

the penicillins. In addition to these agents, my panel was also responsible for a number of other groups of drugs.

The evaluation of the efficacy to my knowledge was not rigidly defined in the drug amendments of 1962 and to the Federal Food, Drug, and Cosmetic Act of 1938. This should not, however, present formidable problems if one takes a simplistic view with the welfare of the patient as the central focus. In order for a drug to be effective there should be "substantial evidence" that it has a beneficial effect in the treatment of human disease and that these are the effects it is purported to have. It is obvious that some drugs will be better than others for an identical purpose but this rightfully was not a concern of the panels and should properly be relegated to avenues for physician education where it may receive adequate discussion and dissemination and be periodically updated on the basis of new scientific evidence. None of these drugs can be administered without some risk of ill effects and this must obviously have some bearing on efficacy. A drug should clearly have more benefit than harm. Thus, although penicillin would, strictly speaking, be effective for the treatment of streptococcal sore throat in a patient with a previous history of anaphylactic shock from penicillin, it could not logically be considered an effective drug for this particular patient.

Senator NELSON. How do you define anaphylactic shock.

Dr. HEWITT. Anaphylactic shock is a condition which follows quickly the administration of the drug, and is characterized by shortness of breath, difficulty in breathing, spasm of the bronchial muscles, swelling up of the tongue, and the air passage, often times resulting in sudden death.

Senator NELSON. Please continue.

Dr. HEWITT. Similarly, although chloramphenicol is highly effective in the treatment of urinary tract infections, its well-known toxicity precludes its use and it is not regarded as effective for this purpose when other less toxic agents are available. Finally, some antibiotics, although active and effective, have a much more limited role than when they were initially discovered, and, indeed, may have no distinctive role at all, because of subsequent discovery of other agents which are more active and less commonly attended with side effects. In such cases effectiveness obviously cannot be denied in the strict sense of the word. It would seem perfectly clear from the standpoint of practical therapeutics, however, that these once useful agents are no longer effective as drugs of choice and should be reserved for special limited indications for which they may still be useful and which in all but a few cases will be extremely uncommon. Thus, streptomycin, formerly widely used for the treatment of gram-negative bacillary infections is now reserved almost entirely for the treatment of tuberculosis because of the advent of more effective antibiotics (kanamycin and gentamicin). Novobiocin, once useful as an antistaphylococcal agent and, rarely, for the treatment of urinary infections due to *Proteus*, has been superseded by other more active and less troublesome agents to the point that it is seldom, if ever, an antibiotic of choice.

Now the basis for evaluations consisted of—

1. General principles of chemotherapy.
2. Published data relating to efficacy.
3. Opinions of consultants with special competence in specific areas.