Why Not Take Inhalation Therapy Seriously?

If administered correctly, inhalation therapy procedures are extremely valuable in the management of patients with disorders of ventilation, distribution of inspired gas, mucociliary clearance and blood gas abnormalities. A partial listing of diseases leading to these abnormalities includes chronic airway obstruction, postoperative problems, trauma, paralytic states, pulmonary infections, pulmonary edema of any etiology, thoracic cage defects, and accidental and self-induced poisonings. It is therefore apparent that physicians in many specialties are involved in the care of patients with such problems. Nonetheless, many physicians, nurses and trained inhalation therapists do not take the administration of inhalation therapy very seriously! Although this statement may be denied and is certainly not applicable to all centers, personal visits to many hospitals and conversations with individuals involved in this growing field, indicate that this criticism is, unfortunately, true. To examine the statement further, one must examine the field of inhalation therapy.

Inhalation therapy before the 1950’s was virtually synonymous with oxygen therapy; it then became identified with the administration of intermittent positive pressure (IPPB). Contemporary inhalation therapy is not limited to a single mode of treatment. It should be a physiologically oriented systematic form of therapy designed to improve ventilation, distribution of impaired gas, airway resistance, mucociliary clearance and work of breathing in patients with respiratory disorders. Inhalation therapy involves the support of life in cardiorespiratory emergencies. In patients with chronic lung disease, inhalation therapy provides some measure of symptomatic improvement and, in the broadest sense, partial relief of disability. Thus, reasonably administered inhalation therapy requires knowledge of clinical pulmonary physiology, nursing care, pharmacology, resuscitation and rehabilitation. That such knowledge is frequently not exercised by persons using this form of therapy is perhaps best illustrated by specific examples.

One need only review the inhalation therapy orders often encountered and contrast these with the physician’s orders for care of various other acute or chronic medical problems. We have repeatedly encountered the following simple order: “Oxygen at 4–8 liters per minute.” Does this mean oxygen at 4 or 8 liters per minute into an oxygen tent, Venturi mask, open-face mask, demand mask, rebreathing mask, nasal cannula, or nasal prongs? Is oxygen at 4–8 liters per minute the proper dose? Would a diabetic specialist order insulin at 40–80 units per minute in the morning; or what time; continuously? Would the nurse accept such an order? Absolutely not; a precise order would be demanded. Shouldn’t the inhalation therapist or nurse request similar precision in instruction?

Oxygen is one of the most important drugs used in inhalation therapy. Especially in chronic airway obstruction, it must be used with extreme precision, guided by blood gas monitoring. When oxygen is provided by sophisticated means in a physiologically oriented fashion, the ravages of hypoxemia can be quickly overcome without side effects such as dangerous carbon dioxide retention. Oxygen has also become tremendously valuable in the chronic care of patients with chronic respiratory insufficiency, but must also be physiologically administered.
Moisture is frequently ordered. Should this be by bedside nebulizer, ultrasonic nebulizer, steam device, cold humidifier, or should the patient drink the water?

How about the order, “IPPB tid”? Although this sounds absurd, this order has been observed repeatedly in many institutions, often in teaching hospitals, for the past five years on a nationwide basis. Would the cardiologist order “digitalis tid”?: or how about quinidine every now and then? The nurse would immediately demand a precise order. In inhalation therapy we need to know the machine, delivery pressure, duration of therapy, drugs to be used, and what therapeutic procedure should follow the IPPB.

I cannot help but comment that if you called a painter to paint the house, he would immediately want to know what was specifically desired, i.e. outside, inside, which wall, and perhaps even the color!

In the intensive respiratory care unit, ventilation is supported and life often sustained by the application of a growing number of effective mechanical ventilators. Here inhalation therapy takes on additional significance. The daily support, care and early steps in rehabilitation of individuals with life threatening respiratory insufficiency has led to the survival of the majority of patients in organized respiratory care units. This happy outcome does not occur by chance alone, however. Medical practice must be prescribed by the physician in charge and the day-to-day bedside care supervised by the attending nurse. The technical aspects of inhalation therapy require the assistance of inhalation therapists or nurses trained in inhalation therapy. Physical therapists are often members of the team and participate in many important aspects of patient care, particularly with suctioning, breathing retraining and passive exercises following paralysis. The patient’s total care thus must be a systematic thing with the physician in charge, the nurse in attendance and the inhalation and physical therapist providing their techniques in accordance with the total day care plan. The only person at the bedside 24 hours a day is the nurse. Thus, of necessity, she must become involved in all of the day-to-day problems of inhalation therapy care.

Unfortunately, the inhalation therapist, nurse, or physical therapist is all too often left without proper physician supervision by those properly trained in the techniques, intricacies and philosophy of effective intensive inhalation therapy. Patients are ordered to be placed on ventilators often over the phone! Would the coronary care physician order a transvenous pacing device without the cardiologist in attendance? Would hemodialysis be commenced in the acutely ill without a renal specialist supervising at least the initial phase of this technical procedure? Would highly technical and exacting surgery be relegated to young and relatively inexperienced surgeons without supervision?

The problems of ventilatory failure and the complexities and sophistication of modern-day ventilators, plus the need for blood gas monitoring and critical adjustments at the patient-machine interface, demand a trained physician in attendance, at least initially.

Today, the effective application and delivery of medical services requires not only experience and judgment, but specific skills in the application of highly effective medical devices. Technical assistance and consultation supervision is required in all important aspects of respiratory care, including intensive inhalation therapy. This calls for the development of effective inhalation therapy departments and excellently trained personnel under the direct supervision of a physician. The job of the physician-director is not only administrative control, but also professional direction designed to guarantee a high level of professional practice. This means the physician director himself must be trained and not just available to "supervise." The organizational structure need not be complex; the interested and involved physician and his trained assistant may constitute the entire respiratory care team and be able to provide very sophisticated inhalation therapy in many small hospitals. In more complex medical situations in the larger hospitals, highly trained but supervised paramedical personnel—the highly trained inhalation therapist—has an important role in the care and management of patients with respiratory problems under medical and nursing supervision. As the physical therapist and nurse, the inhalation therapist must achieve a role of high professional practice esteemed in the hierarchy of medical care, but always under the direction of coordinated medical thinking ultimately supervised by a physician.

Who is qualified to supervise an inhalation therapy department? The background may be varied and could include a chest physician, allergist, anesthesiologist, pediatrician or thoracic surgeon. The background training of the inhalation therapy director must include broad experience in pulmonary physiology, cardiology, infectious disease, care of the chronically ill and he must fully understand and be able to use mechanical ventilators and all
of the other ancillary inhalation therapy equipment.

Inhalation therapy cannot be a casual thing. The effectiveness of systematic organized inhalation therapy provides symptomatic relief, oftentimes objective functional improvement, and many times, in intensive care situations, the salvage of life.

Inhalation therapy is either important medical care or it is not. If inhalation therapy is important, why not take it seriously?

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The Established, the Aspirant and Editorial Democracy

Ninety-seven percent of manuscripts submitted to the editorial offices of CHEST are reviewed by two or more editorial consultants, and, whenever indicated, by a staff of biostatisticians. Thus, impartial review by out-of-office referees is the rule, except for an occasional paper, which, even after extensive revision, could not meet the standards of a specialty periodical. Should the process of peer review be reserved for the young investigator, or must it be applied to authors regardless of academic position or stature? Do editorial boards aid or obstruct the well-established investigator by submitting his manuscript to the arduous and somewhat time-consuming process of consultant's review?

A speaker at a recent colloquium of editors suggested that the neophyte author requires far more scrupulous editorial evaluation than the "veteran" scientist whose name and previous publications are known by the majority of editors and consultants in that discipline. I disagreed and cited instances when publication of papers from well-known investigators after only cursory evaluation has had catastrophic effects upon medical progress. All too familiar is the recurring phenomenon of the brilliant scientist who displays faulty judgment sometime during his professional career, at least to the extent that he later regrets publishing data which were premature or unsound. Unfortunately, even an isolated episode may irreparably blemish an otherwise superb record of achievement. Surely the editor must share some of the responsibility for these inglorious and unnecessary journalistic mishaps!

The enthusiasm engendered after completion of promising research may create a milieu more subjective than objective. Dr. Edward Huth, a participant in the editors' colloquium cited above, declared, "Many of us who have been in the medical editorial field for a while have seen incredibly bad papers submitted by first-class investigators. These are papers that would not have taken five minutes of a critic's time to be rejected." Scrutiny of biographies of nineteenth century physicians is particularly revealing. There are notable episodes involving "medical giants" whose reputations became so exalted that their peers feared to criticize them. As a result, certain fallacious dogmas were perpetuated for an incredible number of years. Viewed in this light, a paper by the "professor" or "chairman" must receive the same critical and constructive evaluation as a report by a relatively unknown researcher. The editor who does not regard each communication with impartiality may publish reports which cause scores of investigators to engage in fruitless quests. An editorial board which honors an author's title or position as proof that the paper is scientifically acceptable endangers the validity of medical documentation. The editors of CHEST have carefully observed the policy of peer evaluation; moreover, the Editorial Board avoids dependence upon consultants who are members of the author's medical center. We are proud that scientists of distinction have applauded our efforts, and we cherish a recent response from the author of a paper which was not accepted for publication. This investigator, a physician of international repute, wrote, "After considerable reflection, I realize that your referees are correct. This paper does not warrant publication, and I am grateful that you have saved me from releasing an inferior report."

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