From 249 pairs of measured creatinine clearances in males, creatinine excretion (mg/kg) was found to decrease linearly with age. The linear regression of creatinine excretion against age led to development of a formula which can be used to successfully predict creatinine clearance from age, weight, and serum creatinine. [The SCI® indicates that this paper has been cited in more than 700 publications, making it the most-cited article published in this journal.]

It is with amusement, that after almost 20 years as an academic “asthmatologist,” that house officers recognize my name as that attached to the widely used “Cockcroft-Gault” formula for predicting creatinine clearance.

In 1972-1973, in order to do a third year of general medicine residency at the Royal Victoria Hospital (Montreal), two of my colleagues and I came up with an original idea; we each chose a medical subspecialty and rotated the three of ourselves through them. Thus, as a trainee interested in chest-allergy, I came to do a solitary three-month rotation as a subspecialty nephrology resident working with M.H. Gault at the Queen Mary Veterans’ Hospital in Montreal. My first attempt at the customary small research project, a case report, proved unsuccessful. My second research project was to verify the accuracy of a nomogram which predicted creatinine clearance based on serum creatinine, age, and weight. The investigation expanded to include a review of 505 pairs of measured endogenous creatinine clearance values in males. Of the 505, 249 pairs were reproducible and arbitrarily assumed to be “accurate.” The 498 (249 x 2) data points were condensed by a “statistical trick” to 7 data points on a graph in which the mean creatinine excretion (mg/kg) for each decade was plotted against age. A striking negative linear correlation was seen. Following completion of clinical rounds on a cold Saturday morning in Montreal in February 1973, Gault and I were reviewing the graph and the linear regression of creatinine excretion vs. age, when I had the sudden revelation that this regression could be turned into a formula to predict creatinine clearance:

\[
C_r = \frac{(140 - \text{age})(\text{wt kg})}{72 \times S_r (\text{mg/100mL})}
\]

This formula yields results which are in reasonably good agreement with measurements obtained from 24-hour urine collections. It thus allows a quick and easy assessment of creatinine clearance as long as serum creatinine (thus renal function) is in a steady state. The performance of this formula and its “SI unit” equivalent re accuracy, advantages, and limitations has been recently reviewed. The many references to this paper, often, as in some major textbooks, without explicit citation, appear to relate primarily to its value in drug kinetic studies.