certification is causing our registrars great concern. The J.C.H.S.T. should announce a date when certification will be required by consultant appointment committee. If inspection takes another year it would be reasonable to expect all men to obtain a certificate from 1977. Before this date appointment committees should take no account of the scheme. Men beginning their post-Fellowship training in 1974 will then know that their training will have to satisfy the J.C.H.S.T.—We are, etc.,

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Confidentiality

SIR,—The letter of Mr. R. R. L. Pryer (14 July, p. 104) raised some extremely important issues. There are really four inter-related questions that require examination. Are the data entered into the systems indicated by Mr Pryer of value even without full identification particulars of individual patients? Does the addition of identification particulars increase the value of the data? Can the costs of such systems be justified within the overall expenditure of the health service? If the answer is yes to the first three questions, can confidentiality be safeguarded?

Information systems can be of use in patient care, in management of the health service including planning, and in research. It is difficult to see how a system without patient identification can be of any value for patient care; the addition of identification particulars can, however, assist in such procedures as scheduling patients through repeat contact (for example, using systems initiated by the input of birth notification to control immunization programmes or the follow-up of individual patients where long-term surveillance is required). Increasing use is being made of information in the general field of administration of the health services; this information is used both as part of the general management process, and also to assist with the long-term planning. A number of authors¹⁻³ have indicated the value of using such data where cumulative patient files are available. These enable true indices of lengths of stay and readmission rate to be obtained. Only when such indices are available from cumulative files is it possible to obtain a true picture of the functioning of the health service; this is preferable to the biased view that can be obtained from event-type data, which is all that is available in the absence of identification particulars. In this situation the provision of identification particulars enables the cumulative data to be assembled on the computer file, but also provides a check on the accuracy which is greatly needed. For example, with cancer registration, where input of data may occur from a number of hospitals providing treatment for a patient, the availability of full identification particulars enables duplicate entries to be identified and adjustment of the statistics to be made. Acheson⁴ has shown after a relatively few years' experience with the Oxford Record Linkage Study how the assembly of cumulative files (using the linked data) can be of consider-

able value for clinical, epidemiological, and genetic research. He clearly indicated that such studies could not be achieved without the provision of identification particulars sufficient to bring together on the cumulative file the repeat events occurring to an individual.

There has been a gradually increasing demand for the use of information in the fields indicated above; however, it is important to bear in mind the costs of these information systems. The conversion of the basic event-type data to cumulative files linked by identification particulars adds only a small proportion to the cost of the system, but adds greatly to the uses to which the material may be put. It is thus suggested that the cumulative data can more readily be justified than a continued collection of event-type data without identification particulars of individuals.

It appears therefore that the essential question that requires resolution concerns the ability to safeguard the confidentiality of information in such systems. One must consider the protection of these data during collection, processing, and distribution of the analyses from the system. It is relatively easy to arrange for strict security of the data on collection and processing, though there is always the need to review the arrangements made. As far as the distribution of the analyses are concerned, this can be considered in relation to the classes of information to be released, and the categories of users. A lot of the output from such systems is tabular in nature and poses no threat whatsoever to confidentiality. Some investigators will, however, request release of unit numbers in order to provide access to patient records. Each specific study must be considered by appropriate representatives of the medical profession, depending on the level at which the study is to take place. This may involve contacting consultants whose patients are involved; it may be appropriate to draw the study to the attention and obtain approval of a division of a Cogwheel system, a medical executive committee, the research subcommittee or medical advisory committee to a regional board, or at national level the Ethical Committee of the B.M.A. In addition to obtaining approval for the study in principle the individual consultants whose patient records are to be studied should each be approached. Some research workers will desire to contact individual patients, in addition to the foregoing procedure the permission of the family doctor concerned and of the individual patient should be obtained before the research worker contacts the patient. As was emphasized by the recent statement from the Medical Research Council,⁵ no undue pressure should be brought to bear upon an individual patient to participate in such a study.

The questions mentioned in the beginning of this letter are easy to pose but difficult to answer, either in a short letter or a lengthy article. The above points just indicate the general approach that should be made to safeguard confidentiality on this important issue. It is essential, as Mr. Pryer suggests, that the system and the safeguards should be spelled out, and representatives of the profession should agree that these are satisfactory. Review

of the precautions should be periodically undertaken, and the system and its operation should be open to inspection. It is suggested that only where an individual patient is to be contacted by a research worker should the patient's written permission for this be obtained. For a number of the systems it might even jeopardize patient wellbeing to obtain written permission for entry of these data into the information system; for instance, where information is required for entry into the national cancer registration scheme it would pose major problems if written permission for this to occur had to be obtained from the patient.—I am, etc.,

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- 1 Alderson, M. R., *Health and Social Service Journal*, 1973, 83, 1524.
- 2 Bispham, K., Thorne, S., Holland, W. W., in *Challenges for Change*, ed. G. McLachlan, London Oxford University Press, 1971.
- 3 Rowe, R. G., and Brewer, W., *Hospital Activity Analysis*, London, Butterworths, 1972.
- 4 Acheson, E. D., *Medical Record Linkage*, London, Oxford University Press, 1967.
- 5 Medical Research Council, *British Medical Journal*, 1973, 1, 213.

SIR,—Mr. R. R. L. Pryer (14 July, p. 104) is to be congratulated on his stand over confidentiality. In my experience patients are already suffering from unethical disclosure of medical information. Loss of confidentiality is an inevitable consequence of our state N.H.S., which reeks of totalitarianism.—I am, etc.,

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Prophylactic Antibiotics in Caesarean Section

SIR,—While approving of the note of caution in your leading article (23 June, p. 675) about the possibility of breeding existing organisms selectively by antibiotic prophylaxis, I wonder whether you have not been guilty of some wishful thinking. You say: "Many hospitals have introduced an antibiotic policy controlled by an infection officer. This has often been conspicuously successful in reducing the emergence of antibiotic-resistant bacteria." There are many of us who would be glad to have clear published evidence for the success of such policies, but so far as I know there is not much available.—I am, etc.,

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Bone Disease in End-stage Renal Failure

SIR,—The results reported by Dr. Joan P. Ingham and others (30 June, p. 745) concerning the incidence of osteoporosis, osteomalacia, and osteitis fibrosa in end-stage renal failure are interesting, but one wonders how meaningful they are.

The high incidence of osteoporosis (11 out of 46 patients) is surprising and is presumably partly due to the fact that osteoporosis was diagnosed when the total bone index was 21.8% or less in males and 16.7% or less in females. These figures were apparently based upon findings in a limited number of control subjects, and other workers in