

cluding measurements of electrolytes, total protein, albumin, total bilirubin, alkaline phosphatase, lactic acid dehydrogenase, and serum glutamic oxaloacetic transaminase. The 74 patients who had abnormal values for two or more tests or who had one result which was persistently abnormal were examined in more detail for abnormalities in serum enzymes and isoenzymes, alpha-fetoprotein, and carcinoembryonic antigen, and were investigated by liver and spleen scans and a chest x-ray. As a result seven patients had exploratory laparotomies and angiosarcoma was found in two. Three others had portal fibrosis, which had been described previously in men engaged in vinyl chloride polymerization.^{5 6} Matta *et al.*⁴ decided, on the basis of this study, to add determinations of serum γ -glutamic transpeptidase and glutamic pyruvic transaminase to the original screening tests and to omit the estimations of alpha-fetoprotein, carcinoembryonic antigen, and isocitrate dehydrogenase and serum electrophoresis from the second series of tests. These workers are to be re-examined at three-monthly intervals.

Vinyl chloride is now known to induce tumours in man and in mice and rats.^{7 8} Its carcinogenic effect can be shown in animal experiments even after exposure to an atmospheric concentration of only 50 ppm for four hours daily for five days a week. These results give cause for concern, because in animals vinyl chloride is responsible for the induction of tumours in tissues other than the liver. The possibility cannot yet be discounted that in man also vinyl chloride may be responsible for other tumours. One attempt to show this⁹ has been challenged because part of the population under study had been exposed to a range of rubber-manufacturing chemicals and not only to vinyl chloride.¹⁰ Several other investigations are in progress.

Most instances of angiosarcoma have been in polymerization workers, who when the polymerization vessels were opened were formerly subjected to atmospheric concentrations of vinyl chloride possibly of up to 10,000 ppm in the worst conditions. The importance of polyvinylchloride plastics in modern society makes it unlikely that their use can be abandoned easily, so it is necessary to consider whether the exposure of the general population justifies concern. The American plants are estimated to discharge 90 million kg vinyl chloride each year into the atmosphere, and this leads to concentrations of 1-2 ppm in the air near these factories.^{11 12} Polyvinylchloride as manufactured¹³ may contain 200-400 ppm vinyl chloride, and this may present a hazard to secondary industrial users. The processed plastic still contains 0.5-20 ppm vinyl chloride,³ and small amounts may be transferred into food from polyvinylchloride-based packaging or even smaller quantities into water supplied through polyvinylchloride pipes. It is not now possible to decide whether these lower exposures to vinyl chloride represent a hazard to the general population. Experience with other occupational carcinogens such as the aromatic amines does not encourage optimism that the effects of vinyl chloride will be entirely limited to the workers highly exposed to it, but the seriousness of the problem will depend on whether angiosarcoma of the liver is the only tumour that vinyl chloride induces in man.

- ⁹ Monson, R. R., Peters, J. M., and Johnson, M. N., *Lancet*, 1974, 2, 397.
¹⁰ Falk, H., *et al.*, *Lancet*, 1974, 2, 784.
¹¹ *Wall Street Journal* (Eastern edn.), 13 May 1974.
¹² *Chemical Week*, 22 May 1974.
¹³ *European Chemical News*, 24 May 1974.

Old Age or Mental Health?

Ever since reorganization of the National Health Service was first put on the political agenda it has been argued that among its main long-term benefits (to set off against the short-term costs) would be closer co-operation between the N.H.S. and local authorities. Unfortunately common boundaries do not necessarily lead to common planning, and these theoretical benefits seem to be receding into the very distant future. So much is clear from the circular just issued by the Department of Health and Social Security giving guidance to local authorities about the planning of capital expenditure.¹ This concedes that collaborative planning between local authorities and area health authorities "must necessarily be a long-term venture" since both are so "heavily involved in the consequences of reorganization." Paradoxically, the process that was supposed to make it easier to bring about co-operation has, for the time being, become the main obstacle.

The circular also marks a distinct shift in Government priorities. In the current financial year, 1974-5, the D.H.S.S. will sanction about £50 million worth of capital spending on local authority personal social services (as against the provision of £78 million in the expenditure white paper published² last December). In allocating this money the D.H.S.S. has favoured services for the elderly, which got 47% of the total, as against services for the mentally handicapped and ill, whose share was 26%. In the next financial year, however, services for the mentally handicapped and ill are to get 35% of whatever sum will be available for capital investment, while services for the elderly will get correspondingly less—though the circular stresses that these proportions will not be applied rigidly in individual cases.

Inevitably almost any choice of priorities will seem arbitrary when there is such a large gap between the opportunities for spending money beneficially and the funds available. But given the overwhelming evidence that it is precisely the elderly³ who use high-cost N.H.S. resources, when they could be as well cared for in less expensive local authority accommodation or indeed looked after at home with a little help, is it right to switch the emphasis away from this sector? Can local authorities be expected to spend more on non-capital services for the elderly—like home helps—to make up for the investment cuts? This is not to deny that local authority services for the mentally ill and handicapped can also relieve the burden on the N.H.S.: for example, it was recently pointed out, in evidence⁴ to the Expenditure Committee of the House of Commons, that in the Coventry area, the regional health authority was developing at a cost of over £2,000,000 a village community hospital for mentally handicapped patients, though for the same amount of money the local authorities in the West Midlands could care for a far higher number of people. However, the D.H.S.S.'s priorities are not so self-evidently right as to suggest that there is no need for further debate.

The circular stresses that the Department wants to encourage local authorities to make their own decisions. But an appendix attached to the circular⁵ indicates that there is a conflict between greater local freedom and any move towards

¹ *British Medical Journal*, 1974, 1, 590.

² Heath, C. W., Falk, H., and Creech, J. L., *Annals of the New York Academy of Sciences*, in press.

³ Falk, H., *et al.*, *Journal of the American Medical Association*, 1974, 230, 59.

⁴ Makk, L., *et al.*, *Journal of the American Medical Association*, 1974, 230, 64.

⁵ Marsteller, H. J., *et al.*, *Deutsche medizinische Wochenschrift*, 1973, 98, 2311.

⁶ Lange, C. E., *et al.*, *Internationales Archiv für Arbeitsmedizin*, 1974, 32, 1.

⁷ Viola, P. L., Bigotti, A., and Caputo, A., *Cancer Research*, 1971, 31, 516.

⁸ Maltoni, C., and Lefernine, G., *Rendiconti Scienze Fisiche matematiche Naturali (Lincci)*, 1974, 66, 1.

agreed national priorities. This appendix gives a break-down of the local authority social services ten-year development plans, 1973-83 by region. These plans were, of course, prepared by the old local authorities and predate also the current economic crisis. But though their details now belong to history their trends are still important, for they suggest that it is going to be very difficult to get a coherent policy adopted. As just one example, local authorities in the East Midlands and South Western regions had planned a lower-than-average expansion of their home help services though their current levels were already below the present national average. If the D.H.S.S. was to publish figures for individual authorities—as it should—the disparities and inconsistencies in the provision of services would almost certainly be shown to be increasing, rather than diminishing. The Department is going to have to play a more active part in future if national policies are to be carried out and if the rhetoric of collaborative planning between the N.H.S. and the local authority personal services is to become a reality.

¹ Department of Health and Social Security, L.A.S.S.L. (7422). London, 1974.

² *Public Expenditure to 1977-78*, Cmnd. 5519. London, H.M.S.O., 1973.

³ Klein, R., and Ashley, J.S.A., *New Society*, 6 January 1972.

⁴ Fourth Report from the Expenditure Committee, Session 1974, *Expenditure cuts in health and personal social services*, H.C.307. London, 1974.

⁵ Department of Health and Social Security, D/L56/105. London, 1974.

New Causes of Malignant Hyperpyrexia

It is now barely ten years since a new syndrome—malignant hyperpyrexia—was first described.¹ Most of the early cases were reported in North America, but since then accounts have appeared from all parts of the world. The condition can perhaps best be summarized as a rapid rise in the body temperature (at least 2°C an hour) occurring without obvious cause during anaesthesia. Often it is characterized by stiffness of the skeletal musculature, hyperventilation, acidosis, and hyperkalaemia. The importance of this syndrome is emphasized by the finding that it carries a mortality in the region of 60-70%. During the past decade a great deal of progress has been made in defining its aetiology. There is now general agreement that it has a strong familial incidence and that many patients (though not all) have evidence of myotonia or allied muscle disorders.² In a paper published earlier this month in the *B.M.J.* F. R. Ellis *et al.*³ confidently stated that it is inherited as a Mendelian autosomal dominant.

Again, there is a large measure of agreement about the principal anaesthetic agents which trigger this response: halothane and suxamethonium lead the field. The observation by Harrison⁴ that the syndrome can be reproduced in Landrace pigs opened up the possibilities of studying causal mechanisms, though Beverly Britt and her co-workers⁵ have cautioned on the advisability of extrapolating results in swine to man, since the aetiologies of hyperpyrexia appear to differ in the two species. Nevertheless, these same authors have recently described a case in which the finger of guilt pointed at D-tubocurarine—a drug which hitherto had been regarded as completely innocent as a causative factor in human malignant hyperpyrexia. In making their accusation they assumed that nitrous oxide gas was also innocent. The paper by Ellis and his colleagues³ refuted this assumption and strongly

suggested that nitrous oxide is a possible triggering agent. A single case-history does not prove a point, but it certainly calls into question many of the previous statements that have been made, because nitrous oxide has been used in almost all cases so far reported.

These findings show that the number of possible triggering agents of malignant hyperpyrexia is steadily increasing; in fact there are now very few anaesthetic agents which have not been implicated. It is reassuring, therefore, to find at the same time that the number of possible treatments of this serious condition is also increasing, and that large doses of dexamethasone can now be added to the list of drugs which may prove beneficial.

¹ Saidman, L. J., Havard, E. S., and Eger, E. I., *Journal of the American Medical Association*, 1964, 190, 1029.

² Harriman, D. G. F., Sumner, D. W., and Ellis, F. R., *Quarterly Journal of Medicine*, 1973, 42, 639.

³ Ellis, F. R., *et al.*, *British Medical Journal*, 1974, 4, 270.

⁴ Harrison, G. G., *British Medical Journal*, 1971, 3, 454.

⁵ Britt, B. A., Webb, G. E., and LeDuc, C., *Canadian Anaesthetists' Society Journal*, 1974, 21, 371.

The Trainer's Sponge

Most sports injuries are self-limiting soft-tissue lesions, but the sufferers often ask for treatment to speed up their return to full functional activity. In the heat of the moment the actual injury may pass unnoticed only to become apparent in the relaxed atmosphere of changing room or bar. By that time the original lesion, often a partial tear or contusion of tendon, ligament, or muscle, may have provoked painful local inflammation with oedema or haematoma formation. Whereas little can be done to hasten healing of the initial lesion the incapacitating secondary effects can be minimized; not surprisingly, non-corticosteroid anti-inflammatory drugs have been frequently used, and the results of several controlled trials are now available.

Indomethacin in doses of either 100 or 150 mg daily was given for five days and compared with placebo in 81 Dutch sailors¹ who had sustained acutely painful soft-tissue lesions. Movement was restricted by bandaging and assessment made daily for seven days. Pain, tenderness, and swelling and movement all improved more rapidly in those in the treatment groups, rather more obviously when the higher dose was used. In another study, when indomethacin 150 mg daily was given to 28 patients with acute soft-tissue sports injuries² and compared with placebo given to a further 28, assessment at the end of a week showed enhanced relief of pain and swelling but no overall superiority to the placebo group. In that trial the administration of heat and maintenance of activity were said to have produced such good results in the control group that little room was left for improvement. A similar lack of extra benefit with indomethacin was recorded³ in a study of the players from two London First-Division football clubs whose players always received "routine physiotherapy." Oxyphenbutazone has also been studied, and in one double-blind trial⁴ five days' treatment was claimed to be superior to placebo in patients whose injuries were also treated by heat and immobilization.

Oral trypsin—chymotrypsin tablets containing a total of 50,000 units is claimed to produce a circulating level of enzymes which hastens resolution of oedema and established haematoma. In a double-blind controlled trial⁵ of patients with fractures of bones in the hand there was an apparently significant improvement in the rate of recovery of finger joint