we welcome the publication of extended abstracts in some of our supplemental issues or issues of a comparable nature and that this will not interfere with subsequent publication in Chest.

I know of few policies in medical publications which have produced more panic among researchers than the prohibitions of some editors regarding medical news articles. I recall the genesis of the policy of a major journal. The late Dr. Franz Ingelfinger, one of the most creative and brilliant medical editors of the 20th century, once shared with me his chagrin at an episode which had distressed him greatly. A manuscript had been accepted for publication in the New England Journal of Medicine. Shortly before the scheduled publication date, a medical news report appeared with a nearly identical discussion and summary and a number of the same graphs and charts that had been submitted to the New England Journal of Medicine! This, of course, constituted an indefensible imposition upon the editor. These and similar incidents prompted Dr. Ingelfinger to announce that manuscripts would not be accepted for publication in his journal if a medical news item already had appeared which included major elements of the text. Many editors acknowledge the wisdom of this policy but decry the misinterpretation that has resulted through no fault of Dr. Ingelfinger. Science writers and members of the lay press are welcome at most major scientific conventions. A paper read at a scientific assembly may be freely quoted by members of the medical and lay news media. It is the privilege and indeed the responsibility of physicians to assist in making certain that the news reports which result are accurate and will not result in unnecessary anxiety or false hopes. This is why many societies establish press rooms at conventions where investigators may be interviewed. The speech itself should be used as a basis for such an interview but not the manuscript to be submitted to a medical journal. A news report should not contain extensive portions of the text of a formal manuscript and the author should not offer to reporters photographs or charts to be published later in the scientific press. If these safeguards are followed, we may assure the clinicians who present papers at ACCP conventions that assisting science reporters in obtaining accurate information is an important service to the medical profession and to our patients.

"Self-plagiarism" has become the focus of attention of many editorial boards. The publish-or-perish philosophy which plays such a critical role in academic circles throughout the world often has been responsible for a quest for quantity instead of quality. Research papers have been subdivided into multiple portions (to provide a larger number of references in a curriculum vitae) when a single paper would have served the reader better. Authors have published similar reports in several specialty journals with the plea that "the readers are different." In this era of computers, it is indefensible to present identical information garbed in somewhat different clothing. The cardiologist, the internist, the neurosurgeon and the ophthalmologist have equal access to computer bases either through their library or now, in increasing numbers, via their own personal computer.

Self-plagiarism as a form of prior publication commonly occurs when an enthusiastic investigator publishes a paper a year or two after his initial effort because, "I’ve added an additional 50 cases!" If the conclusions are the same, that is, if the principles and concepts described in the original research remain the same (and if confirmatory data are not indispensible) then the addition of 50, 100 or 500 new patients does not really contribute to the medical literature.

Prior publication is a crucial topic in 1987 because of the current plethora of biomedical publications. Repetitive publication is expensive and certainly the reader is ill-served if he or she has to wade through a swamp of repetitious information. Perhaps some of the guidelines noted above may be of immediate assistance to prospective authors.

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Using the Lungs to Measure Cardiac Output

Mass balance techniques are commonly used to measure blood flow by following the transport of an "indicator." Traditionally, indicators such as green dye or cold water are injected intravascularly and their appearance is monitored downstream from the injection site. Early in this century, another technique was developed using acetylene (C2H2), a soluble, inert gas, as the indicator. The method involves breathing dilute concentrations of C2H2 or other soluble, inert gases and monitoring their disappearance from the lungs. It provides a noninvasive means of measuring cardiac output (Qc). The original technique was time-consuming, cumbersome, impractical, and its accuracy was questioned. The availability of computers and rapid gas analysis using mass spectrometers made it possible to measure Qc from a single 30 second rebreathing test. This led to a resurgence of interest in the technique. Mass spectrometers and computers made the tests quick but expensive. New and less expensive methods of rapid gas analysis and the availability of powerful but inexpensive computers have made it more attractive. At least one reasonably priced commercial prototype has been developed and competitive devices may soon be available.
The addition of gas analysis for O₂, CO₂, CO and He made simultaneous measurements of oxygen uptake (V̇O₂), lung volume, lung tissue volume (Vt), and carbon monoxide diffusing capacity (Dcco) possible. When heart rate is measured during the test, stroke volume is easily calculated.

Arterial-venous oxygen content difference C(a−v)O₂ can be calculated using the Fick equation (V̇O₂/Qc). The validity of this C(a−v)O₂ calculation has been confirmed in at least one study of patients undergoing heart catheterization. When coupled with C(a−v)O₂ estimates, pulse oximeters may allow noninvasive estimates of ḞVO₂ and/or ṠVO₂, but this possibility is as yet untested.

The technique has been further refined with reductions in its variability, validation of its accuracy in comparison with more traditional methods of measuring cardiac output, definition of diurnal patterns and normal values, and exploration of the technique's limitations. Preliminary studies have been made of the applicability of the technique in exercise studies and in a few disease states.

A variation of the inert gas uptake technique utilizes a single breath of gas with a slow exhalation rather than a period of gas rebreathing in a closed system. In this issue (see page 44), Ramage and colleagues provide further validation of the measurement of Qc and Dcco using the single breath variation of the inert gas technique. They present evidence that the accuracy and precision of this technique are comparable to the more traditional rebreathing technique and to the more invasive first-pass radionuclide angiographic method of measuring cardiac output. The single-breath technique appears to have some advantages over the rebreathing method. It may be more acceptable to patients and may allow repetitive tests to be more easily performed in exercise settings. The single breath method may also avoid the small increase in Qc occasionally reported to be associated with the rapid deep breathing required by the rebreathing technique.

All soluble gas uptake techniques have several advantages: they compare favorably with other techniques in both accuracy and precision; they are safe and noninvasive; they can be easily repeated in an outpatient setting; and they could be available at reasonable cost. The disadvantages follow from the fact that they are ventilation-limited. They become inaccurate when significant ventilation/perfusion abnormalities exist as in patients with moderate to severe obstructive lung disease or with moderate to severe pulmonary edema with alveolar flooding. The technique measures only pulmonary capillary blood flow in ventilated lung regions and thus fails to detect right to left shunted blood. It also provides no information about vascular pressures or resistances. In spite of these disadvantages, noninvasive repetitive measurements of Qc, V̇O₂, and C(a−v)O₂ provide powerful tools to explore heart-lung interactions in humans in many settings. They are especially attractive in exercise testing in which only indirect estimates of flow and stroke volume are generally available.

The opportunity presented by a noninvasive, inexpensive test may also increase the ease with which heart patients are followed longitudinally and may allow more direct and accurate titration of drugs, including after-load reducing agents. The effects of antiarrhythmic and antihypertensive drugs on cardiac output might be directly monitored in individual patients. Quantitative information may prove advantageous in demonstrating functional change in patients with congestive heart failure and might lead to earlier and more effective interventions.

While these are exciting clinical possibilities, there have been no evaluations of clinical efficacy for this test. Such questions as: will it alter decision-making, change physician actions, or alter patient outcomes, remain unanswered. Enough is known about the test to suggest that these issues need to be appropriately evaluated.

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Transesophageal Pacing in Atrial Flutter

The initial management of patients with supraventricular tachycardia has improved dramatically during the last decade. Once the absolute requirement for intact AV nodal conduction for continuation of the common varieties of paroxysmal supraventricular tachycardia was recognized, specific pharmacologic agents were developed that could produce transient abrupt increases in AV nodal refractoriness, thus leading to arrhythmia termination. Verapamil, when used in appropriate dosage, terminates PSVT in most patients. Newer agents, such as the short acting beta-blocker esmolol and the ultra short-acting compound adenosine, promise to have even high rates of acute efficacy. In patients presenting with atrial fibrillation, use of digoxin, beta adrenergic blockers and calcium blockers, either singly or in combination, will almost always smoothly slow the ventricular response even if pharmacologic cardioversion is achieved only rarely.

Atrial flutter, however, remains difficult to manage