

# Chapter 15

## Scientific Productivity of the Nuclear Medicine Literature: A Scientometric Analysis

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### **ABSTRACT**

*The present study is to analyze the scholar publications of nuclear medicine research for 30 years from 1991 to 2020. These study objectives to discover the list of most important journal publications, the growth rate, and the research productivity and contribution of authors and institutions. Every country, continent and a number of similar aspects nationally and internationally in nuclear medicine. The extracted data was in text format, analyzed according to the objectives of the study the use of Histcite, Microsoft-Excel suite and VOS viewer software, and presented as data tables and graphs. Scientific measurement techniques are involved in evaluating the publication of nuclear medicine, the growth rate of research publications, author productivity, collaborations, citations, high-quality journal lists, and the geographical distribution of publications nationally and internationally in nuclear medicine.*

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## INTRODUCTION

Scientometrics is one of the quantitative studies of the literature of scientific disciplines and their research relevance. It identifies emerging areas of scientific research and explores the development of research over a significant period. Besides, Scientometrics is gaining more importance in libraries and other types of research in information science. This includes quantitative studies of scientific activities, research communications, publications, and bibliometrics measurements. The quality of research depends on quality library service. Good research emphasizes the development of generation, policies, or theories. In the age of information explosion in science and technology, bibliometrics / Scientometrics are becoming a common research tool to explore the impact of a particular research field or organization or country. This study examines research performance in the literature published from the Web Science Database in Nuclear medicine research over the past 30 years from 1991 to 2020.

### Nuclear Medicine Research

Nuclear medicine is a branch of medical science that uses radioisotopes to diagnose and treat quite number disorders. At diagnosis, nuclear imaging is unique due to the fact it provides accurate functional data that is no longer reachable from other conventional imaging methods. Gamma cameras, SPECT-CT, PET-CT, and PET-MRI are advanced nuclear imaging equipment<sup>[7]</sup>. It is also the major molecular imaging approach to depict glycolytic activity, amino-acid turnover, protein synthesis, receptor distribution, and many other molecular and biochemical phenomena. Nuclear imaging is one of the essential imaging techniques for most cancers and many benign non-cancerous diseases. Radio-isotope treatment is indicated for thyroid cancers, neuroendocrine cancers, hepatocellular carcinomas, and painful bone metastases; *in vitro* and *in vivo* radiotherapy techniques are important equipment in superior medical research. Modern medicine and oncology can't be practiced barring nuclear medicine.

Nuclear medicine has long history and has been contributed for decades through scientists in a variety of fields such as physics, medical chemistry, and engineering. This versatile involvement makes it difficult for historians to trace the origins of nuclear medicine. However, researchers accept as true with that the birth of this radiological phenomenon might also have happened between 1934 when synthetic radionuclides have been first discovered and cloned with radionuclides for medical use by using the Oak Ridge National Laboratory in 1946<sup>[8]</sup>.

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