

Advancing Clinical Trial Packaging

To meet new challenges, packaging outsourcers are offering an extensive lineup of services to pharmaceutical companies.

Clinical trials are conducted in various stages, but the bottom line is always the same: proving the safety and efficacy of drugs and medical devices. Once approval is granted in the country where the trial is taking place, a big part of these trials is producing, packaging, and distributing all test products.

Because of the sizable costs of a full series of clinical trials, today many are fully managed by outsourcing. Almac Clinical Services (Audubon, PA) currently services 18 of the world's top 20 pharmaceutical companies. "Between our three global sites, we have been involved in more than 10,000 clinical projects ranging from small-phase II studies to mega trials including in excess of 30,000 patients," says David Setley, head of business development.

Headquartered in Somerset, NJ, Catalent Pharma Solutions is a leading provider of advanced dose form and packaging technologies. The customer only needs to deliver a protocol that outlines what the clinical study looks like: number of patients, dosing regimen, dosage form, sites, and their location.

"We have a wide range of different dosage forms that we can develop and also provide all the analytical services needed. We really manage the full supply chain for the clinical studies themselves," says Frank Lis, vice president and general manager, clinical supply services, Catalent.

To support global trials, many contract organizations maintain a diverse range of capabilities with operations that can be mobilized as soon as a trial is approved. Amcor Pharmaceutical Contract Packaging's (Bethlehem, PA) services span traditional offerings such as bottling and blistering to novel solutions for compliance or parenteral packaging.

"We also have a suite of services, called Pre-Commercial, geared towards applications such as clinical trial, stability, or NDA submission packaging," shares Daryl J. Madeira, director of marketing.

Bilcare Global Clinical Supplies, Americas (Phoenixville, PA), is also an international organization with resources at the ready. "As a full-service drug development/supply chain for clinical trials, Bilcare provides complete production and innovative clinical packaging materials," says Vincent Santa Maria, president.

As clinical trial protocols have become increasingly more complicated, Ropack (Montreal) has fine tuned its processes and equipment. "We efficiently track the amount of doses and duration, monitor

rapid growth within emerging regions, and provide sophisticated supply-chain control. Our facilities are flexible and visible, allowing extended control of GMP activities, from protocol design to the investigator site," says Paul Dupont, director, business development. The firm specializes in packaging products into blisters, bottles, or sachets and can support the unique needs of products requiring temperature control. "Our network of facilities with controlled refrigerated and ambient temperatures is of significant benefit," adds Dupont. Ropack's services include every step from over-encapsulation and manufacturing of placebo to multilingual labeling, accountability, and destruction.

Effective management of the supply chain is crucial for study success. "Our focus is understanding and developing solutions for the unique supply-chain requirements of clinical trials," says Leon Wyszowski, vice president and general manager, Fisher Clinical Services, North America (Allentown, PA). It offers complete global clinical trial design, packaging, and supply-chain management including comparator sourcing and ancillary supplies.

Each trial format has its own specific challenges. While Phase III trials tend to be much larger in volume, often with more total groups, they tend to be more straightforward in test design. Phase I and II, while smaller, will be more complex and highly intense. The top challenges in all are managing the increasing complexity of regulations and tight time frames. Large pharmaceutical companies are also being pressured to control cost. Studies are getting larger with more patients to produce better safety profiles. With all studies comes the challenge of ensuring that the right medication is with the correct patient at the proper time. This requires a full supply-chain management solution.

All of this is even more critical with the new challenge of emerging "adaptive" clinical trial studies. With adaptive clinical trials, FDA is allowing the pharmaceutical company to break in at the middle of a study to see what treatment group is demonstrating more effectiveness or safety than the other. They can then move those patients into the trial group using the drug that is more effective.

In line with expanding needs, Almac Clinical Services marked the start of 2010 with the official launch of the Web-based stems (shipping temperature electronic monitoring system). Stems reduces any quarantine time for clinical supplies at study sites, saving both time and money.

According to a press release, stems provides a complex multiple-alarm system programmed to match drug temperature requirements. Instant reporting capabilities allow users to perform root cause analysis for process improvements. It is fully compliant with 21 CFR Part 11.

Fisher is concentrating on total supply chain management, with a focus on removing waste from the process. "This is a new service offering designed to optimize management of the clinical supply chain," Wyszowski says. "It is an amalgamation of our institutional knowledge, a focus on LEAN processes, purpose-built facilities and supporting technology, and lots of analytics that support informed decision making. We reduce cycle times for our clients and minimize the risk through reduced handoffs and optimized process approaches."

Interactive voice response/interactive Web response (IVR/IWR) capabilities are also driving study efficiencies. "Our IVR systems increase accuracy and efficiency of clinical trials while reducing costs," Dupont of Ropack states.

Santa Maria notes that Bilcare's IVR/IWR systems manage all data, including automatic patient enrollment and randomization, capturing data, patient enrollment management, and drug supply management, and patient diaries.

Almac has expanded its service offering to include Drug Supply Management (DSM). "Drug supply management is achieved by optimization of supply packaging and distribution through the analysis of data supplied by the CRO and IVR systems utilized by our clients," Setley says. "Our coordinated DSM is the use of compatible packaging design and distribution strategy alongside the IVRS set-up, which in turn allows technical integration and empowers higher levels of quality."

Packaging's Role

Amcor is addressing both the needs of the small and large pharma companies. "Under our branding of Pre-Commercial Packaging, Amcor can lead efforts to package small-run applications whose purpose is for R&D (designing packaging, CR/SF testing, etc.), stability analysis, NDA or ANDA submission runs, and clinical trial packaging," Madeira explains.

Catalent has invested in an automated blister carding line that can run faster and more efficiently than semi-automated equipment. Automation and centralized server based data reduce the timeline, which ultimately reduces the cost. With four to five times added productivity, Catalent can pass the savings on to their customers. They are also addressing the challenge of adaptive clinical trials.

"We have to be flexible when it comes to packaging and supplying adaptive trials. Being able to label supplies in-house is a plus when the patient changes treatment groups. Labeling software is on one server. If we need to print at any of our sites in the UK, Germany, or the United States, each site has access," Lis says.

Bilcare is focusing on providing solutions to needs in the marketplace that Santa Maria says are not currently being met. For example, the company has developed its nonClonable technology for identification, authentication, and anticounterfeiting.

According to Santa Maria, this technology comprises a unique nonClonable signature that can be seamlessly integrated into any supply-chain system providing a totally secure and reliable real-time identification and authentication of any product. This system also provides a secure means for effective track-and-trace and e-pedigree of products across the supply chain from manufacturer to consumer.

With these and many more packaging companies turning to becoming highly expert in this market niche, and virtually all tapping into IVRS/IWRS to easily manage all clinical trial data, technology is now seeing a definite shift from the pharmaceutical manufacturer or medical device manufacturer to an almost completely outsourced venture.