A REVIEW ON PRECISION MEDICINE AND ITS ADVANTAGES

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ABSTRACT
Today's healthcare industry is growing rapidly; this delivers both excellent opportunities and difficulties. Quality healthcare is one of the very significant circumstances in how people notice their quality of life. Nowadays, your medication policy doesn't have all that satisfying to do with you particularly. Precision Medicine is an emerging discipline. It recognizes distinct biological disorder using diagnostic methods, usually genic, to identify the best treatment individually not like trial and error. By integrating this data with personal health records (PHRs), Precision Medicine provides physicians and patients to improve aimed prevention and therapy strategies. The purpose is to implement the best medicine with accurate dosage to the correct patient in just-in-time. In this survey, we present a synthesized overview of the current state of research on precision medicine and compare the precision medicine over the traditional medicine. We also identify the current research problems in the areas of precision medicine implementation.

Keywords: precision medicine, PHRs, Gens, traditional medicine, healthcare.

1. INTRODUCTION
In the present years, precision medicine has become very popular in the educational research and healthcare industry research. Assuring to build healthcare very productive and accomplished by simple healthcare treatments. Now, these become focused areas to getting funds from public research agencies and industrial research grant (Vollmann et al., 2013; Kowsigan et al., 2017). But, precision medicine needs a precise description and is open to discussion (Schleidgen et al. 2013; Shahzad et al., 2017). Therefore, a complete distinction of precision medicine understands from exists. Under three foremost points can be classified: (a) Precision medicine is not a new idea, the treatment should be personalized, (b) precision medicine is holistic healthcare focused throughout the necessities of the specific human and (c) precision medicine is medicine aimed at ranked sub-groups (Müller et al., 2012).

The most frequent unambiguous of the word attracts many difficulties. Initially, it unnecessarily confuses public discussion on possibilities, dangers and boundaries of precision medicine: if the definition of a word like precision medicine is not precisely described, it is more difficult to answer issues of its subject as well as its approach. As a result, it is hard to strengthen governing procedures that guarantee potency and moral acceptableness of investigation on the requirement of precision medicine. Moreover, interested parties might use the words’ uncertainty to promote others are particular, primarily commercial concerns and choices. In the healthcare circumstances, nevertheless, looks above to be probably impossible; another hand, the efforts eventually must be addressed towards requirements of the patient. Ultimately, precision medicine’s following term will commence to wrong doubts of patients and baseless beliefs related an absolute seamstress or patient-centered medicine (Dabrock et al., 2011; Bondio et al., 2010). Next, this experience, the objective of this paper is to improve the discussion over precision medicine’s purpose by producing an adequately accurate clarity, which is sufficient during at the exact systematic opportunities and restrictions of remedial actions identified as precision medicine.

The first DNA-based treatment started in the year 1978 to diagnosis sickle cell disorder. After that, many diseases has been recognized using this technique. The atomic examination has increased to accommodate people express screening programs as autosomal suspended diseases (e.g., wheezing), genes sequencing specific organs (e.g., Lipid transport diseases (Scott et al., 2010) and Anemia and the Erythroblastic Anemia in the Engraulis encrasicholus (Patrinos et al., 2010)). Now, pointed genotyping and genes sequencing is routinely practiced for atomic examination, fetal change studies, including pre-implantation transmitted diagnosis (PTD). While those examining situations predominately include disorders, several modern Genome-Wide Association Studies (GWAS) recognized genes including alternative alleles that will to any natural disorders including complicated tricks, indicating the likelihood of imminent transmitted experiment to assess personalized illness uncertainty. Furthermore, the rising utility of complete
exome and complete genome sequencing approaches resolution surely recognize new standard also limited transmitted modifications that importantly determine disorder compositions. As certainly transmitted organizations grow further refined also strong, it is acceptable that sinister transmitted examination will finally go of the direct-to-consumer (DTC) business to the pharmaceutical eugenics society, containing the associated difficulties with its relevant execution.

In spite of the fact that no as unlikely as predictive genetic examination for belated attack critical illnesses, some other type of genetic examination that fights by related problems of medical service and reception are the pharmacogenomics examination (Relling et al., 2010). In 1950, the heritable genetic variation started to study about drug response (Motulsky et al., 1957) and medical examination for chosen genes identified to determine medication effectiveness and perniciousness has been open for a span of time. But, medical selection of pharmacogenomics examination has quiet notwithstanding US Food and Drug Administration (FDA) goods include reuse of some medicines to add important pharmacogenomics knowledge. Modern and continuous exercises from the pharmacogenomics association to help medical selection add roadmap on performing the pharmacogenomics examination in a medical lab (Valdes R et al., 2010) and, mainly, training roadmap for practitioners on how to evaluate examination outcomes (Amstutz et al., 2011; Becquemont et al., 2010; Relling et al., 2011; Swen et al., 2011). The aforementioned study is directed at adding the issue of Pharmacogenomics and addressing remarkable of the modern possibilities and asking for development of medical pharmacogenomics examination. Examination of bodily received graduation options about medication acknowledgment is viewed behind the range of this study, that is restricted to examination for legal pharmacogenomics alleles. Fig. 1 depicts the traditional medical treatment. For example, four patients namely A, B, C and D are suffering with a disease. These four members consult a doctor; simply he can suggest the same drug with equal quantity to four members which is cure the disease. This medicine may or may not suit for the four members. If this medicine not suit to anyone, they need to visit again, the doctor suggests another combination drug, like that doctor changes the medicine until the disease cures. This is called trial and error basis. This is a problematic to patient even he detects the disease earlier stage, because due to trial and error basis the disease goes to very serious stage.

![Fig. 1: A traditional treatment paradigm](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3595629/)

**A Novel Drug Discovery Paradigm:** Precision medicine allows the pharmaceutical society to meet the long-standing provisions of remedial without causing any outrage at the same time. NIHs defines (https://ghr.nlm.nih.gov/primer/precisionmedicine/definition), precision medicine is “a growing strategy for illness medication and restraint that takes into account personal unevenness in genes, environment, and lifestyle for each person.” This approach allows the physicians and researchers to divine extra precisely whichever therapy and refusal procedures for an appropriate illness practice in that combination of individuals. If you assume regarding blood type, the primary case of precision medicine, you previously hold an impression of its greatness. In the 1900s, the blood groups human blood groups are introduced (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3595629/), and It is the most important discovery in the medical field.

Fig. 2 shows a new treatment paradigm i.e. precision medicine. In this model, the doctor suggests the drug based on DNA information. This treatment is changed person to person i.e. purely personalized treatment. The above-discussed example is applied to precision medicine. In fig. 2, each patient suggests different dose drug based capability and even change the combination if he required like patient D.
As innovative technologies like low-cost genome sequencing, big data analytics, deep learning appear in healthcare, it enhances practicable to take down too firmly to the origins of illnesses and medications. The “one-size-fits-all” approach starts to break. This is the legitimate outcome of centuries of ages of healthcare investigation and collected information. Nowadays, we understand that everybody holds a distinct generative system, can respond individually to pharmaceutics or can produce an adverse response to medication as expected. So why should we approach everybody with the similar medications or with the equivalent treatment?

But, precision medicine focuses not only medications but it also transformation in the way of doctors including patients. Medical scholars and citizens appear infrequently have the chance to investigate precision medicine in healthcare institutes. Furthermore, the extremely inheritance and knowledge-ignoble education practices occasionally include it within the development of advanced therapeutic specialists. Although precision medicine further indicates a different connection within inpatient and caregiver; whichever serves an equal party than the superior-subordinate same proportion controlling currently. Although wherever is many of treating options, patients have various family occurrences, metabolize medicines disconfirming, make different lifestyle choices and display clear profession plans. The more relevant data the sacrifice can get to the authorities concentration, the more individual they can do the practice together. This is how? Pro-Activity of the inmate’s party is important, and how? The doctor-patient relationship moves into a similar agreement.

In the year 1998, the first precision medicine considered. That time the concept is named as personalized medicine. Herceptin (trastuzumab) is a doctor, used precision medicine the first time to cure breast cancer namely HER2+tumors. Afterward, the fulfillment of the Individual Genome Scheme in 2003, precision medicine becomes increased to the time wherever it is conceivable to meet specific cases to tailor-made strategies via symptomatic analyses indicated on the appearance (or absence) of biomarkers. Before-Mentioned a proposal ensures excellent medical issues, reliable drugs, and limited consumption. In the system, the healthcare practice directions more interest, because ruling will just be delivered to the that will serve enough, following in an industrial use if healing supplies are limited (Abrahams et al., 2015).

The initial thought of precision medicine is using the correct outpatient at the exact moment with the appropriate treatment. As shown explanation by the PHG Association (Institute for Genomics and Community Wellness) in a current trade document (PHG Foundation, 2016), that is the prime goal of any drug. The precision medicine procedure and described improvements in therapeutic technology should be given polyclinic the sense to use generative knowledge collectively with life style and conditions information to improve both significant and practice opportunities. For those purposes, and beside the growing need to present cost to healthcare practices, medicine developers should start to shift continuously of the typical one-size-fits-all blockbuster strategy. In the information of The Review of Precision Medicine, the pharmaceutical business has “adopted personalized medicine, notwithstanding the need of a tried-and-tested marketing design that guarantees victory”.

**Role of IT in the field of Precision medicine**

Current technologies continue offering improvements in precision medicine reasonable. However, beyond is also run to be made. R&D leaders in the development abilities want to continue providing innovative technologies to expedite time-to-market and wait first of courses in precision medi-
cine. Both are going to large, diverse information systems, and must be able to collect and interpret them correctly and to shoot. The information includes genomic or proteomic information (large-scale investigations of structural proteins), explicit texts, medical survey and information from colleges and labs, all in various forms and from different origins. “To make smart penetrations from that different, extraordinary value of information is hard,” says Susan Rafizadeh, SAP director of global industry marketing for life sciences. Furthermore, a laboratory’s databases can be used without significant data. Rafizadeh asks them secret wealth—because could not be explained before since the IT capacity did not exist. Furtwaengler admits: “We also ought3. to see at ours in-house information as for some gems hidden in where … problems that container just immediately, with the computational ability, be approached.”

Disorganized information, like data of electronic health records (EHRs) or investigation papers, model a single query for life abilities organizations. “A huge portion of the center over the years has remained on papers and not information. Followed by, separating and distinguishing causality over the records must be difficult wherever unmanageable,” Miles says. Where is “a meaningful measure of richness to be achieved with technology scans those files over each literature to know any bearings, designs or conclusions in the analysis and is a significant move in increasing the R&D fertility for medical abilities organizations.” We see companies fight with the expertise to have healthy and fertile skills in this field that enables you to analyze massive volumes of records and writing over a family of plans,” Miles remains. “For instance, the industry wants to see at numerous records for number lines over each literature. Concentrate on an original name such as oncology’ without including further evidence like ‘carcinoma,’ call related expressions that are linked to the target phrases like ‘palliative care’ without knowing and this can do within seconds. After search can help of the information obtained in the past explorations as the self-learning abilities improve the efficiency with every effort.”

In Rafizadeh’s way, in-memory technology allows the Grand possible to further up the business of being abilities groups fighting with Great Data. Here, it is a base that prepares information cached in the primary memory rather than having to retrieve it from a shared database, therefore dramatically improving the activity of the investigation. Rafizadeh writes a survey conducted by an R&D director because what worked to be a master’s research activity can soon be made in days. “It’s a complex system that we’re presently in,” woman states. Furthermore, in-memory technology allows effective removal of wrong information. It supports researchers improve and change their algorithms, in present time, to enhance the position of the data while stimulating the sense to measure consequences of the research. Petra Streng, the solvent administrator with SAP for life sciences, allows that to help precision medicine, “massive number-crunching” is needed. “This is only probable if thou have not only the comfortable, the best views, and the analytics and accessories, but also the comp-ting energy under.” Just when can researchers take the outcomes of their investigations in a reasonable timeframe.

**Conclusion**

In this review, we present precision medicine survey and current progressed. We contribute case studies to explain how traditional medicine is different from personalized medicine. By giving the complete proper and adequate therapy to the individual patient meant on their specific subtyping data, the health care practice achieves greater application performance and position.

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