In my discussion I will start briefly summarizing the main points of Rutten’s paper. I will then comment on some specific questions. In his introduction, Rutten made three important points that are relevant for the further evaluation: (1) dialysis is life-saving; (2) dialysis is very costly; and (3) technology is only gradually advancing. In his paper Rutten thoroughly reviews the macroeconomic impact of dialysis with figures for direct costs and gives data on growth of programmes in different areas of the world. The most obvious benefit of dialysis is the number of life-years saved – but it should somehow be corrected for poor quality of life. Relaxation of the egalitarian principle that healthy life is of equal intrinsic value to everyone may be necessary in view of the limitation of resources, which involves complex ethical questions.

Alternative programmes are specified and it is concluded that the cost associated with different forms of dialysis may differ with hospital-dialysis being the most expensive and home-dialysis considerably cheaper, which is reflected in several countries having policies to encourage more home-dialysis. Although not considered within the scope of the paper the choice between transplantation and dialysis is discussed and it is concluded that programmes that combine dialysis and transplantation are less expensive than programmes of dialysis without transplantation. A review is given of the end-stage renal disease (ESRD) programme of Medicare in USA and it is concluded that government reimbursement seems more effective than private funding for providing effective care.

In the last section government policy is described in terms of four levels of hierarchy. A government may: (1) actively promote research and adoption of new technologies; (2) encourage greater efficiency in the production and use of a technology; (3) question and test the benefits of medical technologies; and (4) eventually seek to limit the diffusion of technologies to a level that strikes a balance between the benefits to be gained and the costs of achieving them. It is expected that developments will quickly bring countries to consider questions related to levels 3 and 4, i.e. levels that may impose limitations of growth of existing programmes and development of new programmes.

It is concluded that: (1) renal dialysis should not be considered separately from transplantation; (2) incentives should be towards home-dialysis and inexpensive forms of peritoneal dialysis and that right incentives should be promoted by allowing for private enterprise; (3) patient selection should be restricted and based on clear principles set in parliament, but individual clinicians have to decide which patients should be selected; (4) the financial arrangements with respect to health care programmes should incorporate incentives for efficient allocation of re-
sources; (5) the final and central problem remains how to determine the appropriate level of resources to be allocated to the treatment of ESRD patients. Assuming that there is a fixed budget for the health care section the ideal approach to this problem seems to be to compare alternative ways of allocating resources to health programmes on the basis of some criterion that involves costs and benefits of each programme to society.

I will start my discussion by briefly commenting on some of the points with emphasis on the medical point of view since I am myself a clinician and, as it happens, I have the largest dialysis programme in Sweden and am also committed to research on the treatment of end-stage renal failure. My first point concerns a basic question: is dialysis really as costly as it appears? As pointed out by Rutten, when extending the analysis to the whole public sector, cost estimates for ESRD programmes should be compared with those of other programmes providing preventive treatment against other diseases or providing other health services. Data can be given showing that in Sweden the annual costs of dialysis are of the same magnitude as annual costs for other chronically ill patients (senile dementia and other debilitating diseases) requiring inpatient supervision by medical personnel, i.e. patients who are not at all rehabilitated in contrast to the majority of dialysis patients who work full-time or at least part-time. Comparison can also be made between the costs of dialysis and programmes providing other public services outside the health field (e.g. defence expenditure) in comparison with which dialysis costs are trivial.

The second question I would like to raise concerns the relevant criteria for choosing between alternative policies. Continuous ambulatory peritoneal dialysis (CAPD) was recently developed as an alternative to intermittent dialysis treatment. CAPD is a form of self-dialysis requiring no expensive machines, only bags with sterile fluid which the patient changes four times a day, leaving the fluid in the abdomen for 4–8 h. CAPD has shown a very rapid growth especially in Great Britain where financial limitations severely restricted the development of hospital-haemodialysis. Even if CAPD is still not established as an acceptable method for long-term treatment and is only marginally less expensive than haemodialysis, reimbursement policy favours this form of treatment (CAPD is prescribed as a drug). I would also like to emphasize further the close connection between dialysis and renal transplantation. They should never be considered independently of one another, but always looked upon as one treatment system where each method complements the other. They are not competitive alternatives.

In recent years transplant results show that long-term survival with cadaver transplantation is comparable with hospital dialysis and that living donor transplantation affords the best treatment available both with regard to expected survival and rehabilitation. Results of transplantation are markedly better in centres that perform a large number of operations per year than in centres with few transplants. Looking at the world statistics, it is evident that both Switzerland and Denmark, which have the highest figures for ESRD patients alive on active treatment, have a very high proportion of transplanted patients, thus being able to run their total programmes at a considerably lower cost than say, the USA, France, Italy, and Japan, where transplantation is rarer. Measures that could increase renal transplantation may be: