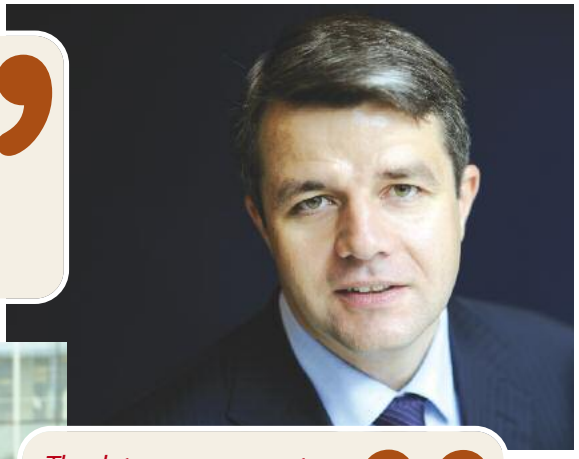
MANAGING DATA:

The Core of Clinical Research

Clinical data management is evolving and adapting for new technologies, changing regulations, and the adoption of standards.



> *The data management role will take on a new function as these folks begin to manage outsourcing partnerships.*
>
> **HANS POULSEN**
> Thomson Reuters

> *The data management community is trying to standardize how data are collected, analyzed, and reported on a global basis.*
>
> **CAROL ANN SCHAFFER**
> Roche

Tips for Efficient Data Management

- Be proactive in study planning
- Communicate cross functionally with internal and external stakeholders
- Implement standards
- Be transparent and open with suppliers
- Create partnerships with systems providers
- Train investigators and site personal in use of data systems
- View data management across the R&D value chain

Data are the lifeblood of clinical research. A plethora of new technologies have become available over the last decade to help pharmaceutical companies address some of the challenges related to data management. Companies have made a commitment to EDC and e-clinical platforms, and newer technologies, such as electronic health records will continue to evolve.

Even as technology has simplified some aspects of data management, Dan Ressler, principle in the life-sciences practice at Deloitte, says complexities still prevail on a number of fronts.

"Several things are causing some chaos for this part of the industry," he says. "One factor is the continuing trend toward globalization across the value chain, which applies to R&D. As pharma companies continue to look to emerging markets and expand into new markets, they now have the challenges inherent with expansion: data collection standards, quality, and infrastructure in terms off making sure investigators have the right tools."

Additionally, the transition to entirely electronic-based data systems has not been as universal as expected.

Neil Patel, Pharm.D., director in the pharmaceutical and life-sciences R&D practice at PricewaterhouseCoopers, says pharmaceutical companies are still making adjustments and becoming accustomed to integrating e-based systems.

"Ten years ago, EDC was a clear trend and people were trying to figure out if it worked and whether it would be cost-effective," he says. "Pharma companies had their own home-grown systems, but now providers of e-clinical tools have very good products. These are being widely used, but not at all companies. There is still the lingering idea that certain trials aren't conducive to electronic data capture."

Mr. Ressler points out there are still infrastructure challenges to be addressed, especially as more trials are being done in emerging markets.

"I don't just mean wires and lines," he says. "The issues are broader than that. Companies need to first evaluate whether the markets or countries targeted through globalization enable them to run trials as efficiently or effectively as they're used to in the United States. Companies need to take a careful look at the trial planning assumptions that they're making when reaching into a new area of the globe."

Hans Poulsen, head of life-sciences consult-

ing business at Thomson Reuters, says the globalization of clinical trials has led to increased pressure to outsource data management. This, he says, will require the data manager to have new skills.

"In the past, data managers were concerned with setting up the studies and managing the process of collecting data," Mr. Poulsen says. "Today, the data management role will increasingly need an additional skill set, as these folks begin to manage outsourcing partnerships. This means that rather than managing tactical relationships around specific projects, data managers might oversee a contract. They need the same skills of a professional contract manager. They are now managing partnerships, and some of these can be very large."

Making Data Management Efficient

Efficient data management is key for delivering a timely quality database, says Carol Ann Schaffer, program data leader at Roche.

"If the data are not of the highest quality delivered on time, then we can't do our filings or get our products to market," she says. "We have focused our data management efforts on meeting these goals. There are various systems that can be used. Whether we do our studies internally or whether we outsource our programs, we have a variety of choices. There are a lot of products on the market available to us; the challenge is finding the right choice to deliver on our goals."

Mr. Ressler says capturing the right amount of information for today's needs and those in the future remains a challenge.

"Most companies capture more data than the protocol requires because they recognize that there may be other information that they need or that they may want to reference in the future, such as safety, efficacy, or comparative effectiveness-oriented data," he says. "The key is balance, because collecting too much data could result in large numbers of errors that have to be followed up in a feedback loop that reaches around the globe."

He says some pharma companies have started to implement gap analyses strategies to look at requirements for data capture and data collection and assessing what types of information were collected and the various purposes the data were used for.

Mr. Poulsen says companies are developing data warehouses as a way to address the increasing need for metadata analysis.

"For example, data in a warehouse can be accessed by people in pharmacovigilance for earlier detection of adverse events in new trials or by those writing clinical study protocols and planning the projects," he says. "Data warehouses not only give the company access to clean data to ensure proper statistical analysis but clinical teams can get a lot more utility out of the clinical data."

> *The pharmaceutical industry is looking at technologies that may be available in other industries to help patients participate and be compliant with a study.*
>
> **DR. MARK TRAVERS**
> Sanofi-Aventis U.S

Mr. Poulsen says a data warehouse is typically complex because data need to be standardized, which is why companies are adopting CDISC standards.

While EMR has the potential to benefit the industry — with more efficient clinical trial recruitment and execution, improved safety surveillance, and more accurate dosing — electronic health records are likely to add to the complexity of drug development.

"An EMR is set up for patient management and not necessarily for clinical research purposes," Dr. Patel says. "The information is in a different format, and it's collected in a different way. The question is: how do companies integrate their current EDC systems with, say, 20 different medical record software systems."

A substantial growth rate (more than 16%) of global healthcare IT spending is expected to push EMR development all over the globe, according to a recent report by MarketandMarkets. In the United States, a stimulus package of $1.2 billion for EMR development and establishment was announced in 2009 and this is expected to drive EMR adoption.

Going Global

Ms. Schaffer says global trials present other challenges as well.

"Regulations vary from country to country and region to region, and with these variations managing data within one standard case report form is a real challenge," she says. "Companies need a strong cross-functional team that includes QA and regulatory groups."

Mark Travers, Ph.D., global head, clinical research unit, at Sanofi-Aventis U.S., says most countries have local laws that impact clinical trials.

"Regulatory authorities, such as the FDA and the EMA have standards by which they

Best Practices for Project Management

Clinical data managers often assume some degree of project management responsibilities. Data managers should know basic principles of project management, regardless of the extent of project management activities that are assigned to clinical data management (CDM).

- Create a responsibility matrix that describes activities to be conducted during the course of the study.
- Conduct regular meetings with the study team (may be conducted via Web or telephone conferences). During these meetings, track progress and upcoming milestones, and discuss corrective actions if needed.
- Continually assess processes and modify as needed to function more efficiently. Ensure all process changes are communicated, documented, and version controlled. File this documentation within the study master file in an effort to establish a clear audit trail.

Source: Society for Clinical Data Management.
For more information, visit scdm.org.
Editor's Note: The 2010 SCDM Annual Conference is October 17-20, Minneapolis, Minn.

want data to be collected or delivered," he says. "There also can be country and regional regulatory variations, which may make it difficult to put standards into place."

He points out that in some countries, for example, Germany, companies cannot collect patient initials as an identifier.

"If we are designing a clinical trial that includes Germany, we have to have a patient ID number; these are the types of standards that impact global trials," he says. "I appreciate the work that folks are doing to try to standardize

ViewPoints

As the discipline of data mangement continues to evolve, our experts define their best practices for clinical data management success.

FRANK PIJPERS is CEO of eClinso, a dynamic, innovative, and expanding provider of information technology solutions and support services. For more information, visit eclinso.com.

A trusted technology partner should be identified to maximize cost-effectiveness and to allow each party to concentrate on its core competencies. The partner should offer electronic data capture and document management to the point of submission to a regulatory authority. The partner should be able to provide guaranteed availability with service support available 24/7. The ability to provide secure data centers with minimal risk of political strife or natural disaster is also critical.

SUSAN BORNSTEIN is Executive VP of eClinical Solutions, a division of Eliassen Group, an end-to-end data management provider applying a strategic approach to collecting, cleaning, analyzing, and leveraging clinical trial data allowing life-sciences organizations to proactively manage clinical data across the enterprise. For more information, visit eclinicalsol.com.

Now more than ever, sponsors need to take a proactive approach to clinical data management by examining and interacting with clinical data as early as possible to reduce the risk of making timely, and costly mistakes. Additionally, storing data in a standardized way offers sponsors the ability to identify trends, patterns, and deviations across multiple trials, increasing the opportunity to make critical and timely business decisions.

MARK WHEELDON is CEO of Formedix, a

provider of software and consultancy services based on emerging data standards developed by the Clinical Data Interchange Standards Consortium (CDISC). For more information visit, formedix.com.

In our experience, efficiencies in data management are driven by re-use of study designs, streamlining of study specification, and automation of EDC build and QC processes. CDISC standardization allows for elegant solutions that have saved our clients time and money in study set-up and QC approval. Their use has been proven to deliver a 68% reduction in study specification time and a further reduction of 40% to 60% in database build times.

PAULA MCHALE is Senior Director of Product Management, Data Management Solutions, of Perceptive Informatics, an eClinical solutions provider and a subsidiary of Parexel International Corp. For more information, visit perceptive.com.

Using EDC in an integrated environment allows common data points to be shared across systems, eliminating redundant data capture, and streamlining data management workflow. Proactively reviewing study specifications for all systems to determine which data can be shared prior to study build will facilitate successful data integration and reduce changes after go-live. Using technology in this manner can promote cleaner and more accurate data, which minimizes unnecessary data cleaning and brings more efficiency to trials.

MARK PAUL is CEO of Statworks, a statistical consulting firm with expertise in health

research. For more information, visit statworks.com.

We ensure study success by thinking like a sponsor and taking an integrated approach to data management, biostatistics, and medical writing. We emphasize open communication, close cooperation, and detailed planning with all parts of the study team and the sponsor to ensure the data collection and analysis satisfy the study objectives. By understanding the big picture and focusing intensely on each sponsor's needs, we build strong teams and long-term relationships with our sponsors.

ILANGO RAMANUJAM is VP, Clinical & Regulatory Services, for TAKE, a global technology solutions and service provider, with significant focus across two principal business areas: life-sciences and supply chain management. For more information, please visit takesolutions.com.

Over the years, pharmaceutical and biotech companies as well as CROs have been putting a lot of effort into making use of technology for expedited data management cycles and to achieve consistent quality. There are several best practices that can lead to a successful and high-quality CDM: robust processes for eCRF/CRF design and training on CRF completion, which are the root causes of data integrity issues; process adherence mechanisms, which ensure compliance and efficient data collection and management; a quality management plan, which captures CDM activity metrics; industry standards, such as CDISC from CRF design through final raw data; and good project management, such as reporting mechanisms, risk management, resource management, and effective governance practices.

data collection and delivery, but it is a work in progress."

Dr. Travers says one of the biggest challenges facing the pharmaceutical industry is getting the doctors, nurses, and study coordinators to enter the data into the EDC system or the electronic case record form as soon as they've seen the patient.

"The doctors, nurses, and hospital staff we work with are very busy," he says. "They have a heavy workload; in additon to treating patients in clinics and performing surgeries, they are initiating patients into clinical trials."

Company Approaches

Roche is in the process of updating its IT systems. The company has an EDC system that was developed in-house.

"This was a strategic decision made by the company, and at the time, it had the highest benefit based on the evaluation of the available platforms," Ms. Schaffer says. "With that said, times change and technology has evolved, which is why we decided to move to a new system."

She says this does present some logistical challenges, including wrapping up legacy studies and making sure that they are focused and maintained, and trying to get two systems working at the same time.

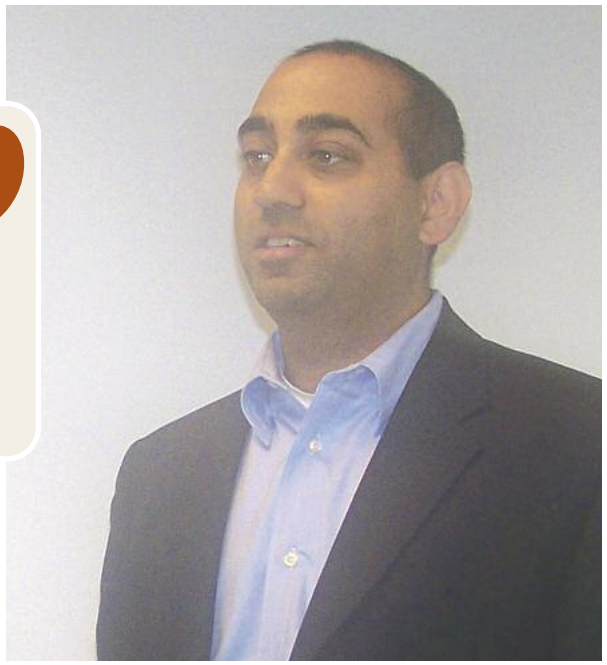
When looking at IT suppliers, Ms. Schaffer says she considers how they can deliver and their ability to manage the studies, as well as their experience.

"Within Roche we have identified preferred vendors," she says. "The advantage of having preferred partners is that we now have established standard agreements, which have governance structures. There is a lot of efficiency gained with this process; overall we get a better delivery, a better relationship, and better-defined costs."

In addition, Roche has established a standards group within the company to implement CDISC standards, which supports the acquisition, exchange, submission, and archiving of research data and metadata.

Sanofi-Aventis U.S. also uses technology suppliers for its data management systems and has a preferred list of suppliers.

> *There is a clear trend that clients are outsourcing/offshoring more of their clinical data management but there is no information or clear benchmarks available to suggest whether this strategy is more effective or efficient.*
>
> **DR. NEIL PATEL**
> PricewaterhouseCoopers



"There are many reasons for this strategy," Dr. Travers says. "First and foremost, providing more work to our supplier partners leads to better relationships. They begin to understand our needs and we begin to understand them as partners. We can learn from each other so that we can help in developing the systems."

Best Practices

One best practice, according to Mr. Ressler, is to view data management across the R&D value chain.

"We've been focusing quite a lot on information architecture, which doesn't sound that exciting, but it is the basis for everything else," he says. "We have to think about the reference data, the vocabularies, and the master data that govern the flow of information and the coordination of information across R&D. Then we can build the operational systems on top that capture what is absolutely necessary for the science of the clinical trial."

Communication is absolutely key for efficient data management, Ms. Schaffer says.

"We communicate cross functionally within our organization as well as externally," she says. "We make sure that we know who our customers are, as well as their expectations."

Dr. Travers says it's important to be transparent with suppliers and investigators.

"This way expectations are set for the type of data that are to be collected, how quickly the information needs to be collected, and the relevance of the data that are being collected," he says. "We want to be working in partnership."

Dr. Patel says when outsourcing, it's important to address data capture at the forefront of any study or program.

"Just because the data capture is being outsourced or offshored doesn't mean companies don't have to think about the data," he says.

Dr. Patel says one mistake companies make is to develop a data collection process for a particular trial for a particular drug.

"Companies need to think about the bigger picture, i.e., how does the data being collected for one trial compare with previous trials or future needs, such as postmarket studies."

Dr. Travers says another best practice is to continually train the investigational staff on the protocol and on the system they are using. ✦

PharmaVOICE welcomes comments about this article. E-mail us at feedback@pharmavoice.com.

Experts on this topic

NEIL PATEL, PHARM.D. Director in the Health Industries, Pharmaceutical, and Life Sciences Practice, PricewaterhouseCoopers, which provides industry-focused assurance, tax, and advisory services. For more information, visit pwc.com/us/healthindustries.

HANS POULSEN. Head of Life Sciences Consulting, Thomson Reuters, a source of intelligent information for businesses and professionals in the financial, legal, tax and accounting, healthcare, and science and media markets. For more information, visit thomsonreuters.com.

DAN RESSLER. Principle in Life Sciences Practice, Deloitte, which provides audit, consulting, financial advisory, risk management, and tax services. For more information, visit deloitte.com.

CAROL ANN SCHAFFER. Program Data Leader, Roche, a research-focused healthcare company with combined strengths in pharmaceuticals and diagnostics. For more information, visit rocheusa.com

MARK TRAVERS, PH.D. Global Head, Clinical Research Unit, Sanofi-Aventis U.S., an affiliate of Sanofi-Aventis, a global pharmaceutical company that discovers, develops, and distributes therapeutic solutions. For more information, visit sanofi-aventis.us.

Have you maximized your demand response potential?

You can do more with PG&E's demand response programs.

With demand response, your company can earn financial incentives by making temporary energy-use reductions when needed. It can be a rewarding opportunity: Since 2006, participating companies have collectively received over $100 million.

Additional incentives

PG&E can provide your business with additional cash incentive payments for the installation of demand response equipment or control software. These upgrades support demand response efforts by automating energy load reductions through your facility's control system.

Event Day Action Plans: Custom fit for biotechnology

With a customized action plan you can take small or large steps to reduce energy demand, often with no significant disruption to operations. Measures such as slowing down manufacturing processes, cycling ventilation systems, and shifting product testing schedules can help maximize energy management, while reducing the risk of service interruptions at critical times.

Maximize your potential. Visit www.pge.com/MaxPotential or call 1-877-667-6457 to learn more about how to reduce your energy on Event Days.

PG&E®