

Transforming Clinical Trials with Communications and Collaboration Technology

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Introduction

As most of us know all too well, pharma R&D productivity has been heading in the wrong direction for some time. In 2008, U.S.-based pharma and biotech companies spent \$65 billion to bring new medicines to market;¹ Phase II & III clinical trials accounted for \$24 billion of this, and Phase IV trials another \$8.6 billion.² The cost of clinical trials has risen due to increased complexity and the inclusion of more participants.³ The number of trials also continues to grow, with estimates suggesting that the industry will conduct 13,000 trials in 2011, up from 8,400 in 2005.⁴ An industry observer recently noted, “Life science companies need to find a way to decrease these costs if the industry is to fund all those trials.”⁵

A challenge in reducing costs is clinical trials’ heavy reliance on healthcare delivery infrastructure. Our healthcare system is not ideally suited for clinical research. It is also hard to change.⁶ To improve clinical trials, the industry needs to augment its healthcare infrastructure to compensate for shortcomings (much as it did by establishing electronic data capture [EDC] systems). Two pivotal areas where collaboration technologies can make a difference are *investigator meetings* and *patient visits*.

Improving Trials

Pharma and biotech companies recruit investigators to conduct trials. Investigators, in turn, recruit patients. Investigator meetings are a critical step in this chain. They take place at the outset of a trial and entail a significant, one-time expense.

Patient visits, which can be as frequent as once a week or every other week, are a pivotal element of clinical trials. With thousands of patients participating in a Phase III trial for 12 to 18 months, that means many visits—and the potential for considerable inconvenience. Making participation less cumbersome would help patient recruitment and retention. This is an area in which the industry struggles, regularly causing trial delays.

Investigator Meetings

The purpose of investigator meetings is to educate and prepare investigators. Bringing them together in-person, in a single location, used to be the only practical way of accomplishing this objective—especially since investigators for large trials often travel long distances for meetings. In-person meetings, however, are no longer the only option. In fact, such



meetings are increasingly viewed as unnecessarily expensive, inconvenient, bad for the environment, and ineffective.

The alternative is for investigators to stay at home and participate remotely. They can do that from their desktops via Cisco WebEx⁷ and, in the not-too-distant future, using Cisco TelePresence⁸ at local hotels/conference centers. Such virtual meetings cost a fraction of in-person sessions and don't waste time on travel. That makes it possible to organize them more frequently, which enables the sponsor and investigators to stay in regular contact during the trial. Site coordinators and other staff can, of course, also be supported in a similar manner.

Modern communications and collaboration technology can ensure that this is done safely and securely.

A core element of investigator meetings is a review of what is known about the compound, the biology of the disease, and trial protocols. But “cramming” this knowledge into a one- or two-day meeting is not effective from a learning perspective; allowing more time to assimilate knowledge—both before and following a meeting—would provide a better learning experience. This would enable participants to learn on their own and allow sponsors to monitor progress (and maybe even test their retention of the knowledge).

Figure 1. Cisco TelePresence Enables Remote Participation in Investigator Meetings Across Multiple Locations.



Source: Cisco, 2009

Patient Visits

The redesign of patient visits would also make clinical trials more productive. Today, participants must attend all trials in-person. Is that the best way to conduct clinical trials? Why collect data only during patient visits, rather than on a daily basis?

Modern communications/collaboration technologies create many possibilities for remote visits and data capture:

- Medical devices (such as blood pressure monitors and scales) connected to PCs and mobile phones that can transmit data to a central collection point
- Web-based self-assessment/reporting instruments
- Text messages to remind patients of things they need to do (e.g., take trial drugs), and for collecting data from patients (e.g., check for symptoms)
- Remote patient visits using PCs and web-based collaboration tools that enable visual inspection and video communications
- Cisco HealthPresence⁹ kiosks in office complexes, pharmacies, and grocery stores for face-to-face remote patient visits

The benefits of such technology-enabled approaches include greater convenience for investigators and patients, time savings from reduced travel, higher protocol adherence, collection of more data, and a smaller carbon footprint. Modern technology allows this to occur in a safe and secure manner that preserves patient privacy. Of course, not all patient visits can be remote, but many could.

Some readers will recognize that this brings us full circle to earlier days of clinical trials, when pharmaceutical companies shipped PCs to investigators so that they could use EDC software. In this next phase, pharma companies could send netbooks, smartphones, and connected medical devices, while also providing web access to trial participants.

Conclusions

Clinical trials are unnecessarily expensive in terms of time and money. As a result, many needed medicines are developed at a higher cost, a slower pace, or sometimes not at all. This is partly due to pharma's piggy-backing on the infrastructure of the existing healthcare system. But our healthcare system was not created with clinical trials in mind. It is also constrained by an outdated reimbursement approach that impedes innovation. To overcome these shortcomings, pharma companies need to augment the current system with collaboration technologies—based on the needs of trial participants and investigators.

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Endnotes

1. Burrill & Co. press release. Available at http://www.burrillandco.com/news-359-RD_Spending_by_US_Biopharmaceutical_Companies_increases_3_percent_in_2008_.html
2. "Pharmaceutical Industry Profile 2007," Pharmaceutical Research and Manufacturers of America.
3. "Measuring Trends in the Development of New Drugs," Tufts Center for the Study of Drug Development, DiMasi, presentation at SLA Pharmaceutical & Health Technology Division Spring Meeting, Boston, MA, 2007.
4. "The Cost of Clinical Trials," Robert Fee, *Drug Discovery and Development* magazine, Vol. 10, No. 3, March, 2007.
5. Ibid.
6. "The Innovator's Prescription: A Disruptive Solution for Healthcare," C. M. Christensen, J.H. Grossman, J. Hwang, 2009, McGraw-Hill.
7. The Cisco WebEx product portfolio includes technologies and services that allow companies to engage in real-time and asynchronous data conferences over the Internet as well as share web-based documents and workspaces that help improve productivity, performance, and efficiency of workers in any size organization.
8. Cisco TelePresence is an innovative technology that combines rich audio, high-definition video, and interactive elements to deliver a unique, "in-person" experience over the network. It is designed to bring users closer to the important people, places, and events in their personal and professional lives.
9. Cisco HealthPresence provides a "virtual clinic" experience, combining Cisco TelePresence and medical devices to facilitate visits between physicians and patients who may be thousands of miles apart.

More Information

The Cisco Internet Business Solutions Group (IBSG), the global strategic consulting arm of Cisco, helps CXOs and public sector leaders transform their organizations—first by designing innovative business processes, and then by integrating advanced technologies into visionary roadmaps that address key CXO concerns.

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