

Clinical Research India: the Need for Education & Training

Clinical trials were initiated somewhere in 1537, but they came to the limelight when James Lind, in 1747, first introduced control groups in a study of scurvy. Later he went on to become the father of clinical trials. Clinical trials starting flourishing from 1800, and although the focus of studies used to be on study design, from 1863 onwards the scientists started using placebos. Randomised studies were initiated in 1923, and from 1945 the focus moved to ethical aspects of clinical trials.

However, a lot has changed in the clinical research scenario since then. Today, clinical trials are conducted through a regulated approach following certain guidelines laid down by the International Conference on Harmonization (ICH), which is spearheaded by the USA, Europe and Japan.

India has emerged as a global hub for clinical research. According to a report by McKinsey, the global clinical trial outsourcing opportunity in India in the pharmaceutical industry is estimated to be around \$2 billion by 2010, and there will be the demand for more than 10,000 investigators trained in good clinical practice (GCP), and 50,000 clinical research professionals [1].

Analysts project that by 2008, an estimated 30 per cent of global clinical trials are being undertaken in developing countries. In India alone, the clinical trials market of \$300 million is expected to grow to nearly \$2 billion by 2012.

With increased outsourcing from the US and Europe to India, global pharmaceutical companies and Indian entrepreneurs have set up contract research organisations (CROs) in India. They are attracting highly competent professionals, both in the clinical research profession and the knowledge process outsourcing sector [2].

In terms of the cost efficiency, India is a better bet as the cost of conducting a trial here is lower by 50 to 60 per cent than in the United States or the European Union. More importantly, because of the huge patient load, the recruitment rate can be greatly accelerated which in turn leads to shorter study duration. This provides a major advantage in terms of shortening the time to launch a new drug in the market. Based on these advantages, the number of clinical trials in India is expected to grow exponentially over the next five to ten years.

Clinical Research Profession Evolution in India

Clinical research is a relatively new concept in India. A decade ago, most of the pharmaceutical companies and the contract research organisations in India performed only clinical operations. In the early phase, pharmaceutical professionals had an edge over other clinical research professionals, but slowly the science graduates, medical, and alternate medical professionals entered the industry [3]. Since then, there

has been a significant increase in the number of players in the clinical research industry on India's stage. Global and domestic CROs are now providing a wide spectrum of services at different stages of drug development, creating abundant opportunities not only for medical, pharmaceutical and paramedical professionals, but also for regulatory authorities, government and the society at large.

Clinical Research India: Challenges

The increase in clinical trials is fuelled by the recent push for global commerce. Regulatory uncertainties about time to approval, involvement of multiple agencies for approval of biotech products and for processing import/export licenses, and several other factors, are hurdles in planning a clinical trial. A large majority of potential investigators lack the fundamental knowledge of regulatory, ethical and GCP guidelines to conduct the clinical trial. The quality of global trials and academic clinical

research is not uniform. Due to the acute paucity of research grants, and the lack of availability of a quality clinical trial infrastructure, very few institutions are engaged in world-class clinical research, which focuses on the commercial viability of the end product. Lack of permanent research staff is another major challenge. In addition, institutional policies are not yet geared up to support the investigator in managing clinical trials efficiently. Some of the major challenges are as follows:

1. Training for Clinical Trials

Most medical schools lack a formal course in training for clinical research, and investigators have relied on mentors to learn how to conduct

clinical trials. There is a shortage of trained manpower. India has about 500–1000 investigators in the country, as compared to 50,000 in the United States. With the projections made for the industry in 2010, India would need about ten times its present number of investigators [1].

2. Regulatory Policies

The Drugs Controller General of India (DCGI) is responsible for regulatory approvals of clinical trials in India [4]. The DCGI's office depends on external experts and other government agencies for advice. Additional permissions are required for the export of blood samples to foreign central laboratories.

All this usually takes about three months in India, whereas the US FDA gives approval in an average of 30 days. However, most US trials are delayed because of the time taken for patient recruitment. The potential for fast patient recruitment in India may partly make up for the delay in regulatory approvals.

Certain recent changes in regulatory affairs encourage clinical trials in

“A large majority of potential investigators lack the fundamental knowledge of regulatory, ethical and GCP guidelines to conduct the clinical trial”



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India. In 2005, Schedule Y of the Drugs and Cosmetics Act was amended. Earlier, foreign drugs trials could be conducted only at one phase below the highest phase of testing abroad. Now, parallel global clinical trials are possible in India. Permission is granted for concomitant phase II and phase III trials. There is a need at the present time for a strong centralised regulatory regime which can guide high quality development of ethical capacity, with extra vigilance but with an informed understanding of acceptable risk.

3. Good Clinical Practices (GCP)

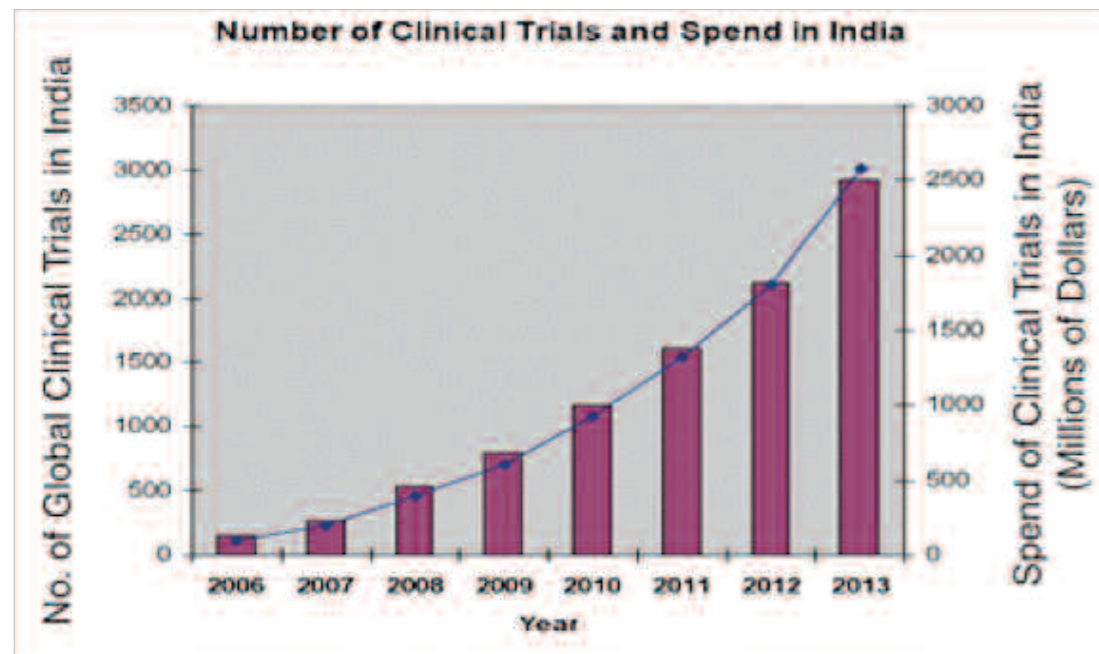
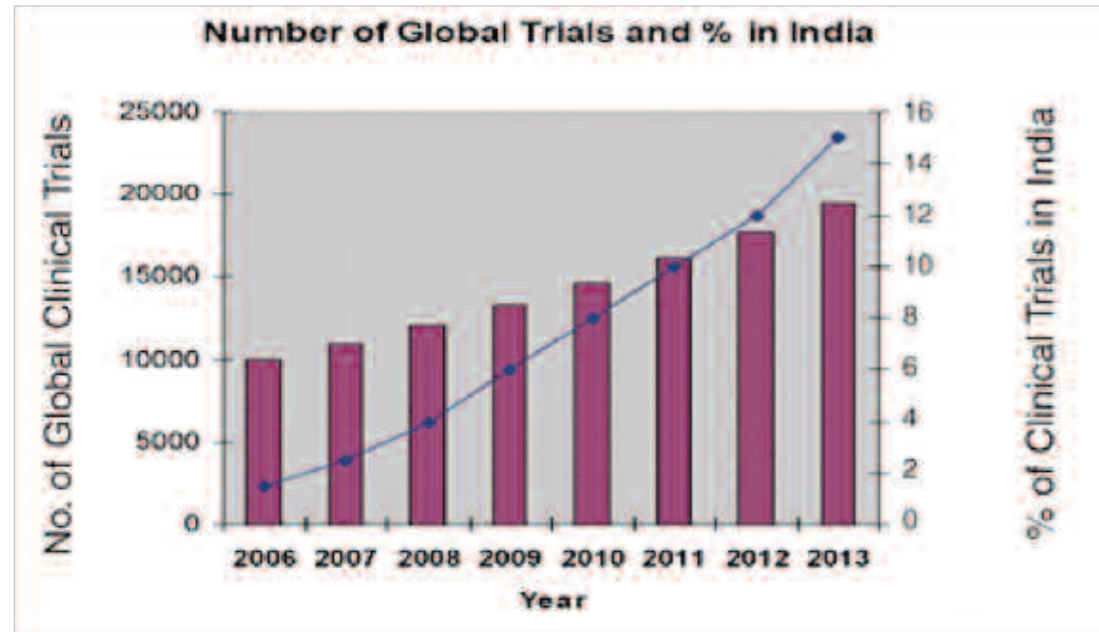
The experience of conducting global GCP trials is limited. GCP is a shared responsibility amongst sponsors, investigators, regulators and ethics committees. In a country, which boasts a large medical fraternity, only 400-500 investigator sites have taken part in global GCP trials. As all stakeholders are still learning, the journey towards achieving global quality is unlikely to be smooth. The efforts of the government and industry to create awareness through GCP workshops and to provide training to the investigators and ethics committees (ECs) go a long way

towards creating a culture of global GCP quality trials.

4. Ethical Committees

The field is dogged by complaints that Indian trial investigators recruit patients unethically, exaggerate claims and downplay the risks of trial drugs. Institutional ethics committees cannot help much either. In most cases, the committees are headed by the institutional heads, and follow their instructions rather than the ethical committee's recommendations. At the federal level, the central ethics committee at the Indian Council of Medical Research issues guidelines but has no policing powers.

The factors influencing quality of data depend a lot on the GCP culture and training of the investigator site staff and on the sponsor / CRO team. The regulatory authorities and ECs have a major role to play in the quality of data generated. The ECs' efforts to continuously review the regulatory system for inspection are a must to ensure that the subject's rights and safety are protected, and that data generated meet GCP standards.



Source: IndiPharm projections based on information from The Boston Consulting Group and Business Communications Co.

6. Ethical Recruitment of Participants

To protect the interests of the study participants, a written informed consent is usually required before recruitment. Low literacy levels and poverty in India, when added to the pressure from the sponsors for early completion of patient enrolment, do at times lead to unethical recruitment.

An increase in literacy and socio-economic levels is expected to expand the awareness of patients regarding the consent they give for clinical trial studies. The GCP guidelines stress the need for the implementation and documentation of the informed consent process. A strict adherence to the study protocol by investigators and study team members at the sites, as emphasised by the GCP guidelines, will help protect the rights of the study participants.

Need for Clinical Training Institutes

The growing demand for clinical trial professionals has led to an increasing number of institutions offering academic programmes in clinical research. According to a 2001 CenterWatch survey [5], the US has slightly more than 200,000 clinical research professionals. There are 60,000 trials following the Food and Drug Administration's guidance for GCPs, and more than 40,000 GCP-trained investigators, but the number of investigators is decreasing even as the number of trials increases. Recruitment is a major stumbling block in the drug development process, and increasing staff costs mean that more and more studies will be

outsourced to India. Sponsors are looking at India to leverage the high cost of trials in the US and Europe, and to reduce time to market.

If India's clinical trial business grows to 10% of the scope seen in the US by 2015, then the industry will need approximately 50,000 recruits [6]. India has a vast pool of scientific, pharmaceutical, and medical professionals, but the availability of trained research professionals in India is still far less than the demand. There is an urgent need to establish research training institutes to bridge this huge gap between the demand and supply of trained personnel.

Most global pharmaceutical companies are conducting multicentre studies in India with the establishment of small clinical research departments in the country. This team coordinates with its global project management or outsourcing partners to mentor, maintain timelines, ensure checks and balances for regulatory compliance, and collect quality data. The outsourcing decisions for these global studies are mostly made in the US and Europe; however, as India becomes a major hub and contributes further to subject recruitment in clinical studies, Indians will play a much larger role in the outsourcing process. Some other industries providing supporting services for clinical studies have also developed in parallel. A number of US and European pharmaceutical organisations have chosen Contract Research Organisations in India to outsource large-scale clinical data management and statistical analysis. IT-enabled service sectors are stepping into the biometrics business and thus contributing greatly to creating sufficient opportunities in knowledge-

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based service sectors. This has created a huge number of jobs in data entry, data management, programming, coding, statistical analysis, and medical writing, as well as opportunities in database and statistical analysis system training. The growing trend for EDC will attract more skilled professionals who understand the software and the intricacies of installing, implementing, and training users (investigators and monitors) to use it effectively [7]. This indicates that career prospects with Clinical Research Organisations (CROs) in India and Site Management Organisations (SMOs) is highly attractive.

This industry is heavily dependent on another set of resources: investigators with strong inclinations toward the conduct of ethical clinical research. Hence, this industry looks for experienced principal investigators who have set up and conducted global clinical trials and have competent study staff at their sites. Meanwhile, experienced investigators have started demanding per patient costs equivalent to their counterparts in Western countries, but on average, these costs are estimated at just one-half of Western costs. The unit costs for tests and procedures are also less in India.

This calls for the development of its capacities and capabilities in terms of infrastructure, regulatory structure, and formulation of a specialised pool of research investigators. Increasingly, a need is being felt for the development of institutes that may provide training and education in the clinical research segment, and meet the growing demands of skilled manpower by the industry.

Training and Courses Offered in India

Clinical research training is another important issue, given the gap between supply and demand for trained professionals in India. Clinical Research Organisations are trying to gain expertise in clinical research by organising training courses in ICH and GCP guidelines for their employees, followed by exposure to their department's specific training. These departments' specific training includes training in clinical operations, ethics, data management, regulatory and medical affairs, subject recruitment and retention, pharmacovigilance, quality assurance and a number of other areas.

Until recently, there were no structured, formal training courses focusing only on clinical research. The training efforts by the CROs and pharmaceutical companies have shaped the profession. Looking at the growth prospects, many private training institutes have launched various classroom-based and/or online courses in clinical research management. Institutions like Cliniminds (www.cliniminds.com) are offering a high quality, wide range of clinical research training and education solutions: classroom, online/distance learning and e-learning (videoconferencing-based), viz. Investigators Program; Program for CRA/CRCs; Advanced Postgraduate Diploma in Clinical Research; Postgraduate Programs in Pharmacovigilance; Quality Assurance; Biostatistics; BA/BE Studies; Regulatory Affairs, and several other programs. Cliniminds' programmes are offered for both clinical research & pharma professionals and for medical / life sciences / pharmacy graduates and postgraduates who wish to make clinical research their career option. There are some other institutions offer clinical research education and training programs, but Cliniminds programs are very well integrated with the industry. The real challenge for the industry is to create quality resources through proper training and exposure.

As an industry, education and training standards should be raised. The industry should require that professionals in this industry be trained and educated to perform the roles expected of them. As professionals, we need to communicate and push for such a requirement. The industry needs short-term training programs on several aspects of clinical research,

with an online learning facility. There is a strong need to train new investigators on ICH GCP, and other issues like roles and responsibilities of investigators, site audits, conduct and management of clinical trials, and several other areas.

A Bright Future for Clinical Research in India

In spite of all the present pitfalls, the country is certainly gearing up to attract more and more researchers from around the world to conduct their clinical trial studies in India. The regulatory system is being polished. Laws are being amended to facilitate the entry of global clinical trials. Massive and concerted efforts are being made to train research professionals and increase the base of investigators and supporting staff. These initiatives are certain to improve the current situation.

In brief, India is already off the starting blocks and gearing up for an inundation of clinical research trials. This will ensure the timely conduct and completion of the clinical trials and at the same time generate high quality data for international submission ■

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