

# **Tackling the Nursing Shortage at the Washington Hospital Center**

**Executive Decision Making**

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## **ABSTRACT**

The United States is experiencing a nursing shortage. The current supply-demand problem is rooted in the change in population demographics. The baby boomer generation is getting older and will need increasingly more medical care. Unfortunately, the number of young men and women enrolling in nursing schools has declined. Congress and lawmakers are trying to address the nursing shortage problem by introducing new laws such as the Nurse Reinvestment Act and the Nurse Employment and Education Development Act. Specifically, the Washington Hospital Center (WHC) is experiencing a nursing shortage similar to the nation. However, the situation at WHC is unique because the hospital is unionized and already experienced a six-week strike last September. As a result of the strike, the hospital also experienced a high turnover rate. The Washington Hospital Center needs a solution that helps it combat the nursing shortage immediately (within six months) before it can address the problem in the long-term. The hospital is looking into increasing retention of the staff nurses, recruiting new nurses both domestically (newly graduated) and internationally, or continuing to contract with local agency nurses and travel nurses.

## BACKGROUND

Nursing shortages in the United States are a recurring issue; it happened in the 1960s, 1970s and 1980s and is being experienced again. The shortages in the past were short with quick recoveries. The nursing shortage that the healthcare industry is experiencing today, however, is believed to be "just the beginning of a long-term-challenge."<sup>(1)</sup> Not only is the population aging with baby boomers reaching the retirement age and requiring more medical care, the nursing workforce is also aging. According to the American Medical Association Council, 20% of the nursing workforce is between 50 and 64 years of age<sup>(2)</sup>. When these older nurses retire, the supply of nurses will drop dramatically. The recruitment of subsequent generations to the nursing workforce will have to offset this fall in supply. Alarming the number of entry-level nursing enrollments has declined 5-7% every year in the past four years.<sup>(2)</sup> In addition, many top nursing schools report an even lower percentage of admissions numbers each year. A report from the General Accounting Office (GAO) confirmed that hospitals and other healthcare providers are experiencing "difficulties recruiting and retaining nurses."<sup>(3)</sup> The report also cited that "job dissatisfaction is a major contributing factor." Also, some women feel that there are many other beneficial career opportunities available other than nursing. Lastly, many people are deterred because of the perception that healthcare is a low-tech industry and no longer a favorable employer.<sup>(1)</sup>

Although there are still disagreements among the large healthcare agencies and professional groups whether the nursing shortage can be measured quantitatively in the immediate future, there are several surveys that documented the nursing shortage in the United States. The General Accounting Office (GAO) reported that "a nursing shortage may be coming" but "data isn't available to analyze."<sup>(3)</sup> Information from the U.S. Bureau of Labor Statistics and the Health Resources and Services Administration estimates that the supply of nurses will fall short of demand in 2008 by 15,674.<sup>(4)</sup> The Department of Health and Human Services (DHHS) predicted a nursing shortage of over 400,000 by year 2020.<sup>(5)</sup>

The nursing shortage that the United States is currently facing has received a lot of attention from media and lawmakers. The United States House of Representatives has introduced several bills to address the pending nursing shortage. Senator John Kerry (D, Mass) and Senator Jim Jeffords (I, VT) introduced the Nurse Reinvestment Act (S 706/HR 1436) that will increase the number of qualified individuals entering the workforce. The bill focuses on creating a "National Nursing Service Corps" that would generate scholarships. Students who receive these scholarships would have to sign a contract that committed them to at least two years of service as a registered nurse. The second bill, the Nurse Employment and Education Development Act or NEED (S 721), was introduced by Senators Tim Hutchinson (R-AZ) and Barbara Mikulski (D-MD). This bill calls for grants, funding and scholarships to recruit nurses in shortage areas and to encourage nurses to pursue a long-term nursing career.<sup>(1)</sup>

## **INTRODUCTION**

The Washington Hospital Center is also experiencing the nursing shortage and is in need of an immediate solution. The WHC is a 907 bed, private, not-for-profit teaching hospital in Washington, D.C. It is currently the largest hospital in the D.C. Metro area. The management at the hospital has tried several approaches to combat their enduring nursing shortage. Unlike many other large hospitals in the area such as Georgetown and George Washington Medical Center, WHC is unionized. WHC experienced a six-week strike last September that disrupted hospital business and cost the hospital an immeasurable amount of financial and labor resources. Many older nurses left during the strike because of fear of what might happen to them in the aftermath. Moreover, almost all of newly graduated nurses left. The loss of newly graduated nurses was an exceptional cost to the hospital, because they were still in training. At the Washington Hospital Center newly graduated nurses enroll in the 12-week "Fellowship Program". This is a training program that provides opportunities for these new nurses to learn the policies and procedures of the hospital and shadow experienced nurses. Lastly, even after the union settled the strike issues, management found they continued to lose nurses on a regular basis.

Management at the Washington Hospital Center has identified 4 options to mend the damage. First, the hospital could continue to contract with agency or travel nurses to fill in the immediate vacancy as they are forced to now. Secondly, the hospital management could design programs that will bring in newly graduated nurses with a sign-on bonus. Currently, the average time that hospitals take to fill an open RN position is three months. Before the strike occurred, the hospital had expanded its recruitment effort to international recruiting. For instance, head nurses traveled to the Philippines to interview experienced Pilipino nurses. Thirdly, they have also considered another international recruiting effort. Finally, they could concentrate on retaining the staff that they already have to rebuild a dedicated and loyal workforce. For the WHC, which has many senior nurses on the verge of leaving, management has expressed a need for a feasible solution within 6 months.

## **DECISION MECHANICS**

Managers are responsible for making decisions. Unfortunately, many managers are never taught a truly dependable and effective method of making decisions. Some managers may rely on theories like cost-benefit analysis or consider the value that the results will add to their core business activities. Others may gather input from fellow colleagues and/or conduct research in order to make a decision. Finally, many managers just follow their gut feeling. This may prove reliable to many, especially for simple decisions. Our team felt that in order to make the best decision and give all objectives enough weight we would need a more concrete decision making method for this complex problem.

We choose to use the Expert Choice software application in constructing the decision model from which we would derive a decision. Expert Choice uses a concept called Analytical

Hierarchical Process (AHP). AHP uses complicated mathematical equations and pairwise comparisons to weigh each of our stated alternatives against all the specific stated objectives. The software then derives the answer that best fits the specific goal. Expert Choice is a very flexible application that allows users to weigh the relative importance of each of the objectives, subobjectives, and alternatives against each other and derives weights to each of them based on these decisions. Each decision is based on data when it is available and intuition when it is not. AHP was developed by Dr. Thomas Saaty over 20 years ago and continues to be one of the most highly regarded decision structure processes today. Together Dr. Saaty and Dr. Earnest Forman, Professor of Management Science at George Washington University, developed the software package in the early 80's to market the Analytical Hierarchical Process to businesses. Companies all over the world, like IBM and Ford Motor Company, use the Expert Choice software to make critical decisions. The model's data, presented in this paper, was gathered from research related to the field, discussions and feedback with hospital management, and over 3 years experience in the nursing profession.

## **GOAL STATEMENT**

This project's goal is to supply the Washington Hospital Center with the best short term alternative that will increase their nursing staff to a sufficient level. The method chosen will help the hospital provide high quality care at a low cost.

## **ALTERNATIVE DESCRIPTION**

The following four alternatives are considered:

### **1. Increase retention rate of currently employed nurses at the WHC**

Retention of current staff nurses can be achieved through increased benefits and incentive programs as well as improved working environment. Full time regularly employed nurses in the WHC are familiar with the hospital policies and procedures and therefore, are the most efficient when compared to agency or new nurses. Their ability to provide care promptly and continuously contributes to a very high quality of care. In addition, the full time unionized registered nurses form a general bond and become a strong and loyal workforce. On the other hand, because these nurses are unionized, the management has to deal with grievances and the threat of strikes. Additionally, since the nurses are unionized it is often difficult when disciplinary actions or firing become necessary.

### **2. Contract with agency or travel nurses**

Agency or travel nurses are nurses that are contracted to work at a particular hospital through healthcare staffing agencies. These staffing agencies act as agents to find work for their nurses.

The agencies are responsible for payroll and other administrative and regulative procedures. By contracting with agency or travel nurses the hospital has the flexibility to fill voids in the staffing and scheduling easily. If the management has the need for more nurses tomorrow it can call the agency and get extra nurses. This helps cover open shifts in the hospital schedule as they arise. This is a quick fix especially because mandated overtime is restricted by the union. Since agency or travel nurses are not employed by the hospital, the hospital incurs no overhead costs. However, the hospital pays the agencies twice as much as it pays its own staff nurses per hour. Due to the flexibility of contracting, an agency nurse may visit 3 different hospitals within a week. He or she may not be familiar with each of the different hospital policies. This lack of knowledge results in inefficiency in regards to basic daily patient care activities. It is also difficult to hold agency or travel nurses accountable for care that was not delivered appropriately.

### **3. Increase programs to attract newly graduated nurses into the training program**

The "Fellowship Program" that new nurses complete at the WHC is designed to bridge the gap between school and the real world. These new nurses undergo a twelve-week training program that consists of classroom hours tailoring to their specific field and clinical experience by working under the supervision of experienced nurses. Nurses that come directly from accredited programs provide a fresh perspective to providing health care. They also have a high level of energy and enthusiasm. On the down side, the initial training and non-productive hours during the first few months are costs to the hospital. WHC management estimates that it takes an average of 18 months to experience return on the investment of a newly graduated nurse.

### **4. Heavily recruit nurses from other countries**

The Washington Hospital Center had extended its recruiting effort overseas prior to the strike. This brought nurses from other countries to work for the WHC under visa sponsorship. These nurses have experience in the field and are a welcome source of supply. They will be particularly loyal to the employer that sponsors their move to the United States. Although their training is not as extensive as a newly graduated nurse, the costs are similar. The difference is made up by visa sponsorship and travel costs. Moreover, the foreign nurses will face an initial communication learning curve upon arrival in the United States. An increased presence of foreign workers in the hospital has the potential to split the workforce and build resentment among the American registered nurses.

## **PRIMARY OBJECTIVES**

### **Cost (Low)**

As mentioned above, new nurses (recent graduate and international recruit) incur some costs to the hospital. Recruiting new nurses is a higher cost to the hospital than retaining their current nurses in the short term. In addition, the cost of international recruiting is slightly higher than

domestic recruiting due to travel costs and resources spent on visa sponsorship. The highest cost incurred to the hospital is when it contracts with agency and travel nurses. Currently, the hospital pays a staff nurse \$33 per hour including benefits. It pays nursing staffing agencies between \$55 and \$75 per hour to contract with an agency or travel nurse.

## **Quality of Care**

Quality of care is measured by the promptness of care delivered, continuity of care, and the efficiency of nurses providing care. Staff nurses are more prompt and efficient than outside nurses in responding to patients' needs because they are more familiar with the hospital routines and protocols. Senior nurses are more prompt and efficient than the new nurses. Because outside nurses are temporary workers who are in the hospital as needed, continuity of care cannot be achieved through their employment. Even if they come to the WHC often, they will probably be placed in another unit or floated between two units on one shift.

### **Subobjectives of Quality of Care:**

1. Prompt Care
2. Continuity of Care
3. Nurses' Efficiency

## **Nurses' Satisfaction**

Nurses' satisfaction is measured from the WHC staff nurses' perspective in this model. It is measured by rate of turnover, number of call-ins, and grievances filed by the union on behalf of the nurses. Employee turn over is very expensive for the hospital. While specific financial data on this subject is not available from the WHC, one study shows that a reduction of 3% in yearly turnover rate would save a 300-bed hospital \$400,000.<sup>(6)</sup> Many senior nurses quit as a result of burn-out. New nurses have contracts with the hospital, and are bound in employment with the hospital. In addition, new nurses are less likely to call in sick than senior staff nurses. New nurses cannot use their paid days off until six months after their employment. On the other hand, senior nurses are able to take advantage of paid days off that they have accumulated. Senior staff nurses also are more likely to exercise their union rights and file more grievances with the union than the new nurses.

### **Subobjectives of Nurses' Satisfaction:**

1. Rate of Turnover
2. Number of Call-Ins (sick of non-working days)
3. Grievance/Union Complaints

## **Organizational Flexibility**

Organizational flexibility is reflected through staffing and scheduling. While the two may sound similar, they are not the same. Staffing refers to assignment of staff to areas that have the needs.



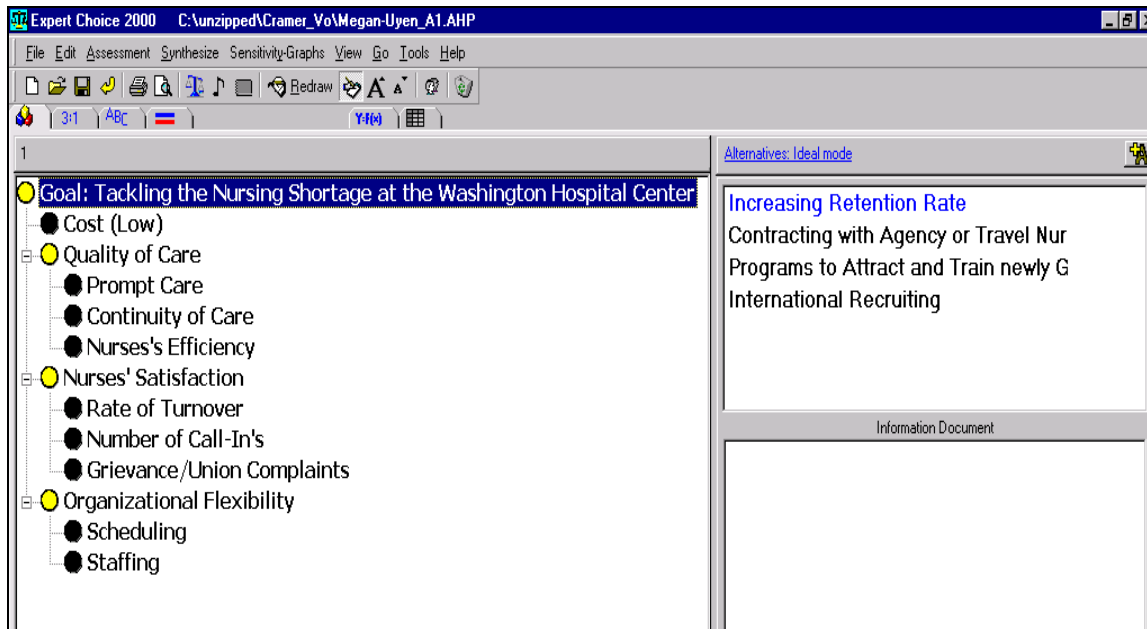
Scheduling refers to bringing in enough nurses to staff the units through contracting with agencies. Agency or travel nurses provide the most flexibility in scheduling and staffing. This is the largest advantage of contracting with outside nurses. The hospital can send these nurses to any unit that is short of supply on a particular shift. The outside nurses often fill schedule openings when there is need for extra help. The hospital policy dictates that new nurses in the training program will not be floated within the first 6 months due to their limited experience and exposure of the hospital environment. That forces the senior nurses to float if there is a dire need for help on a different unit.

**Subobjectives for Organizational Efficiency:**

1. Staffing
2. Scheduling

**DECISION MODEL**

Upon building the model, the objectives and subobjectives were defined (see figure 1). The goal is placed at the top of the left screen pane and the alternatives are displayed on the right screen pane as seen in figure 1. Each objective and their corresponding subobjectives are placed underneath the goal.

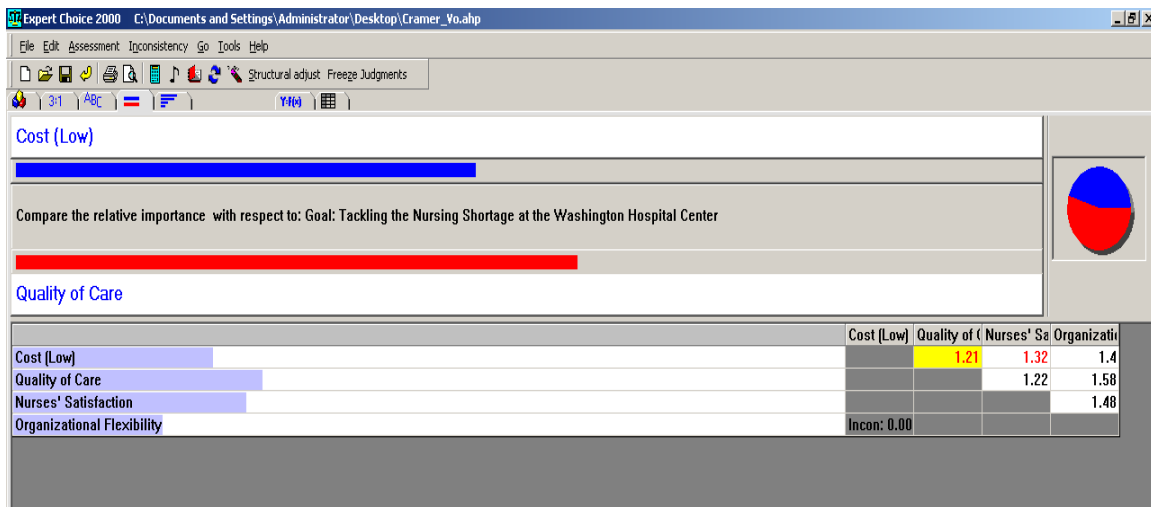


**Figure 1: Decision Structure before weights were derived**

## PAIRWISE COMPARISONS

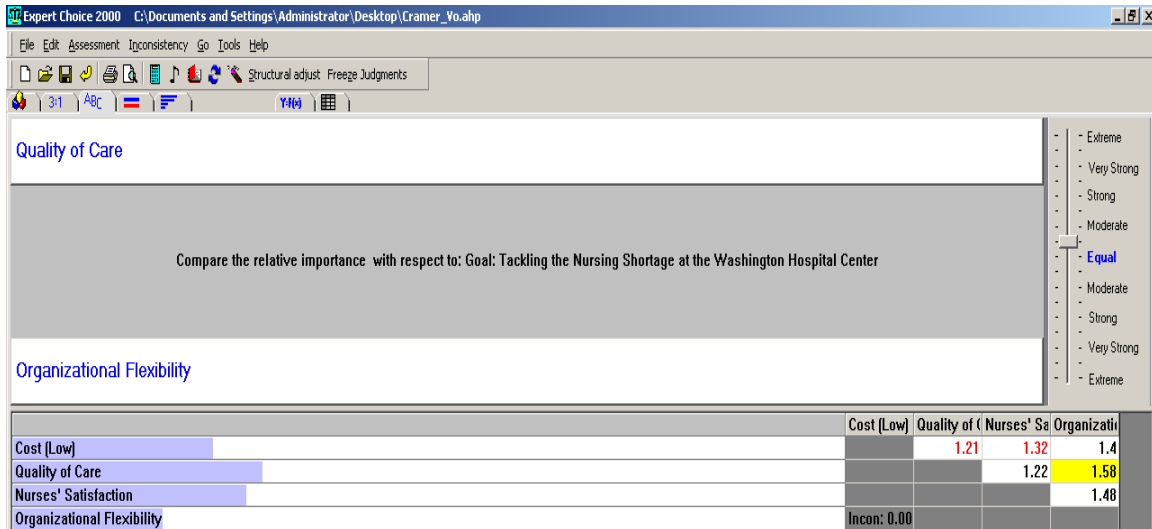
Pairwise comparisons of each objective with respect to the goal are completed. One of this model's pairwise comparisons is seen in figure 2. These comparisons, or judgments, are completed by the decision maker and recorded by the application to derive individual weights of each objective. This is the first step that will eventually lead to a decision for the goal. In this case, the goal is to find the best alternative for the WHC's nursing shortage.

The decision-maker has the option of making each comparison using graphical scale, a verbal scale, or a numerical scale. The comparison or question that the decision maker answers is outlined in the top of the screen. In figure 2, the comparison is made using the graphical scale. As demonstrated in figure 2, Quality of Care is slightly more important than Cost (low). The decision maker adjusted the red line to reflect this weight. The corresponding numerical weight, highlighted in yellow, that is associated with this judgment is recorded in the bottom half of the screen.



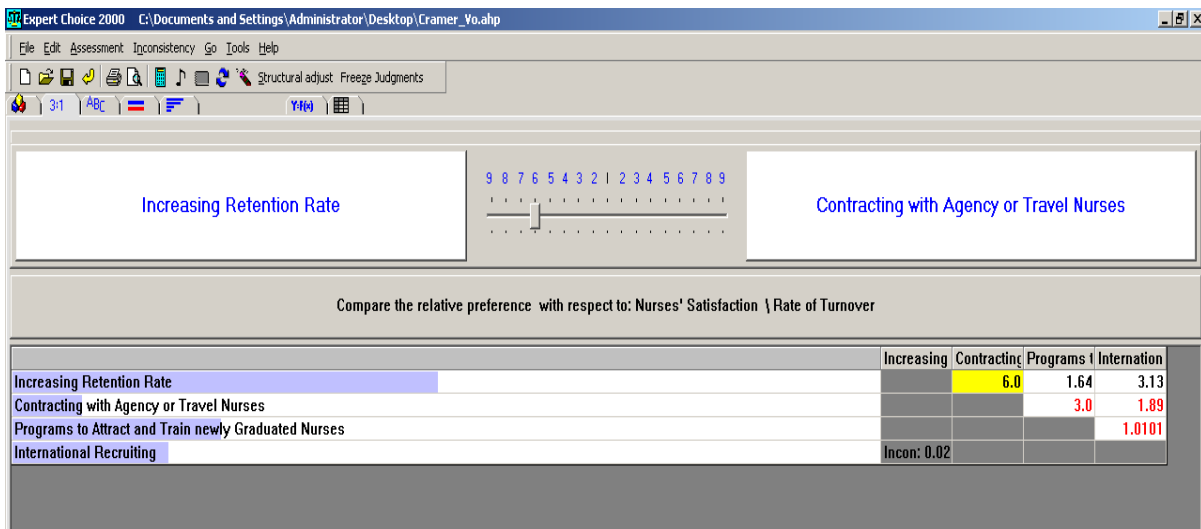
**Figure 2: Graphical judgment of objectives with respect to the goal**

Figure 3 depicts the verbal judgment of the objectives with respect to the goal. The decision makers found that this ranking was the easiest to understand.



**Figure 3: Verbal judgment of objectives with respect to the goal**

The comparisons are also completed for each individual subobjective with respect to each alternative. This is the second step in completing the model and deriving a decision. Basically, each decision is a ratio of preference that is derived when comparing a pair of factors. Figure 4 depicts two topics. First, it illustrates the pairwise comparison that is made between the subobjectives and the alternatives. The figure outlined in yellow is weighting the importance of rate of turnover when considering increasing the retention rate vs. contracting with agency or travel nurses. Secondly, it depicts the numerical scale option. In this example, the decision maker felt that increasing retention rate would be 6 times more effective when combating rate of turnover in the hospital than contracting with agency or travel nurses.

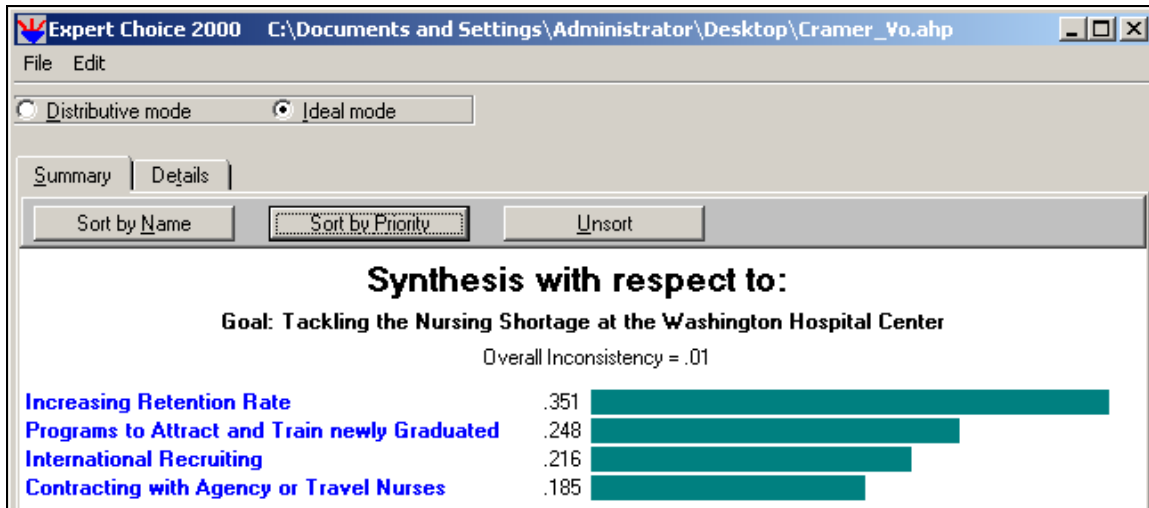


**Figure 4: Numerical judgment of subobjectives with respect to each alternative**

After completing all the pairwise comparisons the third step to completing the decision process is to synthesize. The synthesis for WHC is summarized in the next section.

## RESULTS AND ANALYSIS

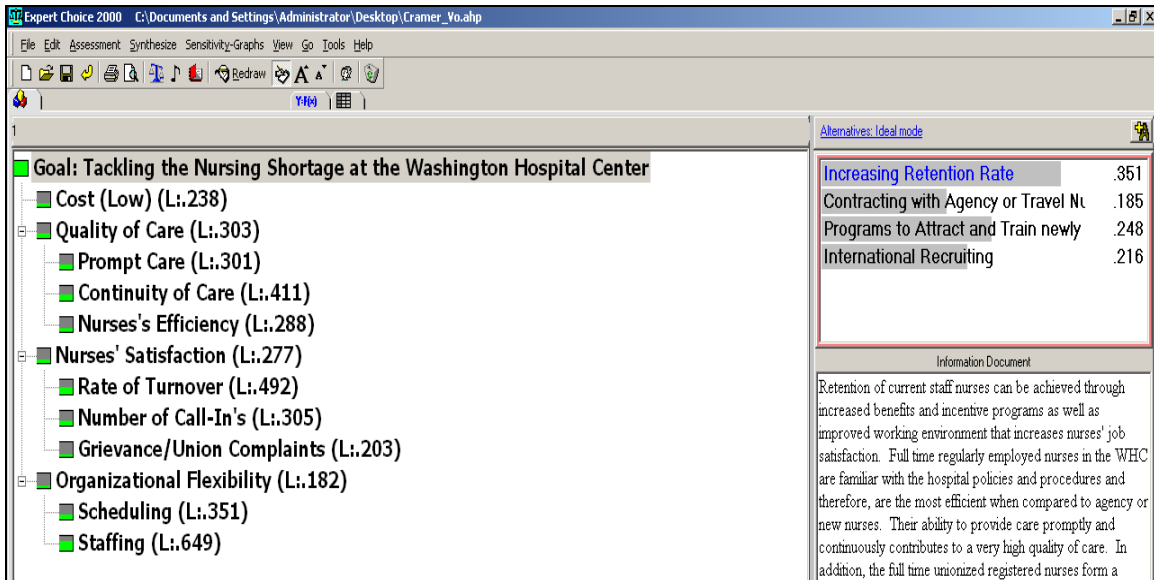
After completing all the pairwise comparisons in the decision model the following weights were derived (See figure 5):



**Figure 5: Synthesis with respect to the goal**

**Alternative Weights** (see figure 6 for further detail):

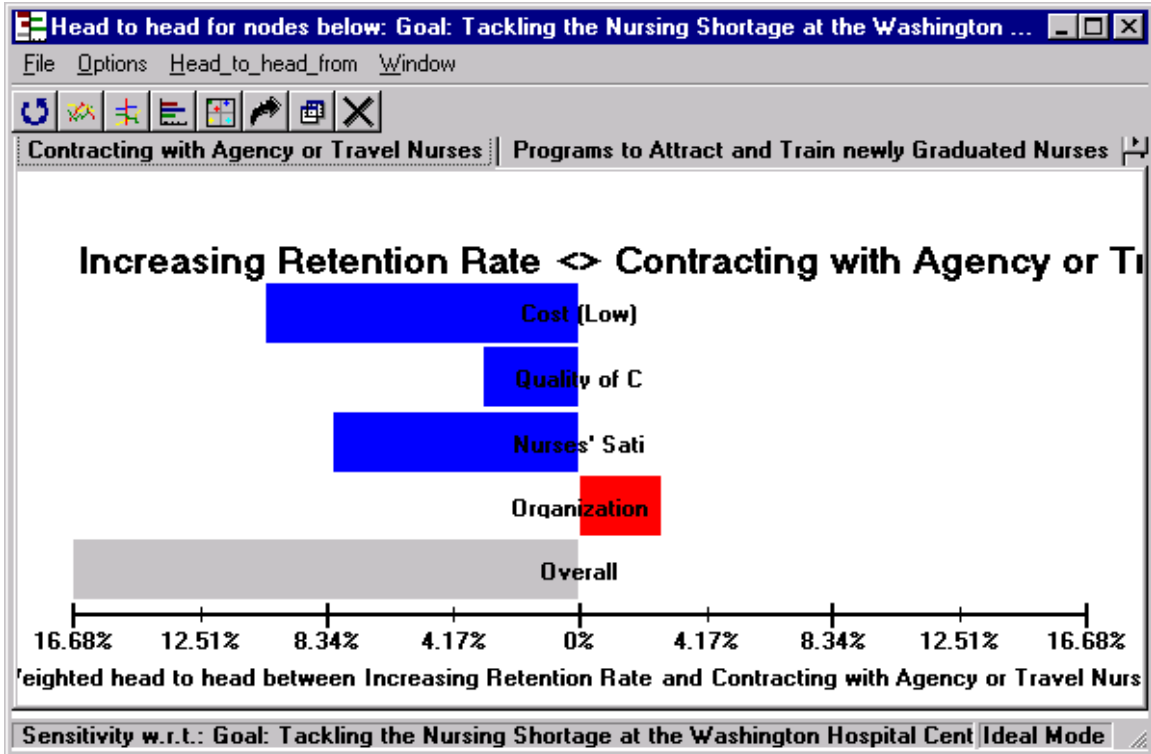
Increasing Retention Rate –	35.1%
Contracting with Agency/Travel Nurses –	18.5%
Programs to attract Recent Graduates –	24.8%
International Recruiting –	21.6%



**Figure 6: Final Decision Structure**

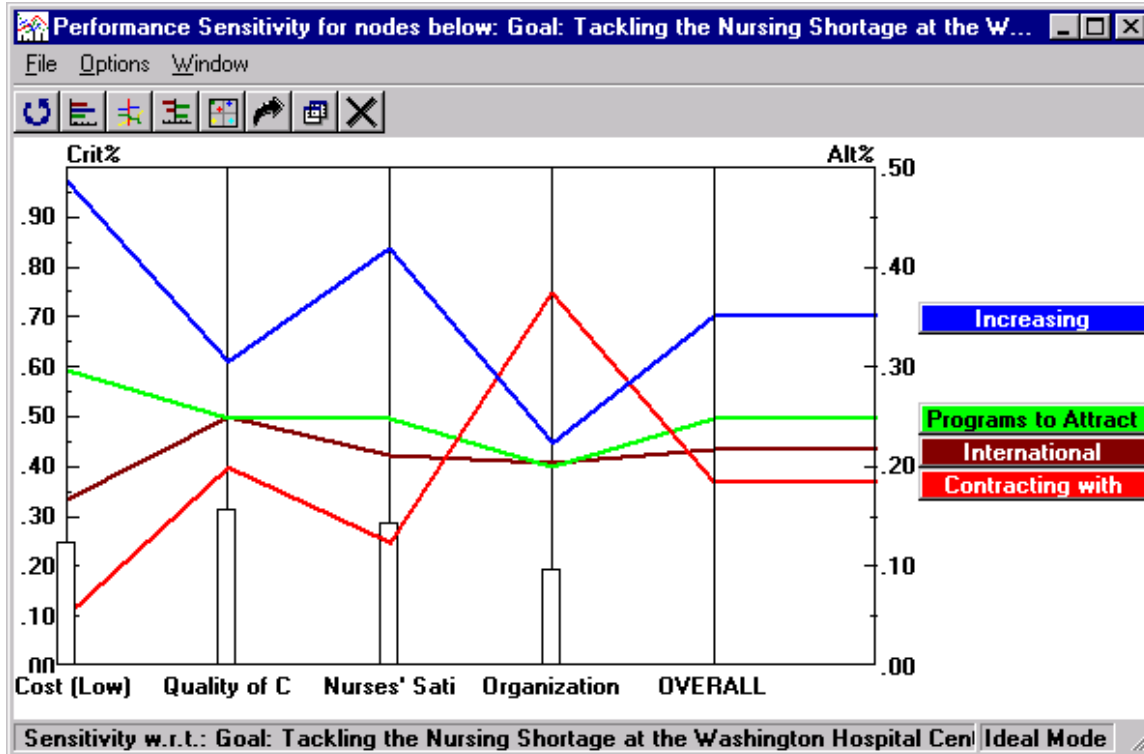
After the initial completion of the model the result is to increasing the retention rate of current staff nurses. This is the best approach to solve the nursing shortage problem at the Washington Hospital Center when they correctly consider the objectives.

As figure 7 shows, Increasing Retention Rate is a better choice with respect to all of the objectives except Organizational Flexibility when compared with contracting agency or travel nurses. As seen in figure 6, of the four objectives, the model reflects that Quality of Care to be the most heavily weighted objective at 30.3%, followed by Nurses' Satisfaction (27.7%), Cost (low) (23.8%), and Organizational Flexibility (18.2%).



**Figure 7: Head to Head Sensitivity**

According to the performance sensitivity in figure 8, retaining current nurses is the most preferable approach. This alternative is titled “Increasing” in the graph, and stands for increasing the retention rate of current nurses. As depicted in figure 8, it is most preferable in terms of Low Cost, Quality of Care, and Nurses' Satisfaction, but is less preferable than Contracting with outside nurses in terms of Organizational Flexibility. Contracting with Agency or Travel Nurses is the least favorable in all areas except Organizational Flexibility. Programs to Attract Newly Graduated Nurses and International Recruiting fall consistently between the two other alternatives. As figure 8 indicates, domestic recruiting is slightly more favorable than international recruiting in Cost (low) and Nurses' Satisfaction. International recruiting and domestic recruiting are of similar favor in terms of quality of care and organizational flexibility. Programs to attract newly graduated nurses, if increasing retention rate became an impossible alternative, would be the next best choice to accomplish the hospital's goal.



**Figure 8: Decision Performance Sensitivity**

The Expert Choice model also allows the user to change the weight derived for each objective to achieve different results. This helps managers envision how decisions can change when different objectives become more important. If the WHC decides that organizational flexibility is the most important factor and, therefore, should be weighed higher, the results would change to favor the contracting agency nurses alternative. Figure 10 shows that the weight has to change significantly from 18.2% to 65% to have the result shifted to "contracting with" as the best overall approach. Figure 10 reflects this change.

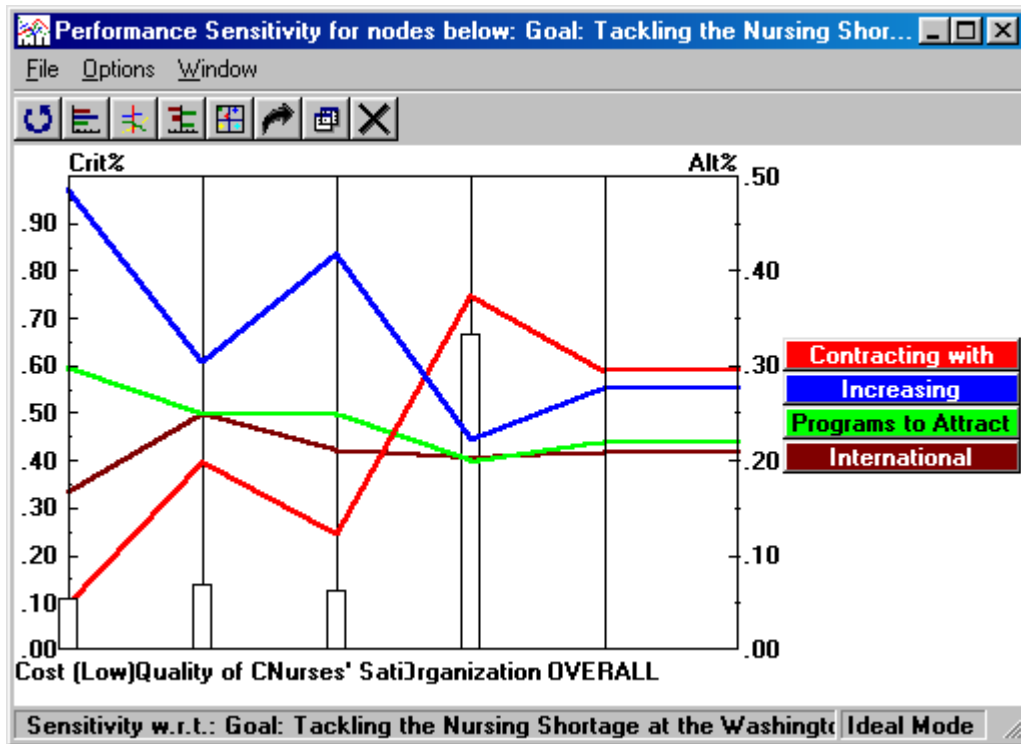


Figure 10: Adjusted performance sensitivity

## MANAGEMENT FEEDBACK

Ms. Rosenthal, the contact person at the hospital, is one of the managers in charge of recruiting. One of her main responsibilities is to manage the Fellowship program that focuses on newly graduated nurses. Recently, she has also been involved in a new project called H-work. This project had been charged with the responsibility of addressing both the recruitment and retention problems for the hospital. She reviewed the project and complimented that the model answers the key issue of the nursing shortage at the Washington Hospital Center. After presenting the project to Mrs. Rosenthal and listening to the feedback we reconstruct the model. The priorities of objectives are derived as follow:

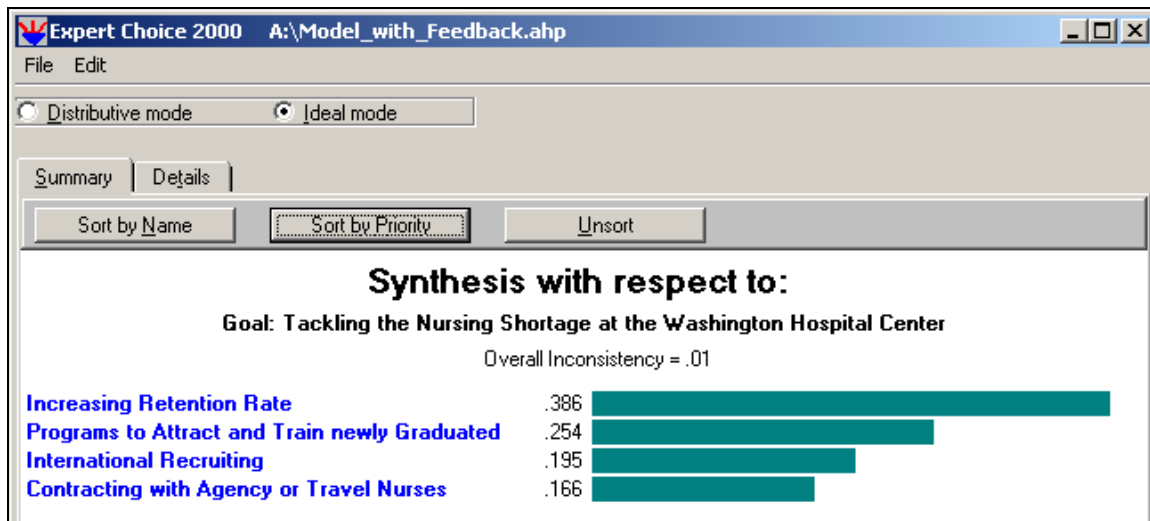
### Objective Weights with Management Feedback

Cost (low)	30.3%
Quality of Care	27.9%
Nurses' Satisfaction	27.9%
Organizational Flexibility	13.9%



The cost objective weight increased by almost seven percent (from 23.8% to 30.3%). Because healthcare cost continues to rise and funding continues to decrease, cost reduction becomes the highest weighted priority. Figure 11 shows the adjusted weight of each alternative after considering Ms. Rosenthal’s feedback.

After massaging the pairwise comparisons to reflect the feedback, many of the numerical values have changed, but the decisions remained the same. In figure 11, Increasing Retention Rate is still the preferred solution, and Contracting with Agency or Travel Nurses is still the least favorable alternative. In the original model, these have the same ranking of preference but slightly different weights. This change is due to the adjustment of the weight of the low cost objective. Similar to the result shown in figure 10, Organizational Flexibility weight has to change significantly to shift the result to Contracting as the most favorable alternative. These results helped solidify the decisions that were made after including real data from hospital management.



**Figure 11: Synthesis with respect to the goal after Feedback**

## CONCLUSION

In conclusion, we recommended that the Washington Hospital Center concentrate on retaining the nurses that they already have employed in order to best address the immediate shortage. The management of the hospital concurs with the results of the model. While recruiting new nurses, domestic or international, is a sound approach for a long-term solution, strengthening the current workforce is vital to prevent further loss of current nurses and boost morale. This solution will also be the most efficient when considering the low cost objective. It is important to keep in mind that if the loyal nurses who stay are not happy and on the verge of leaving, it could affect new nurses who come on board. The new nurses may choose to leave and pursue other

opportunities. Overall, addressing the retention rate will keep the nurses on staff, reduce the costs of turn-over and recruiting, improve morale, and improve quality of care.

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