,16,18,20,23,25
Previous No-Show Behavior	5	0	26-30
Day/Time of Appointment	4	0	16,24,31,32
Referral Source	3	0	10,16,33
Transportation	4	1	17,23,29,35
Education/Socioeconomic Status	4	1	9,17,20,27,36
Personal Illness	1	0	34
Age	8	3	13,16,20,23,25,29,31,33
Gender	3	2	13,31,37,38
Race	1	5	9,20,23,27,31,38
Change of Physician	0	1	28

Most common predictors of no-show behavior from literature 1985-1995.

concerning the efficacy of different interventions to *change* no-show behavior.

### ***INTERVENTIONS TO INDUCE CHANGES IN NSB***

Just as the literature has covered a large number of potential predictors of no-show behavior, it has also proposed many solutions. A summary of the major proposals and whether or not their effects were significant is provided in Table 2.

The first two options, postcard reminders and telephone reminders, are not surprisingly the most studied and most often validated interventions. They are also the most commonly used strategies in the daily workings of most healthcare institutions. The consensus is

TABLE 2. Interventions to Decrease NSB

INTERVENTIONS	NUMBER OF STUDIES		REFERENCES
	significant	not significant	
Postcard Reminders	8	2	1,26,28,29,32,39-41
Telephone Reminder	7	0	1,27,32,39-42
Contracting/Patient Education	4	0	1,33-35
Incentives	3	0	20,36,43
Reducing Effort	2	0	39,40
Charging a Service Fee	2	0	44,45
Orientation to Office	1	0	1
Increased Reminders for Previous No-Shows	1	0	42
Self-Appointment Scheduling	1	0	46
Same-Day Confirmation	1	0	47
Overbooking	1	0	48
Partial Prepayment	1	0	48
Automatic Rescheduling	1	0	49
Patient-Specific Letters	1	0	29,50
Stressing Importance of Visit	0	2	38,42
Letters from Physician	0	2	26,38



that mailed postcards are as effective and more cost-efficient than telephone calls, although information confirming this is not conclusive. Again, it is interesting to see that despite the widespread use of postcards and telephone reminders, the problem remains. This is not a surprising phenomenon, however, given our previous discussion; these strategies address only one of the many causes of NSB, namely, forgetfulness. Increasing the *number* or *frequencies* of reminders, a strategy often employed by institutions to try and reduce no-shows even further, does not address any of the alternative root causes of missed appointments (and consequently, for the most part, are unsuccessful).

Contracting with patients and improved patient education strategies have also been shown to be a very worthwhile undertaking, although the strategy is often not utilized because of the perception that it is not cost-effective in terms of time. However, strategies such as utilizing the nursing staff and improved brochures (and in the future, Internet web-sites) to provide basic information about different disorders can prove very useful. If questions cannot be answered through the staff or brochures, the physician will still always be available. By utilizing such strategies, not only is the need for education fulfilled, but the nursing staff potential is more fully realized, while the practitioner's time is not unduly constrained.

Other strategies that have been used with some measure of success include incentives, reducing effort, and charging a service fee. Incentives ranging from stuffed animals<sup>16</sup> to milk coupons<sup>17</sup> have proven successful. However, as several investigators have pointed out, the incentives must be continued throughout the entire interaction between patient and physician; regression to baseline behavior and in some cases even digressions below baseline were noted once incentives were discontinued (even when postcard reminders were continued). Effort reduction, in the form of parking passes, has also reduced NSB. Charging a service fee, a practice which originated in the restaurant industry, is an effective but not necessarily desirable strategy. While it reduces NSB, it also generates a significant measure of indignation in the patient, to the point where the relationship may be broken off completely. A variant of this concept, partial pre-payment, is much more promising. While creating a financial

incentive for the patient to keep scheduled appointments, and by representing a 'sunk-cost' for the patient should non-compliance occur, partial pre-payment represents positive rather than negative reinforcement. In essence, partial prepayment represents an inducement to show, rather than a punishment for not showing.

Other less studied strategies may also prove useful. Based on the assumption that previous appointment-keeping behavior was a good predictor of NSB, Gerson et al. (1986) showed that increasing the number of reminders based on the previous number of missed appointments was a very effective method for reducing no-shows. Automated telephone scheduling by patients provides flexibility and reduced overhead, although an initial start-up cost will be incurred. Two strategies shown to be ineffective included stressing the importance of the visit in the mailed reminder, and sending the reminder letter directly from the healthcare provider (i.e., the physician). Many other strategies, which have not been formally tested but which could provide significant results, could also be discussed.

As can be appreciated, the number of potential techniques to address NSB is immense. Given the abundance of potential strategies, how does an institution with limited resources choose among so many options? Furthermore, even though there are a large number of strategies, the underlying causes they are attempting to address are relatively few and far from comprehensive in breadth (see Table 3). How does the manager/practitioner identify the most important underlying causes of NSB in their particular patient pool, and how does one specifically address *these* issues when assessing potential responses?

This is perhaps the most pressing question the manager must face. The answer, unfortunately, is different for each institution. However, the process and methodology that will be needed to answer such questions *can* be generalized in a manner useful for the individual health provider organization. Our approach to this process will comprise the remainder of this discussion.

### ***THE MARKETING PROCESS***

The process we outline here is a modification of a simple marketing approach, adapted and expanded in specific regards to the

healthcare setting and the particular problem of NSB. Targeting the no-show population involves three major steps. The first step, segmentation, involves dividing the population into distinct groups of patients. The second step is targeting-evaluating each segment's attributes and identifying each of them. The third step is positioning, by which hospitals can formulate a strategic position to occupy in chosen segments. Figure 1 provides an overview of this process.

### Segmentation

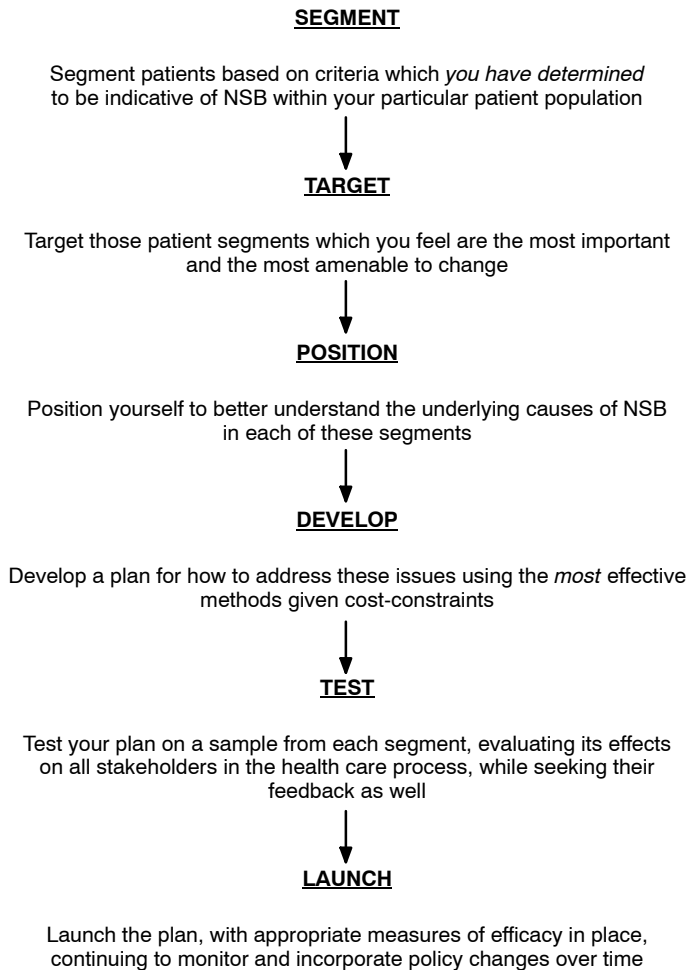
The first step in segmentation is to define the patient population; does one wish to focus on patients with one missed appointment, greater than one missed appointment, or is the more important measurement a certain number of no-shows per unit time (no-show rate). Once defined, the entire patient load at the institution can be easily divided into compliant or non-compliant. Then segmentation can be carried out.

In order to segment, segmentation criteria must be chosen. As we have discussed, the most common criteria to segment, in the past, has been demographic factors such as age, sex, etc. From the previous discussion, it is also clear why such segmentation criteria are a poor choice. *Segmentation criteria must be based on the underlying causes for NSB.* When the term 'segmentation criteria' is used throughout the remainder of this discussion, we will be referring to

TABLE 3. Causes Addressed by Interventions in NSB in the Literature

<b>FORGETTING-</b>
Postcards, telephone reminders, reminders for previous NSB, same-day confirmation
<b>PATIENT PERCEPTIONS-</b>
Contracting, patient education, patient-specific letters, stressing the importance, letters directly from physician
<b>REWARD/PUNISHMENT (not a cause, merely a reaction)-</b>
Incentives, charging a service fee, partial pre-payment
<b>GENERAL-</b>
Self-appointment scheduling, overbooking, OPRs, automatic rescheduling
Only a small number of the underlying causes of NSB are addressed by interventions proposed in the literature, despite the large number of such interventions that exist.

FIGURE 1. The Systematic Process of Addressing NSB



specific forces causing NSB (examples of segmentation criteria, then, would include transportation, financial pressures, forgetting, etc.).

How does one go about identifying the meaningful segmentation criteria for their particular institution? The only way is by collecting data on your particular patients. The most effective means to identi-

fy institution-specific segmentation criteria are through computer database/file searches, telephone interviews, and/or mail-in surveys.

The responses collected from these tools must be recorded in some sort of database software (Excel, SPSS, Works, etc.) capable of manipulation and statistical analysis. Along with each patient's responses to the questions, it is critical that ALL available data on patient demographics, previous appointment keeping behavior, health status, insurance status, etc., be recorded (this will be important in the positioning phase, discussed below).

Identifying the correct segmentation criteria is by far the most important step in this process; it also will involve the most time, effort, and patience. A well-planned and properly-conducted survey, in which each set of questions helps the administrator either accept or reject a particular segmentation criteria, will prove invaluable. The enhanced capacity utilization and revenues generated as intervention strategies begin to be implemented will well justify the time and effort invested into these instruments.

Once the most important criteria have been identified by patient responses, the patients must be categorized based on these criteria (e.g., all those in which transportation was the most important cause of NSB should be grouped together). Having done this, the bulk of the segmentation process is complete.

We will briefly mention several other issues related to the segmentation step. It is important to try and segment a sample of your entire population, not just the no-show component, because it will then be possible to compare the two groups and ascertain, albeit retrospectively, whether such parameters are truly predictive of NSB. Evaluating and re-designing the basis of segmentation over time is also an important step and should be considered at regular intervals, the length of which depends on the rate of turnover and the changing characteristics of the patient pool. Try to focus on no more than 4-5 segmentation criteria; too large a number of factors will create too many groupings, in turn resulting in inefficient solutions (in terms of cost) and difficulty in measuring and managing responses.

### ***Targeting***

Once the most common reasons for NSB have been identified, it is time to begin to focus the institution's energy and resources on

*particular* groups of people. Why is targeting important? Why not develop a strategy for each subpopulation and begin implementation immediately? There are several advantages to a targeting strategy. It addresses cost-limitations, it allows the manager to focus on the solvable problems, while keeping in mind but not allocating further resources to the unsolvable ones. Further, targeting allows the manager to focus on those problems that are MOST beneficial for the institution. Some problems cost a lot to solve but only help a few people, others may be cheaply solved while impacting a much larger number of patients. The targeting step is where such determinations must be made. The strategy is also useful in that the institution cannot be everything to everyone, and must make certain choices in light of this fact.

The most important factors the practitioner should consider when choosing among different segments include; the size of each segment and its rate of growth/decline within the practice, the 'solvability' of each non-compliance factor, and the level of commitment (financial and otherwise) the manager is willing to devote to each segment chosen. Additional factors include the ethical issues involved in helping one segment over another (if these exist, one must resolve or at least minimize the effects of such issues), and whether there are interrelationships between segments and segmental needs such that a solution may be possible to assist two segments simultaneously. For example, if two important segment criteria happened to be transportation and conflicts of scheduled appointments with work responsibilities, and the practitioner was concerned with low levels of demand (and consequent down-time) associated with operating on the weekend, then a transportation service that functioned only on the weekends would be potentially useful *intersegmentally*, in addition to resolving the physician's concerns. This is the intrinsic value of such a process; it allows the development of 'home-made' or 'institution-specific' solutions which could not have been generated, at least in an efficient manner, by the general literature.

It will also prove useful at this point to rank each identified segment based on factors such as the ones mentioned above, and to develop a priority list. Such a list will not only focus the efforts of the company on the present, it will provide a basis for future planning and strategy formulation, as well.

## Positioning

Once the target segments have been identified, the next step is to position. By positioning we mean thoroughly and completely understanding each target segment, its characteristics, and its needs. The process of clearly categorizing, characterizing, and defining each segment is critical. This information, in turn, will allow a clear picture of the problem to be obtained, and more importantly, will provide valuable input into designing a solution.

How does one attempt to characterize target segments? The tools have already been collected, in the earlier stages of this process. The questions asked in the questionnaires will be a major contributor. Those people involved with conducting the telephone interviews must be maximally involved in the positioning process. It is in this stage, additionally, that the demographic information which we collected during segmentation becomes invaluable. For example; now that we have decided to target that proportion of no-shows that occurred due to transportation difficulty, knowing that these patients were all primarily in one county or area (high concentrations of patients), that they were all elderly (and perhaps in the same nursing home), that they were all covered by insurance (so that procedures would be covered), and that they all had incomes over a certain level (and therefore may be able to pay slightly more were transportation services to be offered) will prove invaluable in terms of generating and assessing possible intervention strategies. If financial pressure comprised one of the target segment criteria, then information on income, insurance status, level of co-payment required, etc., are all relevant and important pieces of information.

The most important thing is that all necessary information be recorded *from the outset*. As we emphasized earlier, each question asked in the surveys during the segmentation stage must answer a specific question for the policy-maker related to a particular segment criteria. For each potential segmentation criteria, the correct types of *ancillary information* must also be identified. For example, if the survey questions are assessing financial pressures as a cause of NSB, then at the same time the survey questions are being asked, factors relevant to financial pressures such as income, insurance type, and level of co-payment must also be recorded for each patient. This information is critically essential in analyzing the im-

plications of patient responses and the likelihood of success of proposed interventions. Thus, if all of the people for whom transportation was a problem were indigent and uninsured, then the strategies that should be considered for addressing this problem would have to be much more conservative. If careful planning is not adhered to and implemented from the beginning of segmentation, information will be insufficient at some stage in this process, and the exercise will prove to be a failure.

How else does one get to 'know' their target segments, as much as such is possible? Direct contact with such people is the most valuable tool. Focus groups and follow-up phone calls to particular people within each segment should also be incorporated in the institution's positioning strategy, for a complete picture to be obtained.

### *Developing*

The final three stages of this process are much more straightforward conceptually, in addition to requiring significantly less time to implement. However, these steps are just as important as the previous ones, and more often than not are where most attempts fail. Of the two steps in any strategic process (formulation and implementation), it is the latter that often becomes the most difficult in practice.

It is during the development stage that one must begin to develop the strategies that the firm can use to address each target problem. The list under consideration should include all possible strategies, initially. Sources of ideas include the lists we have presented earlier in the article, suggestions from other administrators and co-workers within the particular institution, and perhaps most importantly and most apparently lacking to date: *patient suggestion*. Once more, strategies such as focus-groups and follow-up phone calls may be necessary.

Once an intervention list has been generated and each item has been evaluated in terms of cost, feasibility, etc., it lies upon the manager to make the decision. Trial and error may be needed to find the *most* effective strategy, especially with the first few segments, until movement along the learning curve has occurred. Strategists and logicians have developed several useful though complex meth-



ods to chose a particular intervention/strategy from groups of several options, including cost-benefit, cost-effective, and cost-utility analysis. The concept in all of these processes is the same; to make an informed decision, one must have information on the costs and benefits of each choice. The most difficult task is how to quantify costs; does one attempt to quantify non-monetary factors such as the amount of time it takes the patient to drive to the clinic, or patient inconvenience, when making the final decision? Does one include the opportunity costs (the \$1,500 spent in focus groups, telephone reminders, and mail surveys could have been invested in a mutual fund to earn 12%)? These questions, and the lack of consensus on how such non-monetary factors should be quantified, is one of the major disadvantages of cost-benefit analysis. Cost-effective analysis resolves this problem by focusing only on the costs involved in *actually implementing the intervention*, rather than possible consequences, opportunity costs, etc.

As a final word, it is important to include all stakeholders (patients, physicians, nurses, managers, employers, and insurers) in the process when developing potential solutions and evaluating the advantages and disadvantages of each alternative. Often, the decision-makers and those that implement the strategy will be different. As a result, communication between these two functions must be maintained throughout. Weekly meetings, suggestion boxes, e-mail, and any other strategy necessary should be utilized depending on the number of levels of management and number of personnel involved in the formulation-implementation process.

### ***Testing***

Due to the large number of intervention options available to each institution, it is impossible for us to predict which strategy the individual institution will select. As a result, the remainder of the discussion will of necessity be more general and abstract.

The testing stage is also very important. A pilot study with a small subset of each targeted segment should be exposed to the intervention, and information on compliance behavior before and after treatment should be collected and compared. Again, the importance of mechanisms to quickly, easily, and continuously measure the effects of implemented strategies must be in place. Based

on an estimation of costs associated with implementation of the strategy, and guided to some extent by costs incurred during the pilot study, the manager should also calculate the “break-even point” at which revenue justifies expense. This value can be useful in analyzing program efficacy. However, the manager should realize that such a number does not represent true revenues, which must be projected over the *life-time* of the patient, and not just in the short-term.

Further input and suggestions from the field during the pilot study should continue to be fostered. A strategy that seems good on paper but as yet has failed to significantly improve compliance may be scrapped when the only real problem was the need for a slight readjustment in implementation. Consulting the field workers quickly identifies problems in addition to offering quick and valuable solutions. It also fosters a sense of teamwork and motivates the entire process. The latter should by no means be trifled. Meetings, confidential suggestion boxes, etc., will once again facilitate the process.

### ***Launching***

A few final words. It is worth beginning the process slowly, both to minimize and learn from mistakes. Continuous measurement of success and failure will aid in any needed modifications of procedures. Changes in segment criteria can be expected to occur over time, and institutional policy must adapt accordingly (do not throw away your notes!). Finally, let referring physicians, large employers, and managed care companies know about what you are doing, and how in-depth you have researched, understood, and adapted to your patient's needs. Having worked hard and invested so much, do not fail to let others know what you have done and how well it works. After all, a good product is only useful if others are aware of it. The ultimate endpoint of such measures will be increased revenues and profitability, greater capacity utilization, and a more satisfied patient. A proper understanding and implementation of the approach presented here will allow the individual healthcare provider to realize these potentials.

### ***DIRECTIONS FOR FUTURE RESEARCH***

Future research and investigation can follow several different paths. Critical factors necessary for the success of such inquiries

include large sample sizes, a standard methodology that can be tested and compared across multiple medical specialties and organizational structures, and the use of multivariate approaches based on the understanding that multiple factors often interrelated and synergistic, may explain No Show Behavior more completely than simple univariate analyses. Once organizations have performed the segmentation and targeting functions, it will be the responsibility of researchers to identify the most effective strategies for positioning, developing, etc. For example, what is the relative usefulness of mail questionnaires as compared to telephone surveys and focus groups at each stage of the no-show process? Finally, it will be important for the managers to share the results of the analysis they have performed, both to allow peers to study and learn from their conclusions, but also to elicit further discussion and refining of the no-show process. Such information can continue to provide a valuable foundation on which further inquiry can be based. One must keep in mind, however, that such conclusions may only have limited applications to a particular health care institution.

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