Nutrients like choline, carnitine and inositol are staking claims as essential dietary factors in the light of recent knowledge regarding their precursors and functions. A strong case for choline has been made by Leisel and Bluszczajt. Some nutrients like vitamin C, vitamin E and β-carotene, which are powerful antioxidants, have been reported to have beneficial effects in a variety of degenerative diseases when given in large doses. The pharmacology of vitamin C has been reviewed by Sauertlich.

A review of organic substrate and electrolyte solutions for oral rehydration (ORS) in diarrhoea should interest both clinical and public health nutritionists. From a metaanalysis of the available data, Desjeux et al. conclude that local cereals and legumes are as good as ORS that are based on glucose or other organic defined substrates. Mother’s milk is the best for the infant. While it may be possible to develop formula milk which matches human milk in terms of its nutrients, human milk has a variety of growth factors like the epidermal growth factor, insulin, relaxin, insulin-like growth factors and other peptide growth factors which help development. Thus, even a well-growing, formula-fed infant is at a greater risk of developing various illnesses during early adulthood than the breast-fed counterpart, as discussed by Donovan and Odle.

Other subjects of clinical importance covered are: Nutritional implications of transhyretin (prealbumin) in health and disease (Ingenbleek and Young) and osteopaenia of prematurity (P. R. Greer).

Two of the basic science reviews are in the field of comparative nutrition—Nutrition of the horse (Hintz and Gymbaluk) and Nutritional mechanisms and temporal control of migratory energy accumulation in birds (Bailein and Gwinnen). A review on artificial rearing of rat pups by Patel et al. discusses the methodology as well as the utility and limitations of such an experimental technique.

In recent years, several nutrients have been found to regulate gene expression. In the present volume, Clarke and Jump discuss the regulation of gene expression by dietary polyunsaturated fatty acids, and Cousins discusses the role of metal elements in gene expression. Dietary PUFAs modulate fatty acid biosynthesis and (n-9) fatty acid availability, possibly by modulating the activity of transcription factors. Apart from the influence of metals in gene expression through their well-established structural and catalytic functions, metals have a separate function in transcriptional regulation of genes through an interplay of cytosolic metal regulatory proteins and MRE sequences in the promoter regions of specific genes.

An update on the three disorders related to inborn errors of fructose metabolism (essential fructosuria, hereditary fructose intolerance and fructose 1,6-bisphosphatase deficiency) is given in the review of Van den Berghe. A review on the mechanism of action of nonglucose insulin secretagogues by Liang and Matschinsky not only discusses the second messenger cascade stimulated by these substances (hormones, neurotransmitters, hypoglycaemic drugs) but also describes the present knowledge regarding the role of glucose metabolism in insulin release.

Other reviews in basic sciences discuss diverse subjects: The complexity of nitric oxide, a flavohaem enzyme, and its significance by Masters; The nutritional role of resistant starch (starch that escapes digestion in the small intestine) by Annison and Topping; Peroxisomal lipid metabolism by Reddy and Mannants (discusses the role of mammalian peroxisomes in lipid metabolism, the phenomenon of peroxisome proliferation, the mechanism of peroxisomal enzyme induction and the disorders of peroxisomal lipid metabolism); The role of iron-binding proteins in the survival of pathogenic bacteria by Mietzner and Morse (bacterial strategies for sequestering host iron and establishing itself); oxidative phosphorylation diseases and mitochondrial DNA mutations: Diagnosis and treatment by D. C. Wallace (nutritional and pharmaceutical therapies which produce moderate degrees of symptomatic relief in these disorders and future possibilities such as gene therapy); and Regulation of adipocyte development by Cornelius, Mac Dougall and Lane.

The 14th volume of Annual Review of Nutrition will be of particular interest to biochemists, cellular and molecular biologists and clinical scientists who may wish to work in areas where research in basic sciences can find application to solving problems of health in general and nutrition in particular.