Objectives: The use of erythropoietin (EPO) for the treatment of anemia associated with urological malignancies is not well defined. The rate of anemia is dependent on the type of cancer and on the different types of treatment. Only with a substantial risk for blood transfusion is substitution treatment by EPO justified. Additionally, the long–term risks of blood transfusions have to be balanced against the costs of EPO treatment. Methods: Different experts have reviewed the literature on anemia and EPO regarding the four main tumor entities. Results/Conclusions: In prostate cancer, EPO treatment may be justified before radical prostatectomy and in patients with advanced, hormone–refractory disease. In bladder cancer, significant treatment–related anemia mainly occurs in patients who have to undergo radical cystectomy and in patients who will be treated with polychemotherapy for metastatic disease. Patients with renal cell carcinoma rarely suffer from anemia and thus are usually not candidates for EPO treatment. Testis cancer patients only have a substantial risk for blood transfusions if they belong to the intermediate or poor prognosis group according to IGCCCG or if they need salvage chemotherapy or salvage surgery. However, in testis cancer patients EPO treatment should generally be preferred to blood transfusions since cure rates are excellent and thus the potential risks of transfusion–related infections