
The Use of Scenario Analysis in Local Public Health Departments: Alternative Futures for Strategic Planning

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Synopsis

Scenario analysis is a strategic planning technique used to describe and evaluate an organization's external environment. A methodology for

conducting scenario analysis using the Jefferson County Department of Health and the national, State, and county issues confronting it is outlined. Key health care and organizational issues were identified using published sources, focus groups, questionnaires, and personal interviews.

The most important of these issues were selected by asking health department managers to evaluate the issues according to their probability of occurrence and likely impact on the health department. The high-probability, high-impact issues formed the basis for developing scenario logics that constitute the story line holding the scenario together.

The results were a set of plausible scenarios that aided in strategic planning, encouraged strategic thinking among managers, eliminated or reduced surprise about environmental changes, and improved managerial discussion and communication.

DEVELOPING STRATEGIC MANAGEMENT techniques, notably those that deal with the analysis of the forces in the external environment, is of growing interest in the field of public health management. The Institute of Medicine's report, "The Future of Public Health," noted "public health agencies must have the capacity for ... an organizational evaluation and change in response to changes in the agency environment and its social milieu" (1).

The environment of public health is changing rapidly. New and expanding problems, such as toxic substances in air, water, and food; cancer; heart disease; drug abuse; teenage pregnancy; and AIDS threaten the health of the population. In addition, previously conquered diseases such as measles, mumps, and tuberculosis have shown increases in recent years.

Yet, when demand for services is rising, agencies are experiencing financial difficulties created in part by a recessionary economy. Public health agencies are often among the first organizations to experience budgetary cutbacks in favor of more popular, more visible State and local programs. In particular, those health programs aimed at preven-

tion are often cut at the expense of those programs with more directly measurable results. There is a growing recognition that decisions made today regarding programs will affect health status for decades, not just for the next two or three budget cycles.

A Scenario Analysis Response to Planning

Maintaining a match between the internal capabilities of an organization and its external opportunities and threats is the primary goal of strategic management. Analysis of the external environment, a main component of strategic management, is the process whereby external trends (often classified as opportunities and threats) are identified, classified, monitored, and assessed for their likely impact on the organization. In some environments, significant trends are few and can be readily forecast with some precision.

The use of quantitative forecasting techniques, however, has its limitations. In a recent study, Schnaars found that only 20 percent of various published economic and social forecasts from 1964 to 1984 could be classified as successes (2). Because

of the diversity of activities, health departments have a particularly demanding task of attempting to predict all the possible trends that affect them. The future political environment, for example, is one that is likely to have a high impact on a health department, yet is also one that is difficult to forecast with any degree of precision.

Our argument is that a better approach is to postulate a set of plausible futures instead of trying to predict the future itself. Scenario analysis is an alternative to conventional forecasting that is better suited to an environment with numerous uncertainties or imponderables. In this report, we examine the development and use of scenario analysis in the private sector, outline a method for crafting scenarios, and illustrate how it was used in the strategic planning of a large county health department.

Scenarios: a definition. Scenarios have been described as devices for ordering perceptions about the future and “plausible or possible future states in terms of the critically interdependent issues or variables that define that future, presented in a logical and internally consistent manner” (3). A more quantitative definition is offered by Millet, “scenarios are descriptions of consistent sets of trend outcomes expected by a target year” (4). The key point, according to Leemhuis, is that a scenario is a story, a coherent story about the future using the world of today as the starting point (5).

The use of scenario analysis in planning. The use of scenario analysis in the private sector is widespread and growing. Approximately 22 percent of the Fortune 1,000 companies were using scenario analysis in the 1970s (6); by 1983, the percentage of scenario users rose to 50 percent (7). More than 1,100 European firms have adopted scenario analysis as one of their strategic management tools (8).

The increasing popularity of scenario analysis was due in large part to the unexpected events of the 1970s and the inability of other, more quantitative forecasting methods to predict and incorporate major shifts in the business environment. For example, simple trend-line analyses were not able to predict or incorporate the effects of the world oil price increases into their models.

A key question is whether scenario analysis produces any better results than other analytical techniques. The evidence is limited and equivocal. Schnaars compares two scenarios with two econometric model forecasts regarding U.S. auto sales in early 1983 (9). Overall, the scenario analysis showed a slight advantage over the econometric

model and was most advantageous over those series where uncertainty was high.

Scenarios are perhaps best suited for long-range forecasts involving (a) highly complex situations with many key unquantifiable factors, (b) highly uncertain situations, or (c) situations where there are few or no reliable data for quantitative models (10). Therefore, this method seems particularly useful for public health departments.

Alternative approaches to scenario development.

Two approaches to scenario development are prevalent—scenarios involving a dominant issue and scenarios that incorporate a wide array of key variables into different themes. In a health care setting, an example of a dominant issue scenario might involve the impact of AIDS on the resources of a county health department. In this example, public sentiment and political pressure may force the health department to redirect committed resources abruptly to a previously unforeseen problem. Dominant issue scenarios can be dangerous in that there is a tendency to focus on conditions that are of current interest only (3).

In contrast, an example of scenarios that incorporate several key variables are those that might be named “Resource Contraction,” “Technological Revolution,” and “Service Proliferation.” A resource contraction scenario might involve reductions in several revenue sources as well as nonmonetary resources such as nurses.

Either of these two approaches to scenario development can vary widely in scope and consequent practicality. “Worldwide” scenarios attempt to identify “a set of plausible global futures and their consequences” (11). More typical are industry level scenarios (5,12-15) or those in individual market contexts (13). A narrow focus is appropriate for most settings, since many organizations are externally impacted by only a few factors that are fairly easy to identify but difficult to predict (10).

Time horizons in scenarios vary with their intended use. A 5-year horizon is most common (6) with some case studies reporting 15-year horizons (13). Two guidelines for length have been proposed. One suggests that the forecast extend the time over which large changes in the environment can be expected to occur (16). Another guideline is to extend the scenario out as far as the organization is prepared to commit resources (17).

In almost all reported analyses, multiple scenarios are generated. It is erroneous—and an all-too-common mistake—to envision one and only one

scenario as the “true” picture of the future (18). Multiple scenarios allow the future to be represented by different cause-effect relationships, different key events and their consequences, different variables, and different assumptions. The generation of too many scenarios, however, tends to have the same confounding effect as the underlying variables they use. If more than three scenarios are put in the hands of users, they will usually focus on a smaller subset (2).

The debate among practitioners seems to center on the use of either two or three scenarios. The three-scenario schema has been advocated by Becker (19), deKluyver (20) and Zentner (21) and has been reported to be the most dominant in industry use (6). It has been suggested, however, that when three scenarios are generated, users will focus on the scenario that seems to represent the middle ground (22,23). These are the scenarios that are usually labeled “most likely,” “most probable,” “baseline,” or “surprise-free.” To avoid this bias, Wilson suggests giving each scenario a distinctive theme name, such that they each appear equally likely (22). A dissenting viewpoint is offered by Mitroff and Emshoff (24). They propose a two-scenario approach—a “best-guess” forecast and its “deadliest enemy.”

Benefits of scenario analysis to the health department. Health department managers may be skeptical about any strategic management technique, presuming that whatever environment might exist for them, they are relatively powerless to do anything about it. Yet even within the highly constrained environments in which public sector organizations operate, strategic management in general and scenario analysis in particular can have beneficial impacts. Some of the more important impacts are that it

- Encourages strategic thinking—the act of pondering scenarios naturally leads one to contemplate a response. Over time, managers and department heads begin to develop a good feel for their environment and its threats and opportunities, a sixth sense that enables them to judge what to do next (25).
- Eliminates surprise—carefully crafted scenarios serve to acquaint management with the range of possible influences on their environment. Although scenarios are not presumed to model the future with a high degree of precision, they should serve to eliminate surprise about events or trends and reduce uncertainty.

National, State, and county issues rated as having high probability, high impact

Issue	Mean probability score	Mean impact score
National issues:		
5. Substance abuse rising	4.263	4.105
7. Pressures to reduce costs	4.684	4.263
8. Federal deficit	4.632	4.158
9. The spread of AIDS	4.579	4.421
15. Lack of funding	4.263	4.263
State issues:		
19. Pollution	4.526	4.263
20. Better information systems	4.368	4.105
County issues:		
23. Percentage minorities increase	4.263	4.105
24. Labor costs rising	4.263	4.526
29. Increased reliance on Medicaid	4.263	4.263
33. Private funding	4.263	4.158
34. Advent of national health policy	4.053	4.474

NOTE: Numbers on the left correspond to those on the questionnaire in the accompanying box.

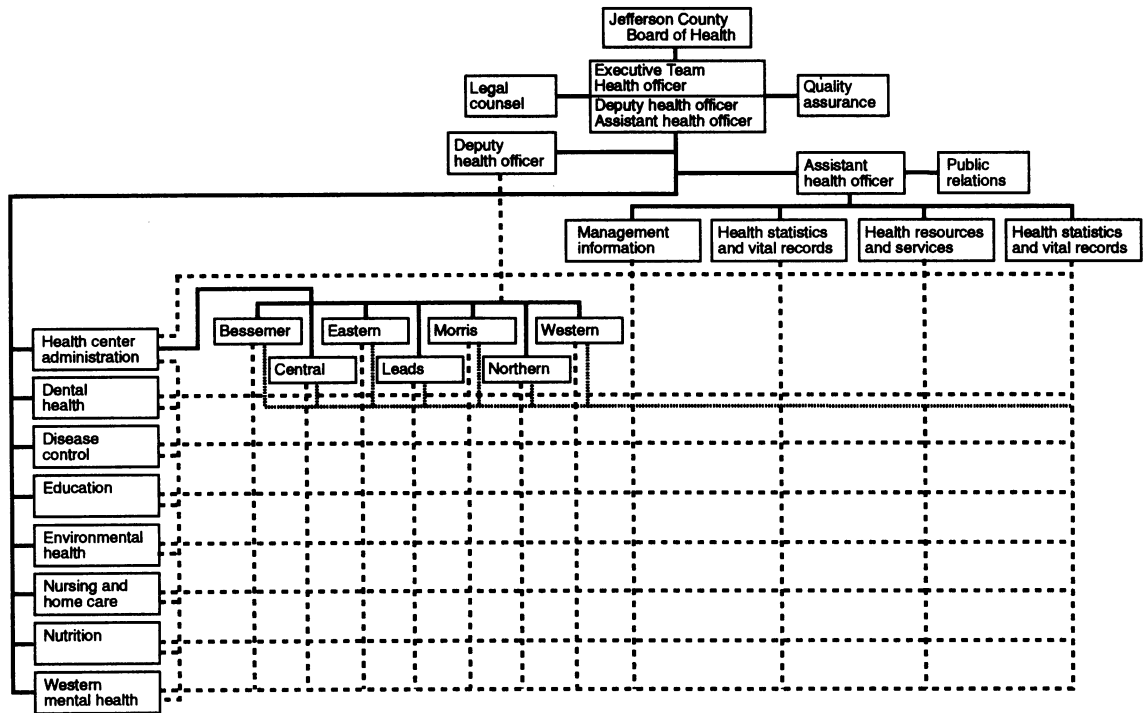
- Improves discussion and communication—scenarios are the “glue” for individual and group thinking about the future. They serve as a common set of assumptions around which strategic planning can take place.
- Serves as input to the strategic plan—as scenarios are generated, discussed, and adopted, the end result is, or should be, the development of specific strategic alternatives to address the environments outlined in each scenario. These alternatives then serve as the foundation for the formal planning process.

The Organizational Setting

The Jefferson County Department of Health (JCDH), Birmingham, AL, was used in this study to demonstrate the scenario analysis technique. The department employs more than 800 people and has an annual budget of approximately \$67 million. It serves a county population of approximately 650,000; 18 percent of its residents have household incomes of less than \$7,500 a year. Services are wide-ranging and include the following:

- Environmental protection—restaurant inspections, community sanitation, radiological health, rabies control, air pollution control, and sanitary engineering;
- Disease control and education—vaccination programs, outbreak control, sexually transmitted disease and HIV control, international travel, environmental health screening, chronic disease and injury surveillance;

Figure 1. Jefferson County, AL, Department of Health organization chart



'There is a growing recognition that decisions made today regarding programs will affect health status for decades, not just for the next two or three budget cycles.'

- Infant and children programs—well-child care, sick child care, immunizations, WIC supplemental food program, nutrition counseling, dental care, mental health services;
- Adult disease prevention—sick patient care, preventive care of diabetics, control of hypertension, dental care, nutrition counseling, mental health services;
- Health care for women—family planning, cancer screening, prenatal care, nutrition counseling, WIC supplemental food program; and
- Care for the homebound and terminally ill—home care, hospice.

Figure 1 is an organization chart for the health department.

Like many of its counterparts across the country, the health department derives revenues from a

variety of sources, including Federal grants, State appropriations, private foundations, and user fees. It is also financed through a relatively stable ad valorem tax base and a local sales tax. It is the largest of eight public health areas in the State and has its own funding base. Consequently, it is semi-autonomous and less vulnerable to State budget cutbacks.

General Methodology

Scenario analysis is essentially a qualitative technique. It proceeds more from intuitive leaps than from computer analyses, although it may incorporate the results of quantitative models (10). The five essential steps, adapted from Mandel (26) and Simpson (27), are described subsequently.

Step 1: identify the strategic decision context. In this stage, the themes for the scenarios are established. Ideally, these themes involve issues that will possess five attributes—(a) the external environment considered in the themes can evolve in fundamentally different ways, (b) the environmental change is not within the control of the organization, (c) the environmental change has the potential to be permanent and structural, (d) possible action steps

by the organization vary widely, and (e) the decisions of the organization are not easily reversed (27).

The themes developed for JCDH revolve around two primary concerns, the level of resources and services. In each of the interviews conducted (discussed subsequently), department of health managers pointed out the increasing disparity between the demand for additional services and the stagnant or shrinking revenues to provide them.

Step 2: identify key industry, competitive, and organizational forces. This phase involves the scanning, monitoring, and assessment of environmental forces that are key to the scenario (28). These key factors, sometimes referred to as influencing factors, are developed using various techniques such as idea generation, Delphi panels, literature review, nominal group techniques, and expert interviews (29).

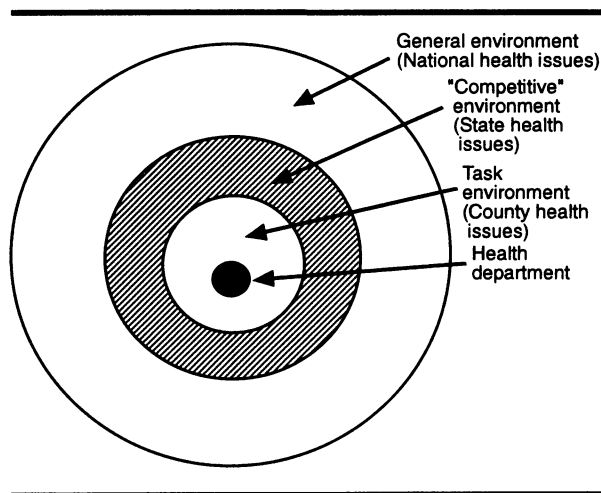
Fahey and Narayanan posit three levels of environment for an organization—the general environment, a competitive or industry environment, and a task environment (18). As depicted in figure 2, each environment ultimately impacts the organization and therefore must be effectively monitored. The general environment is the broadest of the three, and contains factors that influence all organizations functioning under it.

For JCDH, its general environment closely corresponds to the national public health scene, involving those issues that affect all public health organizations to one degree or another. The public sector analog to the “competitive” environment is State-level issues and forces. Finally, the task environment for JCDH is the county in which it operates. Each environment contains issues that will influence the success of the health department and thus should be considered in scenario development.

General environment: the national setting. To identify the national issues, a number of sources were available that highlighted major trends in the general environment. These trends included the aging of the American population, increasing demographic diversity, redefinition of individual and social roles, globalization, information-based social trends, privatization, redefinition of family and home, rebirth of social activism, growth of religious fundamentalism, and so on (30).

This list of general environmental and specific health care trends was then scrutinized by a graduate seminar of advanced master’s degree candidates in the State’s only school of public health to determine what they believed were the primary

Figure 2. Environment of the county health department

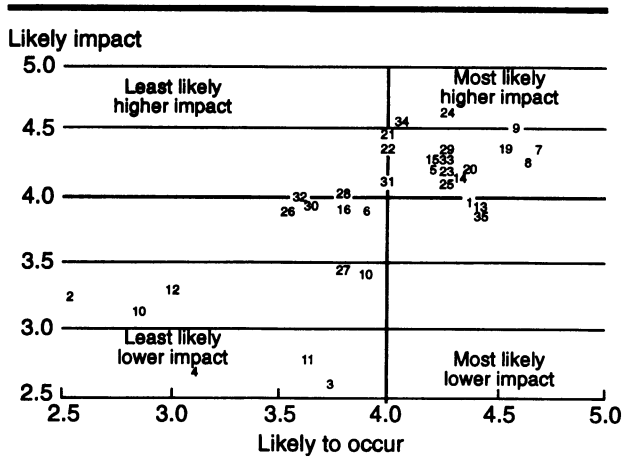


strategic issues facing public health decision makers at the national level. It was thought that this group was able to produce a less biased list of issues than State or local public health professionals who have become highly devoted to their own areas of interest and expertise (31). The 16 national issues identified through this process are identified and are part of the questionnaire entitled “Environmental Trend Assessment” shown in the box.

Competitive environment: the State setting. To determine those issues pertinent to the State environment, two professional groups were polled. First, a focused analysis was implemented with 37 upper middle and executive level managers in State and county public health organizations, solid waste disposal companies, and environmental control firms (31). Second, the top 105 managers in the Alabama Department of Public Health were asked during a weekend retreat to identify trends and events that had the potential to influence the future strategies of their departments. From these two sources, nine specific issues of importance to the State were identified and are shown in the box.

The task environment: the county setting. For the county (task environment) issues, open-ended interviews were conducted with six county health department managers and four outside county health experts. The county health managers were heads of major programs or service areas, including Environmental Health, a federally funded Healthy Start Program, Disease Control, and Finance and Administration. In addition, representatives from local government, the county hospital, and the hospital association were interviewed. Each

Figure 3. Mean response grid for strategic issues



Numbers represent the issue as numbered in the questionnaire shown in the box.

interview contributed an identification of what we call influencing factors.

Next, these influencing factors were combined, reduced, and synthesized into issues that are defined as “factors, trends, events, developments, variables, or attributes that serve to describe the topic, frequently as proxies or measures of an influencing area” (32). A list of the county-level issues is presented in the box.

Step 3: identify and analyze significant issues.

Strategic issue formulation requires that the complexity of environmental analysis be reduced (33). Some researchers advocate starting with only a few issues to reduce the number of possible scenarios (19,20). One then can reasonably examine every possible concatenation of a few variables (say, five or less) and select a few plausible scenarios from this set. Others advocate starting with a broad array of factors and use intuition (34) or theme conformity (35) to reduce the number of key forces to a manageable number. Yet another approach is to include all high-impact variables regardless of the probability of their occurrence (17).

For this study, the top 19 administrators of JCDH (fig. 1) were asked to evaluate each issue shown in the box along two dimensions—the probability of its occurrence and the magnitude of its impact on the health department. Responses were converted to a five-point numeric scale, with a score of one corresponding to Low Impact and Low Probability, and five corresponding to High Impact and High Probability. The mean scores for each issue were then used to plot the issues as to their probability and impact on a two-by-two matrix (fig. 3). Those issues in the high probability-

high impact quadrant were designated the primary strategic issues (see table) and subsequently were used to develop the scenarios (36).

The use of a mean score of four to separate the quadrants was arbitrary. The ultimate objective, however, was to reduce the universe of descriptors into a meaningful few strategic issues. The quadrant axes could, and should, be adjusted if it is determined that the resulting number of issues is too few or too many.

The strategic issues were next analyzed for possible outcomes or “states.” These states can be assigned values, or be qualitative in nature. Then, various combinations of the strategic issue states were generated to examine and identify potential interrelationships. The following criteria were used to determine which issue sets to keep (27):

- Are the sets of issues internally consistent? For example, if one strategic issue state were a continued increase in the incidence of AIDS, then it would be internally consistent for the scenario to include an increase in the incidence of tuberculosis.
- Are they plausible? For the ultimate scenario to have value, it must be believable to its users. “The point is not so much to have one scenario that ‘gets it right’ as to have a set of scenarios that illuminates the major forces driving the system, their interrelationships, and the critical uncertainties” (15).
- Are the issue sets distinct from one another? Strategic thinking is maximally stimulated when there is a marked contrast between multiple scenarios.

From this process, two issue sets were generated for JCDH and used as the foundation of the scenarios.

Step 4: develop scenario logics. Scenario logics are the rationales or the glue that holds the story line together (18). Schwartz likens these logics to plots and compares the process of scenario writing to writing a movie script (37). To assist in the process, he suggests the use of several generic plots as outlined subsequently.

Winners and losers. This plot starts with the perception that the world is limited, resources are scarce, and what one gains the other(s) must lose. Conflict is inevitable, although both sides usually compromise in a balance of power. As long as this plot is used, winners will continue to win, losers lose.

Environmental Trend Assessment

In the first column set, circle the appropriate response. In the second column set, indicate the likely impact on the health department if the statement were true.

(There were 10 possible responses in 2 clusters to each statement. In the first cluster, they were: strongly disagree, somewhat disagree, neither agree nor disagree, somewhat agree, strongly agree; in the second cluster, very little or no impact, little impact, moderate impact, high impact, and very high impact.)

National Issues

1. An aging population, including chronic diseases of the elderly, will place increasing pressure on the health department to provide additional and more expensive services.

2. Advancing medical technologies will make it possible to provide more services at a lower cost.

3. The average family size will decrease.

4. There will be a continued trend toward fitness and disease prevention, mitigating the demand for many services at the health department.

5. Illegal drug and substance abuse will continue to rise.

6. The trend toward privatization will continue, creating competition for programs and resources with the private sector.

7. Pressures to reduce costs will increase.

8. The Federal Government deficit will continue to increase.

9. AIDS will spread at an increasing rate.

10. Our society will become more litigious.

11. Immigrant workers and foreigners will carry infectious diseases across national borders.

12. Many of the public health services will be privatized.

13. There will be an increasing trend toward quality assurance and improvement in the services rendered.

14. A large portion of the U.S. population will continue to engage in high risk lifestyles.

15. There will be a general lack of adequate funding of public health services for specific groups (e.g. homeless, indigent, and groups identified by Federal mandates through earmarking of funds).

16. Access to health care in rural areas will become increasingly limited.

State Issues

17. Demands for more fiscal accountability will increase.

18. Abortion clinics will be regulated by health departments.

19. Industrial pollution and disposal of solid and toxic waste will increasingly impact upon the health of county residents.

20. There will be an increasing need for sophisticated information systems for patient data and health data.

21. Teen pregnancy rates will continue unabated.

22. Because of competition, pay scales, and other factors, there will be increasing difficulty attracting qualified personnel into public health.

County Issues

23. The percentage of minorities in the county will increase.

24. Labor resource costs, with automatic annual pay increases, will rise faster than related revenue sources.

25. Investments in technology such as optical character recognition devices and hand-held computers for inspectors will become desirable/necessary to increase productivity.

26. Greater emphasis and resources will be placed on preventative programs.

27. Greater monitoring and regulation of indoor pollution will be required.

28. The city and county will fail to meet ozone concentration limits by 1993, requiring the initiation of inspection and maintenance programs.

29. There will be an increased reliance on funding from Medicaid.

30. SOBRA will be expanded to 12 months beyond delivery (from the present 2 months).

31. HMOs for Medicaid recipients will become more active in the county.

32. As the emphasis on AIDS shifts to funding cures, less money will be available for surveillance, tracking, and immunization.

33. Funding from private sources will become increasingly necessary.

34. The advent of a national health policy will cause the health department to come into competition with the private sector.

35. As more services are undertaken by the health department, there is greater fragmentation of care.

Other Important Issues

(Please use this space to list other issues you feel are important.)

'Perhaps the ultimate benefit of scenario analysis is its impact on the knowledge of the organization itself by its members.'

Challenge and response. Most apocalyptic scenarios are based on a simple trend analysis—what is happening today will continue in ever-increasing severity. Instead, this plot assumes that the “actors” in the scenario will respond to adverse trends. The nature of the response may vary, however. It may be as benign as adapting to the new changes, or it may involve radical action.

Evolution. This plot always involves slow change in one direction, usually growth or decline. Often such plots are pernicious, since they are usually not startling or controversial enough to provoke change or response.

For purposes of illustration, logics for two scenarios for the JCDH are presented, using the challenge and response plot.

LOGICS FOR SCENARIO 1 FOR JCDH: “THE BIG SQUEEZE.”

1. Service demands increase with the growth of the AIDS epidemic and of local industrial pollution. Medicaid services also expand.

2. Funding decreases for public health services. Pressures to reduce the Federal deficit results in reduced appropriations. Private funding becomes necessary but is problematic, given possible conflicts of interest.

3. Pressures to reduce costs increase. Cost effective technologies are sought. The largest cost item, labor, rises faster than related revenue because of automatic pay increases.

4. A national health policy fails to materialize in any concrete form.

LOGICS FOR SCENARIO 2 FOR JCDH: “SHRINK OR GROW?” The same as for Scenario 1 except:

1. A national health policy seems likely, but the ultimate form remains in doubt. Further, the role various participants may play is suspect.

Step 5: elaborate the scenarios. No hard and fast rules exist on how best to develop the final

scenarios. Wack cautions against crisscrossing variables and producing dozens of outcomes (15). Instead, he suggests creating a few alternatives that are internally consistent. Simpson advises that simplicity works best (27). Plots should be judged by how well they serve management in decision making, not by how interesting or entertaining they are. Plots of the two suggested scenarios for JCDH follow.

Scenario 1: The Big Squeeze

It is now 1997. Health department funding has reached a crisis stage according to those familiar with the department. It has been caused by a combination of problems. The Federal Government has accumulated increasingly larger deficits, and there are renewed efforts to bring the budget under control. A constitutional amendment requiring balanced budgets has passed the House and is now in the Senate.

A major reason for the Federal deficits has been the unabated increases in the costs of Medicaid and Medicare. Until lately, the problem has been largely ignored in the political environment, but now there is a call to “do something.” While no clear mandate for a solution exists, most political pundits claim that some form of health care reform is inevitable.

In the meantime, the Federal Government responds by cutting back on vulnerable programs, including several public health programs and certain provisions of Medicaid.

At the county level, JCDH has applied for and received the maximum percentage of ad valorem taxes that it may receive. It has also drawn down monies from the general fund to meet operating expenses. Yet, the potential for deficit spending looms large.

The incidence of AIDS and related diseases such as tuberculosis has grown exponentially. Staff increases are sorely needed for additional screening, testing, and counseling. Funding needs sharply increase for the hospice program for the terminally ill. Preventive measures, such as education programs to alter high-risk behavior, seem to make sense, but funding is hard to find. In general, preventive programs are getting harder to promulgate because of the difficulty in measuring performance and the long-term nature of such programs.

Environmental problems mount. JCDH operates in a State that was recently cited as one of the most polluted in the nation. The Environmental Protection Agency required the health department 4 years

ago to monitor ozone levels. Poor air and water quality creates increasing health problems for the population.

Technology needs increase with the increasing client base. Some technologies pay for themselves by producing efficiencies. For example, hand-held data entry devices allow inspectors to increase their productivity. Other technology, such as additions to the mainframe computer, are necessary to keep up with the paperwork but do not otherwise reduce costs.

Personnel costs become particularly troublesome. The county regulations require employees to receive automatic annual pay increases. These increases have caused personnel costs to rise faster than related program revenues.

The specter of reduced program revenues has created the need to generate additional sources. Local companies in the private sector have indicated a willingness to fund all or a substantial part of new programs, but two problems exist. First, the health department regulates, to one extent or another, every major company in the area. Thus, a potential conflict of interest exists. Second, most privately sponsored programs have funding of limited duration, leaving the health department to choose between funding it internally or dropping the program altogether.

Scenario 2 - Grow or Shrink? (Based on Scenario 1)

By 1997, sufficient momentum had developed to make most people believe that some form of national health care will become a reality. The political debate has begun anew, this time in earnest. Exactly what role health departments might play remains unclear, however.

One school of thought believes that Medicaid will be transformed into the delivery arm for a national health care system. Consequently, the health department's role might expand to include the delivery of health services to a much broader segment of the local population. Another school of thought suggests that the practical solution primarily will involve expanded, mandated coverage by employers with services continuing to be delivered through traditional channels.

This ambiguity created problems for the health department. The first alternative doubtlessly will create a need for increased physical facilities and an expanded labor force. The second alternative, on the other hand, might well reduce the need for health department facilities, since more of their

clientele would be covered under mandated private insurance.

Implications for Strategic Decisions

The process of generating scenarios can be an interesting but largely academic exercise unless it becomes an integral part of the overall planning function of the department, as occurred in the Jefferson County Department of Health. Top management support and involvement is the key determinant for success. Once the process is accepted by senior management and endorsed by department managers, scenario analysis can serve as the common thread for strategic planning. In the case of the JCDH, the first scenario clearly points to a growing financial crisis. Strategic responses to this threat might include (a) lobbying for more control over labor costs; (b) instituting a well-defined priority system for allocating resources to individual programs; and (c) developing of alliances with private funding sources. The second scenario might evoke the need for contingency plans in the event of a nationalized health system.

Perhaps the ultimate benefit of scenario analysis is its impact on the knowledge of the organization itself by its members. Through the use of scenario analysis, the managers of the Jefferson County Department of Health have begun to think more strategically. Rather than basing decisions merely on tradition and historical roles, managers are making more decisions based on changing community needs and resources. Further, managers have become better informed about the changing demands of public health and are considering and implementing strategic responses sooner. Scenario analysis has forced managers to be better informed about the activities of other divisions within the health department. This process has resulted in reduced parochialism, and managers are now concerned with the future of the entire organization rather than just their individual divisions. Finally, scenario analysis has helped crystallize issues that serve as inputs to the strategic planning process.

References.....

1. Committee for the Study of the Future of Public Health, Institute of Medicine: The future of public health. National Academy Press, Washington, DC, 1988.
2. Schnaars, S. P.: MegaMistakes. Free Press, New York, 1989.
3. Linneman, R. E., and Klein, H. E.: Using scenarios in strategic decision making. Business Horizons, 28: 64-74, January-February 1985.

4. Millett, S. M.: How scenarios trigger strategic thinking. *Long Range Planning* 21: 61-68, October 1988.
5. Leemhuis, J. P.: Using scenarios to develop strategies. *Long Range Planning* 18: 30-37 (1985).
6. Linneman, R. E., and Klein, H. E.: The use of multiple scenarios by U.S. industrial companies. *Long Range Planning* 12: 83-90, February 1979.
7. Linneman, R. E., and Klein, H. E.: The use of multiple scenarios by U.S. industrial companies: a comparison study, 1977-1981. *Long Range Planning* 16: 94-101, December 1983.
8. Meristo, T: The multiple scenario approach—an aid to strategic planning as part of the information base. Paper delivered at the International Symposium on Forecasting, Philadelphia, PA, June 7, 1983.
9. Schnaars, S. P.: A comparison of scenario writing and simple econometric models. Paper delivered at the International Symposium on Forecasting, Philadelphia, PA, June 7, 1983.
10. Schnaars, S. P.: How to develop and use scenarios. *Long Range Planning* 20: 105-114 (1987).
11. Kahn, H.: *The Japanese challenge*. Thomas Y. Crowell, New York, 1979.
12. Wilson, I. H.: Futures forecasting for strategic planning at General Electric. *Long Range Planning* 6: 39-42, June 1973.
13. Zentner, R. D.: Scenarios, past, present and future. *Long Range Planning* 15: 12-20, June 1982.
14. Stokke, P. R., Ralston, W. K., Boyce, T. A., and Wilson, I. H.: Scenario planning for Norwegian oil and gas. *Long Range Planning* 23: 17-26 (1990).
15. Wack, P.: Scenarios: uncharted water ahead. *Harvard Business Review* 63: 73-89, September-October 1985.
16. Armstrong, J. S.: *Long-range forecasting: from crystal ball to computer*. John Wiley, New York, 1978.
17. Linneman, R. E., and Kinnell, J. D.: Shirt-sleeve approach to long-range plans. *Harvard Business Review* 55: 141-150, March-April 1977.
18. Fahey, L. and Narayanan, V. K.: *Macroenvironmental analysis for strategic management*. West Publishing Company, St. Paul, MN, 1986.
19. Becker, H. S.: Scenarios: a tool of growing importance to policy analysts in government and industry. *Technological Forecasting and Social Change* 23: 95-120, March 1983.
20. deKluyver, C. A.: Bottom-up sales forecasting through scenario analysis. *Industrial Marketing Management* 9: 167-170 (1980).
21. Zentner, R. D.: Scenarios in forecasting. *Chemical and Engineering News*: 22-34, Oct. 6, 1975.
22. Wilson, I. H.: Scenarios. *In Handbook of futures research*, edited by J. Fowles. Greenwood Press, Westport, CT, 1978, pp. 22-47.
23. Beck, P. W.: Corporate planning for an uncertain future. *Long Range Planning* 15: 12-21, August 1982.
24. Mitroff, I. I., and Emshoff, J. R.: On strategic assumption-making: a dialectical approach to policy and planning. *Academy of Management Rev* 4: 1-12, January 1979.
25. Gluck, F., Kaufman, S., and Walleck A. S.: The four phases of strategic management. *J Business Strategy* 2: 9-21 (1982).
26. Mandel, T. F.: Future scenarios and their uses in corporate strategy. *In The strategic management handbook*, edited by K. Albert. McGraw-Hill, New York, 1983, pp. 10-1-10-21.
27. Simpson, D. G.: Key lessons for adopting scenario planning in diversified companies. *Planning Rev* 20: 10-17, 47-48, May-June 1992.
28. Ginter, P. M., Duncan, W. J., and Capper, S. A.: Strategic planning for public health practice using macroenvironmental analysis. *Public Health Rep* 106: 134-141, March-April 1991.
29. Huss, W. R., and Honton, E. J.: Scenario planning—what style should you use? *Long Range Planning* 20: 21-29 (1987).
30. Environmental Scan Committee: *What lies ahead: countdown to the 21st century*. United Way of America, Alexandria, VA, 1989.
31. Duncan, W. J., Ginter, P. M., and Capper, S. A.: Identifying opportunities and threats in the public sector. *Eur J Public Health*. In press.
32. Honton, E. J.: *Future scenarios: The BASICS computational method*. Battelle Columbus Division, Economics and Policy Analysis Occasional Paper No. 44, Revised, 1985.
33. El Sawy, O. A., and Pauchant, T. C.: Triggers, templates, and twitches in the tracking of emerging strategic issues. *Strategic Management J* 9: 455-473 (1988).
34. MacNulty, C. A.: Scenario development for corporate development. *Futures* 9: 128-138, April 1977.
35. Vanston, J. H., Jr., Frisbie, W. P., Lopreato, S. C., and Poston, D. L.: *Alternate scenario planning*. *Technological Forecasting and Social Change* 10: 159-180 (1977).
36. Duncan, W. J., Ginter, P. M., and Swayne, L. E.: *Strategic management of health care organizations*. PWS-Kent Publishing Co., Boston, 1992, pp. 93-96.
37. Schwartz, P.: Composing a plot for your scenario. *Planning Rev* 20: 4-8, 46-48, May-June 1992.