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How to Design Research and Experiments as a Beginner

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As a medical scientists, we conduct researches for the betterment of human health. Through researches, we determine the causes of diseases and then develop ways to prevent or treat them. The job of medical researcher, comparing with that of practicing physician, is not monotony, has serious world-wide influences that potentiate to change pathologic phenomenon, directly contributing to the building of medical knowledge. As to become a successful researcher, there are some qualities that need to be pursued; one should be humble and open-minded to criticism, be able to build a social network, be smart and hard-working, have clear goals and a good research plans, step out of the comfort zone, and have good writing skills. The biggest drive to become a good researcher is 'curiosity'. Curiosity brings the most inspiring ideas and medical breakthrough, making one can learn something new everyday.

Other than being successful, how do we become an independent nephrology researchers in the first place? We already have the right and solid answer to this question. Among the various answers, the keys to our success focus on three crucial factors: 1) Finding a good mentor: In view of the fact that a mentor can either make one's research and academic career successful or ruin them, a proper guidance from a good mentor at an early stage of research career can maximize one's ability for the research. 2) Developing the right research tools in a supportive working environment: A right environment that helps one to learn how to perform experiments and organize and analyze data is vital for a successful and independent research program. 3) Developing a research program that is both intellectually interesting and inspirational shall arouse one's academic enthusiasm and help continue one's career as a medical researcher. Along with the three factors mentioned, one should always work hard and never give up on thorough tough times.

Once one is ready to become a successful independent researcher, it is time to design an experimental research. One should firstly select a topic and identify the research problem, secondarily conduct a literature search and conduct a hypothesis, thirdly determine the design and method of the research, fourthly analyze the data, formulate conclusions, and lastly write a good paper. Indeed, a good paper should always convey a specific hypothesis with originality and significance which makes up the essential and ultimate part of becoming a successful medical researcher.

Being a good medical researcher is challenging in that one should always strain to unravel the pathophysiologic mechanism behind the disease nature in search for the possible clinical application. To this end, one should never stop asking oneself 'what the research is good for'.