

**Good Clinical Practices Journal
March 2007**

**Marching into a New Era: China's
Transformation into an Economic Global
Superpower**

Emerging markets for clinical trials

Clinical trials are accounting for an ever-growing portion of the drug development budget and companies face rising demand from regulators and patients for more clinical data to be generated and to be made available. However, the importance of clinical data extends beyond simply getting a product to market and can be vital in supporting the product through its lifecycle. Therefore those companies that are able to generate sufficient clinical information on their products will be in a stronger marketing position relative to their immediate and emerging rivals.

Large numbers of subjects are needed to generate high quality clinical data that will convince regulators and clinicians, as well as future users in the general population, that a product is of clinical benefit. Furthermore, companies may find that they need to run additional trials to prove their claims about a particular product. Competition to carry out clinical trials in North America, Europe and Japan is intense and operational costs are high. This has increased interest in using so-called emerging markets to generate additional data. Many emerging markets have become popular with companies due to their large pools of suitable patients, lower operating costs, enthusiastic investigators and the ability to produce data that is considered acceptable by regulators in ICH regions.

China's clinical trial environment

China has received considerable media coverage in terms of its clinical trials potential, particularly when the US consulting firm AT Kearney surprisingly ranked it above India recently as the most attractive low-cost global location to run clinical trials outside the US (1). Other independent assessments have also ranked China highly with regard to clinical trials (2). In March 2006, the UK Trade and Investment (UKTI) department examined clinical trial trends in China from both from sponsor and outsourcing partner

perspectives. It was clear from discussions with representatives of government departments and local and foreign companies that the clinical trial market was maturing and was not based on 'hype' (3). Furthermore, the level of investment by foreign companies shows that perceptions of China being a 'difficult' market have most definitely changed (2).

[would you and your editor be comfortable citing our China report right here in the text? It might generate additional interest (the reason to do these articles...)]

A prime attraction for companies seeking to conduct clinical trials in China remains the country's large population, which offers a potentially large pool of patients. As China represents an estimated fifth of the world's population, it is likely that major diseases found elsewhere in the world will affect a sizeable number of people. However, an additional consideration is the rapid rate of urbanisation, which has important healthcare implications. Rapid urbanisation can transform the environment as people compete for limited natural resources and space, leading to overcrowding and poor hygiene as well as a change in social attitudes. The growing number of trials being run in the infectious disease therapeutic area reflects these trends. For example, an estimated 25% of the patients enrolled in Novartis' ongoing chronic hepatitis B Phase III clinical trial, entitled the GLOBE study, are from Chinese centres (4).

Yet, apart from patient numbers, there are other attractions for conducting clinical trials in China including positive patient attitudes and low costs. As much of the population is poor they have extremely limited access to healthcare. For such patients, clinical trials are seen as a means to receive medical treatment and care for free (5). Another area which is becoming much clearer to assess, as a result of greater foreign company involvement, is operational costs. Current thinking suggests that in terms of general running costs, clinical trials can be

conducted in China for around 10% of the equivalent cost in a Western country (3). More specific domestic estimates suggest that Phase I clinical trials in China are 15% of the price in the west, while phase II trials in China cost 20% of the price in the west (3).

These estimates are in line with comments from the former CEO of AstraZeneca, Sir Tom McKillop, who was cited in a 2006 edition of the Wall Street Journal as stating that a major post-marketing clinical trial for two cardiovascular drugs (involving 46,000 patients in 1,250 hospitals in China) cost US\$3 million (5). Such a trial would be impossible to run in the West or Japan, to the required standards, for such a low cost.

Clinical trial standards in China

One of the concerns of global sponsors is whether Chinese clinical trials can be run to ICH GCP (International Conference on Harmonisation – Good Clinical Practices) standards, the international quality standard to ensure that clinical trials involving human participants are carried out in an ethical manner. Although some local observers have suggested that China could be used in a pilot capacity for clinical trials to evaluate the potential of a product for a foreign market, the country appears to be more sophisticated in its clinical trial nature. Foreign companies are showing growing confidence in using Chinese clinical data to support their global clinical programmes. In 2003, Pfizer opened a clinical trial centre in Shanghai and stated that not only would this be concerned with developing drugs for local approval, but would also form part of the company's global R&D network (6). Similarly, since 1996, AstraZeneca has undertaken nine international multi-centre clinical trials in the respiratory area in China with the involvement of more than 130 domestic hospitals and institutions. The company recently conducted clinical trials for its asthma product, TurbuHaler, in China and used the data to support the drug application overseas (7). The company described the clinical data as acceptable to the US FDA. The Chinese clinical work involved collaboration with Professors who had worked on SARS and had valuable experience in the respiratory field. As previously mentioned, Novartis has been conducting a global chronic hepatitis B Phase III clinical trial,

which relies considerably on data from Chinese centres (4).

There is also an overt campaign by the Chinese regulatory agency, the State Food and Drug Administration (SFDA), to raise the regulatory standards in the country. In China, only medical institutes officially certified as "National Institutes of Pharmaceutical Clinical Trials" by SFDA may carry out pharmaceutical clinical trials. At present, affiliated hospitals of the medical universities, some large public hospitals and some specialist hospitals can obtain certification. Chinese hospitals have also become interested in competing for clinical trials. Each major hospital has a Science and Education Department whose task is to document their involvement in clinical research. Physicians in charge of such departments have at least 10 years experience and also undergo continuing medical education (CME) training.

Perhaps one continuing weakness in the clinical trial environment is the ethics process. At present, many of those who serve on ethics committees at Chinese hospitals are medical doctors from the same hospital. As they work for the very institution conducting the research they are reviewing, there is a potential conflict of interest. SFDA is reportedly considering reforming the make up of these committees to ensure their independence. This could also involve expanding the membership to include laypeople.

China's CRO environment

The increasing popularity of using China as a location for clinical trials has encouraged the growth of the clinical research organisation (CRO) sector (2). It has been estimated that there are around 100 CROs now operating in China, working for both domestic and foreign pharmaceutical companies on clinical projects. A commonly held view among the Chinese CRO community is that the market is equivalent to that of the European and US CRO markets during the early 1980s. This would suggest the possibility that the Chinese sector will

experience rapid growth over the next decade and perhaps some degree of consolidation.

Based on SFDA data, during 2005, pharmaceutical companies obtained approval for more than 4000 clinical trials in China. Around 30% of clinical work is believed to have been outsourced, indicating a healthy future market for CROs. Large international CROs have either entered the Chinese market by themselves or through joint ventures with Chinese CROs. Several Japanese CROs are also operating in China, some of whom have direct relationships with local institutions for clinical trials. The view among Chinese CROs is that they can be more cost effective and have better relationships with SFDA and hospitals than foreign companies. They have described foreign CROs as growing slowly, with their high costs precluding them from working with Chinese companies. In contrast domestic CROs have both the local experience and lower operating costs to attract work from international and Chinese pharmaceutical clients. Although they work on both modern pharmaceutical and biotech compounds Chinese CROs also conduct considerable clinical work involving traditional Chinese medicines (TCM).

Outlook

China's clinical trial environment may not yet match those in some of the more established emerging markets, but it is maturing rapidly and identifiable weaknesses are being tackled. The ongoing activity of companies in the Chinese market is generating information that can be documented and thus substantiates the earlier positive claims based on personal opinions. Furthermore, the level of foreign investment is a clear indicator that companies have confidence that there is much more to come.

Dr. Faiz Kermani
Senior Associate
BioPlan Associates, Inc.
15200 Shady Grove Road, Suite 202
Rockville, MD 20850 USA
Main:301-921-9074
www.bioplanassociates.com

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