Contribution of Zia Uddin, PhD in Hematology & Oncology (1977-Present)

My post-doctoral training in protein electrophoresis and immunology commenced in 1972 at the Clinical Laboratories, University of Illinois Medical Center, Chicago, IL. In 1976, I established a specialized analytical section at the laboratories of the South Macomb Hospital, Warren, MI (now part of Ascension Michigan) to perform several serum, urine and cerebrospinal fluid (CSF) tests by protein electrophoresis, immunofixation and quantification of immunoglobulins. Later on I added the alkaline and acid agar gel electrophoresis for the identification of abnormal hemoglobinopathies.

> **Since 1976**, I have been continuously doing the interpretation of serum, urine, CSF electrophoresis, immunofixation, alkaline phosphatase isoenzymes and hemoglobinopathies tests performed at Ascension Macomb-Oakland Hospital, Warren, MI. It is my best estimate that during the last 44 years, I have done >500,000 Interpretations of the laboratory tests.

During my employment since 1976, I have been associated with oncologists and hematologists, and provided scientific input at the Tumor Board meetings of the hospital. A very unusual case of multiple myeloma was encountered, which involved recurrent plasmacytomas after allografting. I did extensive research on this topic and the following paper was published.

> Recurrent plasmacytomas after allografting in a patient with multiple myeloma. Medicine 2012. Article ID 168785, 5 pages doi.10.1155/2012

Follow up of monoclonal gammopathy of undetermined significance (MGUS) involved several laboratory tests and unnecessary expenditure. I have been studying MGUS for >40 years, and thus wrote the following review article.

> Monoclonal gammopathy of undetermined significance: Using risk stratification to guide follow-up.
> J family Practice 2015; July 64(7): E5-E12.

It will not be out of place to mention here that I was requested in 2017 by the editor of the Journal of Internal Medicine to write another review article on MGUS, however I advised that no significant scientific and clinical data has been reported in the literature since 2015, and thus declined the offer.

I have lectured since 1986 to the medical residents and fellows of Hemtology and Oncolgy, at Ascension Macomb-Oakland Hospital, Warren , MI. I have authored the following three books that are used worldwide and are provided at no charge via Internet (TelemedEdu, USA, Inc.) to the medical residents and fellows.

2013 Diagnostic Hemoglobinopathies: Laboratory Methods and Case Studies
2nd Edition, August 2015

2011 Protein Electrophoresis, Immunofixation and Immunodisplacement in Clinical Diagnosis

2009 Comparison of Agarose Gel Serum Protein Electrophoresis and Immunotyping

The follow up of the treatment of the multiple myeloma was done by the quantification of the involved paraprotein (heavy and light chains) in serum. This protocol had some limitations and it was difficult to detect the recurrence of the disease. In 2005, I introduced the latest and most prudent marker (Free Kappa, Free Lambda and their ratio) for the follow-up of the treatment of multiple myeloma. The following poster was presented at the annual meeting of the American Association of Clinical Chemistry.

Computer Program for Monitoring Disease Status in Multiple Myeloma with Serum Free Kappa and Free Lambda Chains, Zia Uddin, Kenneth Tucker. Clin Chem 2006; 52(6). *Suppl*pA 154, Abstract D-137

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