Abstract: Many developed countries have announced initiatives to modernize their health care systems with investments in health information technology (IT). The goal of these initiatives is to use technology to improve the health care system by reducing costs, improving patient safety and improving quality of care. Improving health care is a common goal for these countries, but as others have noted, there are wide disparities in the success with which nations have pursued this goal.

In particular, countries such as the United States have lagged some European nations in the adoption of health IT, such as electronic health records. Interoperable electronic health records are a prerequisite for a modern health care system and the key to delivering a number of benefits to health care patients and payers. For example, the computerized decision support systems used in hospitals provide patients the most benefit when they use a robust set of patient data. These systems can help ensure a return to the core principle of evidence-based medicine—that patients and doctors have the best evidence available when making a decision about treatment.

While much attention has been paid on the degree to which nations have made progress with investment in health IT, less attention has been paid on the level of investment in health IT research. Yet evidence-based medicine relies on high quality medical research. Moreover, as we enter an increasingly digital world, the amount of health data that will be available to medical researchers will be increasing substantially. While past medical researchers had only a few limited data points recorded on paper on which to base their hypotheses, in the future researchers will have massive online databases containing terabytes of data for their analysis.

In fact, some of the major benefits from modernizing our health care system are expected to come from the improvements in medical research that it will enable. For example, medical researchers will be able to use rapid-learning health networks to determine the effectiveness of a particular treatment for a certain population or to discover harmful side-effects of a drug. While some of this research will occur in the private sector, for example through private pharmaceutical research, public investment in this area will also be important.

Already a variety of projects, from the National Cancer Institute’s Cancer Bioinformatics Grid (caBIG) to the European Union’s mammoGrid project, offer a glimpse into the possibilities that IT will allow for future medical research. But to achieve this vision will require substantial leadership and effort on the part of nations to overcome the technical and social hurdles ahead.
Some of the questions this paper will look at are as follows: How well are countries integrating innovative approaches such as rapid learning health networks into their overall commitment to improving health care? To what degree are nations investing in the technology that will provide the platform for this research? How successfully are national health care leaders addressing medical research as not simply a domestic issue, but an international challenge that must be answered with international partnerships?

This paper will look at the degree to which three countries—the United States, Canada, and the United Kingdom—are pursuing data intensive, IT-based medical research. First, the paper will review public programs and efforts in this field in each country. Second, the report will quantify public investment in these programs—both past investment and projected investments. Finally, the report will make a qualitative assessment of the effectiveness of policies and initiatives in each country to advance this type of research.

This paper will contribute new insights into how these three countries are pursuing health IT investment in this area of medical research.