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Short Communication

Nanotechnology's Impact on Medicine, from Invention to Market Share

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DESCRIPTION

Nanomedicine, a product of the union of nanotechnology and medicine, promises to be beneficial in the fight against unmet medical needs. Numerous international research and commercial initiatives are in place to secure a large market position because the field is acknowledged as a global concern. Nanomedicine is one of those newly developing industries, nonetheless, for which corporate growth strategies have not yet been defined. There are still questions regarding the optimal business model for these organizations and the best growth tactics for them. In order to enter the market effectively, capture a sufficient market share, and create and preserve a competitive, defendable advantage, nanomedicine start-ups made a number of financial and strategic decisions. These decisions are described in this study [1].

We investigated the technical transfer process, which links laboratories or research institutions to the market, by physically transferring nanomedicine products from the inventor's hands to the hands of the doctor. In order to consider a potential market entry and the market share that managers might reasonably obtain at various time horizons, the process entails extensive analysis to assess the potentials of end goods as well as research to identify market segment, size, structure, and rivals. Getting funding is important yet difficult. Investors, drawn by the "nano" industry, are beginning to see the promise of this subject [2].

Nanomedicine, which is generally defined as the application of nanotechnology to the clinical setting, has its origins in the same fundamental ideas and principles as nanotechnology, namely that materials with nanoscale features exhibit distinctive properties that are not present at a macroscopic level. Nanomedicine is multidisciplinary in nature, using ideas and methods taken from biology, chemistry, and physics, just as nanotechnology benefits from mathematics and engineering. As a result of this fruitful union, nanostructure materials exhibit novel properties that have extraordinary advantages when used in medical technology [3,4].

The ability to operate at the same scale of various biological processes, cellular mechanisms, and organic molecules is what drives nanotechnology's success in the healthcare industry. As a result, medicine has viewed nanotechnology as the ideal solution for the detection and treatment of many diseases. Drug delivery is one of the various ways that nanotechnology is used in the medical industry. New therapeutic approaches, ranging from molecular targeting to radiofrequency ablation and from personalized therapies to minimally invasive procedures, have flooded the scientific and clinical communities as a result of the development of protocols and methods for the synthesis, functionalization, and use of nanoparticles and nano-carriers [5].

Although the majority of people in the investment community are able to understand what nanotechnology is and can competently launch and manage a viable product into the market, they are conceptually limited when it comes to this scientific field and the complex inner workings of the product's functionality . On the other hand, scientists engaged in scientific research are aware that nanomedicine is an extension of nanotechnology, but they have little business knowledge necessary to turn their technologies into commercial products . Therefore, collaboration between the two groups is essential to the commercialization of inventions based on nanomedicine [6].

CONCLUSION

Furthermore, correct estimates of the risks associated with the investments may even produce favourable returns. The most effective use of financial resources and the optimization of the highest health return at the lowest costs would be made possible by a pharmacoeconomic analysis. A Cost-Effectiveness Analysis (CEA) is a methodology that compares the expenses and outcomes of two or more treatments. While the high failure rate for novel drug molecules in the very early stages of the drug development cycle is mostly caused by an inadequate therapeutic index, in the clinical development stage, this rate is related to economic factors. Therefore, in order to free up resources for more promising compounds, the development of failing medications must be stopped as soon as possible. Saved money is attained by performing an accurate economic appraisal early in the development phase. Life-years saved by the examined nanotherapeutic serve as the benchmark; if a nano-enabled therapy

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therapy does not save enough life-years to break-even, it should not be developed further.

The lack of clinical data on nanomedicine is a key barrier to the success of this type of analysis. Collaboration is the key to resolving this problem. Bosetti and Vereeck assert that in order to create a shared platform that can facilitate communication between parties and ultimately lower the high risks associated with investments in nanomedicine, economists and investors with a focus on the health market should collaborate closely with healthcare providers, researchers, patients associations, doctors, and technologists of all kinds. As a result, these investments will also assist patients by enabling the development of novel methods, treatments, tools, and medications that will lengthen and enhance their quality of life.

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