

## Hospital Epidemiology Beyond Infection Control

The significant role of a working knowledge of the epidemiology of infectious diseases in nosocomial infection control has been recognized in the titles “nurse epidemiologist” and “hospital epidemiologist” for the coordinators and supervisors of these programs. As a scientific discipline, epidemiology has broadened from its origins in infectious diseases to the study of the occurrences and determinants of other types of health events. Therefore, it appears appropriate to consider hospital epidemiology in a broader context.

Nosocomial infections as a group may be considered biological risks and constitute but one of the facets of total risks faced by patients and health care workers. Programs in patient safety, employee occupational health and safety, and “liability management” recognize some of the other risks sufficient to require formal efforts at control.

A study of the literature of “risk control programs” suggests a common methodology in each involving the classic application of descriptive epidemiology (criteria formation and data acquisition), analytical epidemiology (data evaluation and association for causation), and experimental epidemiology (implementation and evaluation of intervention programs). Even the broadened study of risk, however, considers only the negative features of health care. How to maximize benefits within favorable costs, recognizing patient preferences, is central to the positive programs of patient care evaluation and utilization review mandated in our institutions. A format for these “quality of care” programs has been presented in idealized form by a National Academy of Medicine Committee and directly parallels the methodology for a successful infection (risk) control program.

Fortifying these common program methodologies is a recognition that patient data collection for evaluation by each of these programs features coincident demographic and other clinical case mix elements.

Hospital systems managers recognize these shared elements in their goals for a patient centered data base in their computerized hospital information systems.

With the common goal of improved patient care, common use of epidemiologic methods, and recognition of shared data elements, it seems reasonable to attempt to increase the efficacy and efficiency of these individual programs by exploring the sharing of resources and personnel. The elements common to these programs should be exploited in shared data collection, coordinated evaluation, and prioritization of control programs.

Among the individuals working in these programs, the infection control coordinator (“nurse epidemiologist”) frequently has the greatest experience and is usually the only person whose training has routinely included the study of epidemiologic methods in data collection, bias control, data evaluation, and program planning and program evaluation. For most of these individuals this training has not been extensive, and is usually exclusively linked to the study of nosocomial infectious diseases. Nonetheless, it is a resource not routinely available to the other risk and quality assessment programs. This advantage should be shared by making the infection control coordinator and the institution aware of the usefulness of these epidemiologic principles in the study of noninfectious risk and other quality care assessments.

In the small institution, the placement of the responsibility for these programs with one individual, who recognizes their common features, may be the type of efficiency necessary to survive in the face of multiple mandated programs.

Scientifically, the linkage of appropriate process to improved outcome in patient care will not progress unless the biasing “halo” and “Hawthorne” effects of these individual programs are recognized and controlled.

Consistency and cost control in quality assurance efforts will be successful only if grounded in appropriate epidemiologic methodology. Infection control programs and infection control coordinators

have developed the basics of such methodology. The epidemiologic training of the infection control supervisor (hospital epidemiologist) should be increased and broadened. Coincidentally, this expertise in epidemiologic methods should be recognized and offered to aid other efforts in risk control and cooperative patient care assessment. Quality assurance in health care is a combination of the control of risk and the maximizing of benefit.

Hospital epidemiology has interests and needs

beyond the control of nosocomial infections. Since the needs are common and the resources small, sharing of our resources may be the best avenue to integrated quality assurance.

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