

**COMPETENCIES TO SURVIVE AND THRIVE**  
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I am usually introduced indicating positions I held following promotion into management and policy roles in environmental health and the broader field of public health. While I am proud of these leadership roles, I am equally proud of earlier positions, which included county sanitarian, district sanitarian, state food sanitarian, and chief sanitarian in a metropolitan health department. My first job in public health was as a county sanitarian at \$225 per month, which I received in seven separate checks from three counties, three municipalities, and the state. My apartment rent and car payment exceeded the amount of my take home pay, so I solved the financial crunch by taking sandwiches and sleeping in my car when away from headquarters overnight, cleaning up at a local service station; and using the \$6 per diem for rent, clothing and food.

Although I commenced my career in public health as a sanitarian, it was not the end of a professional journey. Experience as an environmental health practitioner is an excellent route to pursue leadership roles in the broad and complex field of environmental health, as well as in other components of the field of public health. Environmental health practitioners not only deal with a wide variety of environmental problems, but are also involved in issues of epidemiology, risk assessment, risk communication, risk management, public relations, community planning, regulation, inter-personal relations, technical reports, sampling and surveillance, analyses and interpretation of analyses, developing priorities, and program evaluation. Had I not served as an environmental health practitioner, I would not be comfortable visiting with you today.

I have been requested to present some information regarding surviving and thriving, so it is appropriate to commence with a few public health precepts that are basic to a long, healthy and productive life.

- First, choose your parents wisely. One of the strongest predictors of health and longevity is a family history of long-lived parents and grandparents.
- Secondly, if that is not practical, become wealthy. Poor people have more illness and disability than rich people.
- Thirdly, once you become wealthy, live frugally. A rich person whose parents lived to a ripe old age has little to fear unless he insists on over-indulgence in the excesses and frivolities that money can buy.
- Fourthly, stay away from doctors and stay out of hospitals. An extraordinary proportion of people in hospitals are quite ill, so obviously they are not suitable places for people who wish to be well.
- And finally, be reasonably careful. A person who is doing just fine can be swept away by an untimely misjudgment. One of the best application of this public health principle was expressed in an article in the Los Angeles Times some years ago. An under-employed reporter went out to interview a lady who was celebrating her birthday, and the headline over his report read: “Woman, 90, Credits Long Life to Decision to Leave the Titanic.”

A few additional public health principles are worth digesting if you wish to survive and thrive. For example:

1. Recognize that if all the alleged environmental catastrophes were scientifically factual, we would have many times our actual disease and death rates.
2. Be leery of the barrage of reports that base a problem on one anecdotal example that capitalizes on appeal to the emotions, e.g., one cancer patient living near a hazardous waste site.
3. Remember that people overestimate risk from rare but dramatic events, and tend to underestimate common events. People disdain changing preconceived notions about risks and priorities, and people are quick to underestimate evidence as erroneous or biased if the information contradicts their preconceived opinions.
4. Understand that many Americans exhibit a love of calamity, and look forward to hearing and believing the latest “calamity of the week.” Extremists are applauded for false prediction of environmental calamity, some of which becomes translated into public hysteria and public perception, thence into political action, and finally into expensive and unnecessary programs and public policy.
5. And, be wary of accepting problems based only on extrapolation and correlation rather than on sound epidemiological cause-and-effect studies.

I will return to this important issue of correlations later in this presentation.

Before specifically discussing the issue of competencies, I wish to emphasize a few things about your field of practice, as follows:

- Environmental health is a high priority issue in our society. It is demanded by the public, the media and political leaders, and is widely considered to be an entitlement.

Practitioners must realize the magnitude and societal importance of their endeavors.

- Environmental health is a profoundly complex, multifaceted, multidisciplinary, and interdisciplinary field of endeavor engaged in by a wide spectrum of disciplines, professions and others within a complex array of public and private organizations.
- The field of public health practice has evolved into at least **two major systems** for the delivery of comprehensive public health services in most states and at the federal level, the major systems being personal public health and environmental health.
- Environmental health is the responsibility of numerous agencies at the federal, state and local levels, as well as in the private sector.
- Nationally, 90 to 95% of environmental health activities are assigned to agencies other than health departments, and there appears to be a similar trend at the local level.
- Environmental health expenditures and numbers of personnel account for roughly 50% of the field of public health practice and is, therefore, the **largest single component of the field of public health.**

The foregoing facts regarding the magnitude and importance of the field of environmental health provide both challenges and opportunities. Environmental health academic programs do an excellent job of providing technically competent personnel for the workforce. The field of practice also requires personnel for policy and top management roles in the complex spectrum of agencies having environmental health responsibilities. The workforce requires personnel ranging from sub-baccalaureate personnel through masters and doctoral levels.

A wide-ranging arsenal of environmental health competencies are crucial to the proper delivery of environmental health services. Machiavelli noted that, *All armed prophets have been victorious, and all unarmed prophets have been destroyed.* Competency recommendations have been repeatedly covered in numerous published documents including:

- “The Report on the Future of Environmental Health,”
- “The Workshop on Preparation for Practice in Environmental Health,”
- The report “Educating Environmental Health Science and Protection Professionals,”
- The report of the “Public Health Faculty/Agency Forum,” and the report of
- “The Crossroads Colloquium: An Examination of the Educational Needs for Environmental Health and Protection.”

I was privileged to participate in developing all of the foregoing.

Another report developed by the Council on Linkages has recently been released and is available at [www.TrainingFinder.org/competencies](http://www.TrainingFinder.org/competencies). This latter document is useful in that it not only lists competencies, but indicates the degree of competence for various levels of staff. All the foregoing are readily available, you can all read, and it would be inordinately boring to merely repeating their findings. Instead, I will discuss competencies by discussing components of a vision for environmental health and then mention a few select challenges for which practitioners must be competent.

**VISION:** *An image produced by the imagination.*

The articulated vision for environmental health within communities varies widely from no concept, through a short sentence such as “Healthy People in Healthy Communities,” to well developed statements. Like many similar issues in environmental health, this remarkable variation may be due to lack of a common understanding of the field of practice, or possibly a paucity of imagination on the part of the individuals involved in leadership and policy roles. The following quote from Alice in Wonderland is instructive for all of us regarding the need for a vision:

*“Would you tell me, please, which way I ought to go from here?”*, asked Alice.

*“That depends a good deal on where you want to get to,”* said the cat.

*“I don’t much care where,”* said Alice.

*“Then it doesn’t matter which way you go,”* said the cat.

As we consider elements of a vision for environmental health, it may be that, like Alice, many people either don’t know or don’t care where they want to go. For them, it certainly doesn’t matter whether they have a vision or not.

I will list some basic elements of a vision for environmental health that are applicable to our nation, our states, and our communities. We are all important participants in developing and pursuing a vision that should be more than blurred imagination. I am stressing principles of a vision rather than the manifold details and complexities of the various goals, objectives and program design elements.

Environmental health measures should contribute substantially to preventing disease and disability, as well as reducing health care costs.

Environmental health should be considered an important entitlement for the common good of all residents and visitors.

Environmental health problems should be measured and defined prior to designing and implementing control measures.

Environmental health efforts should be based on sound risk assessment and epidemiology.

Environmental health prevention measures should be emphasized, rather than curative efforts.

Environmental health measures should be designed for optimal net impact rather than zero risk?

Ecological considerations should be understood to be components of environmental health because, in the long run, a deteriorated environment is a threat to public health and the economy.

Citizens should understand that a quality environment is an important factor in economic vitality and productivity.

Environmental health outcomes should contribute to minimizing social problems.

The quality of the environment should contribute to educational achievement.

The quality of life should be enhanced by effective environmental health services.

Environmental health practitioners should possess the broad array of competencies necessary to lead in addressing the community's environmental health problems.

Broad environmental health communication bridges should be constantly traveled by the public, the media, and policy makers.

Public policy leaders should seek the input of environmental health practitioners prior to developing policy impacting environmental health.

Agencies delivering environmental health services should have missions of protecting public health and environmental quality, rather than missions of protecting and promoting the interests of a limited segment of society.

If **communities** embrace the foregoing as integral components of a viable environmental health vision, then environmental health goals, objectives, program design, priorities and public support should be based on such elements.

If **environmental health academicians** embrace the foregoing as integral components of a viable environmental health vision, then graduate and undergraduate students should be inculcated with the competencies necessary to pursue the vision.

Environmental practitioners possessing and utilizing the necessary competencies are basic to the relentless pursuit of a comprehensive vision of environmental health. Such effective pursuit will only be possible with the targeted contributions of academics to incubating and nurturing environmental health practitioners.

When referring to the state legislature, one of the Governor's for whom I worked frequently quipped, *Blessed are those who expect little for they shall not be disappointed.*



Much is expected of environmental health practitioners and academicians. We should not disappoint our communities and our students by failing to articulate and pursue a vision for environmental health.

Unlike Alice in Wonderland, we must show that we care deeply where we want to go by embracing and pursuing a comprehensive vision of environmental health.

In addition to being competent to pursue such principles of a vision, I wish to discuss a few more specific practitioner competencies.

### **COMPETENCY TO MENTOR**

I am fortunate to have played a role in creating local, state and federal environmental health organizations, policies and legislation. But above all, I am proud of having **mentored** scores of practitioners who earned significant leadership roles throughout the nation. By placing a premium on competency, I encouraged dozens of personnel to earn appropriate graduate degrees and leadership roles. At one time, I was in the enviable position of having individuals with such credentials as Director of the State Environmental Agency, Director of the State Public Health Agency, and Director of the State Scientific Laboratory System. In the state environmental agency, the Director as well as every division director and district manager had an appropriate environmental health graduate degree. And importantly, all had started at the local level. The bottom line is that the art of mentoring should be considered a basic leadership obligation. Managers and supervisors should constantly groom personnel to succeed them when they ultimately depart.

I counsel you to initiate professional relationships, seek mentors, and be constantly inquisitive. Those having positions of influence and leadership, should devote time and effort to mentoring others. Personnel who remain in the same position too long become **root bound**. It is to the advantage of both individuals and organizations to encourage personnel to be **re-potted** and experience new challenges at appropriate intervals. For managers and supervisors, recognize that your personnel should be more competent regarding their particular specialties than you do or you have an organizational failure. And closely related to this principle, hire the most competent even when they may appear to be more competent than you --- they will make you look good and enhance your effectiveness.

### **COMPETENCY TO PLAN FOR ENVIRONMENTAL HEALTH**

Too frequently, planning for environmental health is misconstrued to be the same as program planning. The absence of organized, mandated planning for environmental health ranks high among important gaps in the competency arsenal of many agencies. Ensuring the competency to function effectively in planning for environmental health is necessary for environmental health practitioners to function in a primary prevention mode, rather than secondary prevention or environmental remediation after the contamination or pollution has been produced and emitted. Planning for environmental health is a basic prevention measure to ensure effective involvement during the planning, design and implementation stages of such activities as:

Energy production and utilization

Land use

Transportation systems

Resource development and consumption

Product and facility design

## **COMPETENT TO EMBRACE ECOLOGICAL ISSUES**

Environmental health programs have traditionally been justified, designed, and administered based narrowly on public health rationale. As environmental problems, priorities, public perception and involvement, goals, and public policy have evolved, ecological considerations have become increasingly important. Whatever long-term health threats exist, the public and public policy leaders also know that pollution kills fish, limits visibility, creates foul stench, ruins lakes and rivers, degrades recreational areas, and endangers plant and animal life.

## **COMPETENCY TO MARKET YOUR PRODUCT**

Practitioners must understand and utilize the standard definition for environmental health developed during the peer review process for the “Report on the Future of Environmental Health.” This approved definition is essential to marketing our product and ensuring a competent workforce. A product cannot be marketed if we don’t know whether we’re marketing a buggy whip or a rocket ship. Environmental health must be continually marketed to ensure the understanding and support of the public, including the media, civic leaders and elected officials. Environmental health is essential and marketable. Do not hide your lights under a bushel.

## COMPETENCY TO LEAD

Many outstanding environmental health leaders earn continuing recognition from their peers, the public and public policy leaders. However, many other do not receive adequate recognition or visibility, particularly at the state and local levels. So let's ask ourselves a few questions.

- Do you lead rather than simply respond in recommending environmental health organizational changes?
- Do you compete for leadership roles in the complex spectrum of public and private agencies delivering environmental health services?
- Do you lead in designing, gaining approval, and implementing public policy that will improve the quality of environmental health, rather than assuming that someone else will do the job for you?
- Do you correct misleading and erroneous media reports?
- Do you lead by engaging in controversial environmental health issues where appropriate? For example, do you actively promote food irradiation as a sound public health measure?
- Do you ensure that environmental health personnel are educated for the field of practice regardless of agency titles?

At a recent national meeting, someone suggested that we need some environmental health practitioners heroes. Who are **your** heroes ---- those who have envisioned, led, excelled, and been recognized not only by their peers but by the media, community leaders and elected officials?

Effective environmental health leadership is profoundly complex and controversial, and is usually the result of individual abilities and initiatives. Many of our great leaders have been dedicated individuals who achieved eminence not because they wore the right labels or belonged to the right organization, but because they had the right ideas, the right information and the right abilities at the right time. Shattuck was a publisher, Chadwick was a lawyer, Winslow was a sanitarian, and Lasker was an advertising man. The mantle of leadership falls to those who earn it.

The issue of leadership continues to be a prominent challenge. Environmental health leaders must take the **lead** not only in ensuring the competencies of the workforce, **but more importantly**, taking steps to **make it all happen!** Otherwise, we are simply talking to each other, and believing that talking to each other is accomplishing something. Do not assume that others will ensure the competency needs of the workforce. Achieving competency goals will depend on environmental health leaders fulfilling their responsibilities.

Many environmental health practitioners appear reluctant to incur the controversies and risks inherent in top policy and leadership roles. Leadership positions do not offer career protection beyond the ability of an individual to earn the respect and support of peers, subordinates, the public, the media and elected officials. Leadership belongs to no group by divine right or genetic proclivity.

Environmental health practitioners have a solid record of achievement in a wide spectrum of roles. **The mantle of leadership will continue to fall to those exhibiting the necessary knowledge, skill, ability, and vision coupled with a strong desire to succeed.**

Practitioners must build castles rather than merely lay bricks. They must manage the environment utilizing a plethora of tools rather than merely inspecting and reacting. Environmental health and protection practitioners must have a vision, a philosophy, a comprehensive view of the field of practice, and understand the values and benefits of environmental health and protection. And they must understand that everything they do is based on risk --- risk assessment, risk communication, and risk management.

### **COMPETENCY TO DEAL WITH RISK**

Everything in the practice of environmental health is based on risk ---- risk assessment, risk communication, and/or risk management applied to one or more environmental problems. The issue of how risk is assessed, communicated and managed is among the most critical environmental health problems faced by society. Public perception drives the actions of elected officials. However, public perception of environmental health priorities and problems frequently differs from that of environmental health scientists.

We do not live in a risk-free society or environment. Therefore, environmental health practitioners must pursue net societal benefit rather than "zero-risk." The pursuit of zero-risk is frequently unnecessary, economically impractical, unattainable, and may create unfounded public concern when zero-risk is not attained. The pursuit of zero-risk as a goal for one issue may also preclude resource availability to deal with more important priorities.

Thomas Jefferson wrote that, *If we think (the people) are not enlightened enough to exercise their control with a wholesome discretion, the remedy is not to take it from them, but to inform their discretion.* And this leads me to discuss risk communication which

may be the most significant weakness in our armor of essential competencies. In the absence of continuing effective risk **communication with** the general public, various interest groups, official agencies, industry, and public policy officials, risk **assessment** is merely academic. Many officials continue to view risk communication as a one-way process composed of official pronouncements, advisories, letters, leaflets, booklets, and other such materials. As a group, we as scientists and engineers have been particularly inept as risk communicators.

Effective risk communication requires complete openness throughout the process and involvement of the public as actions are being planned and developed, rather than after the fact. Failures in risk communication are frequently linked to failures to involve the public early and openly discuss the assumptions and data on which risk has been assessed. But recognize that the professional activists represent special interests and do not represent the general public. Therefore, you must be diligent and creative in developing methods of communication with the public. Risk communication skills will aid you in overcoming some of the more common enemies of environmental quality. These enemies include the following:

- Individuals who oppose sound solutions without proposing better solutions,
- Individuals proposing solutions without first thoroughly understanding the net impact of their proposals on the environment, the health of the public, as well as the economy,
- Some Neanderthal-minded polluters who do not have the enlightened self-interest to protect the environment and the health of the public,

- Some irresponsible news media pursuing increased sales and **creating** controversy through misusing term such as "deadly", "cancer-causing", "killer chemicals", "dangerous", "toxic", etc., and
- Individuals proposing solutions without specifically defining, quantifying, assessing, and prioritizing the problems to be addressed.

### **COMPEENCY TO BUILD AND TRAVEL BRIDGES**

Environmental health practitioners must develop and constantly travel communication bridges and network processes connecting a wide variety of groups and agencies involved in the struggle for a quality environment and enhanced public health. A few such interests include land use, energy production, transportation, resource development, the medical community, public works officials, agriculture, conservation, engineering, architecture, colleges and universities, economic development, chambers of commerce, environmental groups, trade and industry groups, and elected officials. These relationships should be dictated by organizational policy rather than being left to chance or personalities.

### **COMPETENCY TO STAY AHEAD OF THE CURVE**

Environmental health will continue to increase in complexity, and the public will increasingly expect and demand appropriate services. Demographic changes, resource development and consumption, product and materials manufacture and utilization, wastes, global environmental deterioration, technological development, changing patterns of land use, transportation methodologies, energy development and utilization, and continuing organizational diversification of environmental health will create additional and unanticipated challenges. It is



critical that environmental health practitioners be inculcated with appropriate competencies for the continued success of environmental health services.

For those of you engaged environmental health administration, I wish to note **one** observation, and **three** principles for your edification. The **observation** is that:

Virtually all of the principals and most of the practices of administration are well known to children by the time they enter junior high school, learned as they participated in games and were programmed to respond to bells and whistles before concepts and ideas. Almost any concept of administration that is reduced to plain English elicits the response, "Oh yeah, I knew that." Everyone knows these things because they have already been administered.

The three **principles** I wish to communicate delineate the characteristics of a good administrator. They are:

1. The good administrator is **lovable**. Staff will customarily do their tasks for money, but they only knock themselves out for love.
2. The good administrator is **ruthless**. A commonplace observation is that the administrator must be prepared to sell his grandmother into slavery if this will further the mission of the organization. Because people who are both lovable and ruthless are relatively rare, good administrators are not common.
3. The good administrator is **independently wealthy**. The administrator who is unduly concerned over a mortgage or educating his or her children is usually in no position to hang tough when his supervisor's stupidity becomes intolerable. In the private sector, the stock

option helps. In the public sector, the protection afforded by a personnel system **may** be preferable to **no** system. In academia, tenure **may** be preferable to **no** system.

Be competent to set goals, dream big as you pursue your vision for environmental health, and ask "why not." Remember that every problem provides an opportunity for improvement in environmental health. And remember that **choices** between the status quo and progress are **yours**.

The future of environmental health is bright for those who have the necessary competencies. Leadership on the road to improved public service is not an easy route. Leadership requires **time**, leadership requires **commitment**, and leadership requires **energy**. There are many potholes in the course of providing effective, priority services. The journey requires vision and steadfastness of purpose, as it is beset by difficult pressures, tempting comfortable detours, political surprises, and frequently offers no short term gratification or pay-off. There are no rest stops along the way if you wish to survive and thrive.

You have chosen careers in a field which has a proud history and record of achievement. Environmental health will continue to be basic to the public health and the quality of our environment. If the past is prologue, it is certain that environmental problems, programs, organizations and requisite practitioner competencies will continue to evolve in ways that are as yet unforeseen. Anticipating and meeting the challenges of the future by being properly armed will insure a bright future for those who possess and practice the necessary competencies and exhibit leadership.

**AND FINALLY, COMPETENCY REGARDING CORRELATIONS**

I indicated I would return to the issue of correlations in order to ensure that you are all competent regarding correlations. If you consider correlations only, you must conclude that **CARROTS WILL KILL YOU!** This conclusion based obvious correlations is rational and simple, because,

- Nearly all sick people have eaten carrots, so it is obvious that the effects are cumulative.
- An estimated 99.9% of all people who die from cancer have eaten carrots.
- 99.1% of people involved in auto accidents ate carrots within 30 days prior to the accident.
- Some 94.1% of juvenile delinquents came from homes where carrots were served frequently.
- Among Americans born in 1889 who later ingested carrots, there has been a 100% mortality.
- All carrot eaters born between 1900 and 1940 have wrinkled skin, have lost most of their teeth, and have brittle bones and failing eyesight if the dangers of eating carrots have not already caused their demise.

And, one additional compelling correlation: The birth rate in Europe has been declining and so has the stork population ---- so we finally have conclusive proof that storks bring babies!