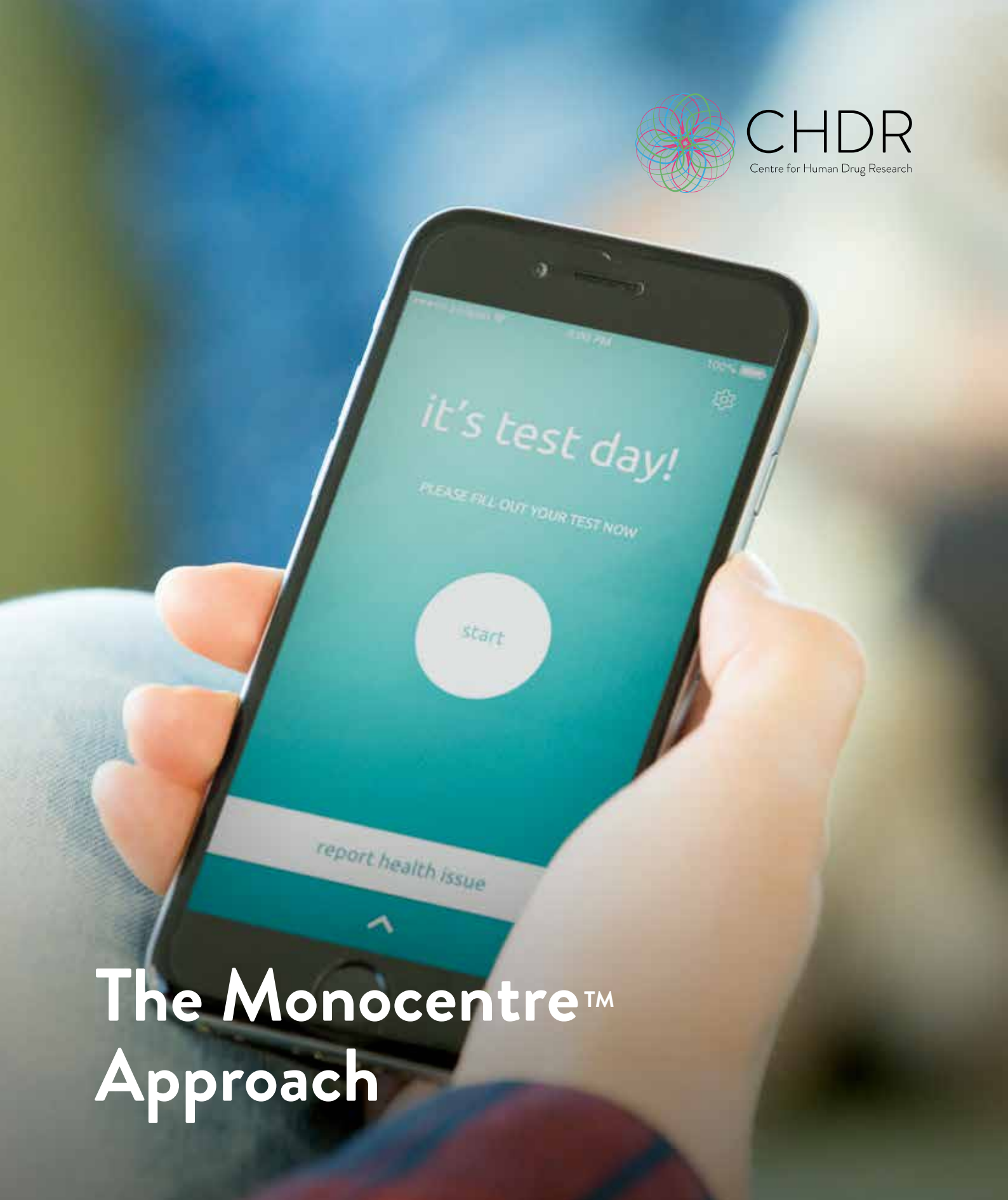
CHDR
Centre for Human Drug Research



The Monocentre™ Approach

CHDR's unique monocentre approach has revolutionised early clinical drug development

Performing a multicentre study is usually not the ideal way to collect all of the data needed in the early stages of clinical drug development. That's why CHDR developed the monocentre approach. With this approach, patients are brought to one central study site, where all of the necessary tests and measurements can be performed.

← *Prof Adam Cohen, CHDR's CEO*

Prof Adam Cohen, CHDR's CEO, explains the idea

'It's actually much easier to bring each patient to our facility, rather than conducting the trial at many different facilities,' says Cohen. 'Plus, with our monocentre approach, we don't need to train doctors and nurses at other centres; instead, we can perform all of the tests here at CHDR, ensuring high consistency and quality. Importantly, because the studies are performed more quickly and with less variability, we can offer superior results at lower cost.'

CHDR's monocentre approach also provides a novel way of collaborating with clinicians. With the traditional multicentre approach, studies are generally conducted simultaneously with patient diagnosis and treatment; as a result, clinicians must divide their time and attention between providing patient care and conducting the clinical study. With our monocentre approach, the clinician's role is quite different, but remains extremely important. Cohen explains: 'With the monocentre approach, clinicians are invited to refer their patients to our facility; and of course, whenever possible we share our results with them. So both the clinicians and the patients benefit from participating in clinical research, and the clinicians are not burdened by administrative or practical issues.'

The origin of the multicentre trial

It might seem hard to imagine how drug development can be achieved without involving multiple research centres. But Cohen remembers how clinical research was actually a local affair until the early 1980s. Then in the mid-1980s, large, multicentre trials were conducted in the field of cardiology by Sir Richard Peto and Sir Rory Collins at Oxford University. Cohen: 'Initially, many cardiologists were sceptical of this large-scale approach, calling it a "dinosaur". Nevertheless, the multicentre approach quickly became the preferred way to perform a clinical trial.' Cohen adds with a smile, 'I remember participating in a trial that showed the efficacy of aspirin in preventing a second myocardial infarction. We changed clinical practice overnight.'

By today's standards, those early multicentre trials used what Cohen calls a 'low-tech approach'; they were based on simple measurements using data that were routinely collected in the course of clinical practice, including blood pressure, complaints such as chest pain, and – of course – mortality. Most participating physicians contributed to these trials because of their scientific interest, and they received no payment for their efforts.'

A complicated affair

From those relatively simple beginnings, multicentre clinical trials have become increasingly complicated over the past two decades. For example, a growing number of measurements are routinely performed, making data collection and management too cumbersome for most clinics. In addition, regulatory authorities have set higher standards on the pharmaceutical dossier; as a result, pharmaceutical companies are now willing to pay physicians for their role in clinical trials. Thus, a new structure evolved in which sponsors hire contract research organisations (CROs) to coordinate multicentre trials at several sites, often in several countries. Cohen explains: 'For large RCTs (random controlled trials), this system can work; however, it can be extremely expensive, especially given that the cost of healthcare is rising throughout the Western world. So we've seen a shift towards conducting trials in countries in which healthcare and research costs are relatively low. But this creates new challenges, including ethical considerations and the question of data comparability. I wouldn't necessarily say we have the solution for all of these problems, but least in terms of early clinical research, our monocentre approach solves many of them.'

More patients in the early phases of drug development

'In recent years, we've seen an increasing demand to obtain more information from early-stage studies,' says Cohen. 'Sponsors want to know more than just whether their product is tolerated by patients; they want to actually see what it does in patients in the early phases of development. CHDR anticipated this demand, and we perform an increasing number of studies in patients. More importantly, the types of measurements we perform are high-tech. Many of these tests – for example, our NeuroCart® battery and our complex biomarkers – would be nearly impossible to perform in a multicentre setup. Therefore, we prefer to bring the patients to our facility, where we can collect all the measurements we need.

'We also want to recruit subjects using a variety of avenues rather than simply relying on referring clinicians,' continues Cohen, 'sometimes even before we have a research protocol. One such avenue is our Ready-for-Research™ approach. Of course, we'll always actively collaborate with clinicians; but we also think that today's patients should decide for themselves whether to participate in a study. After all, patients – and their medical data – do not belong to the clinician. Patients routinely visit their doctor and local hospital for X-rays, surgery, and other procedures; so why not visit a research facility for research?'

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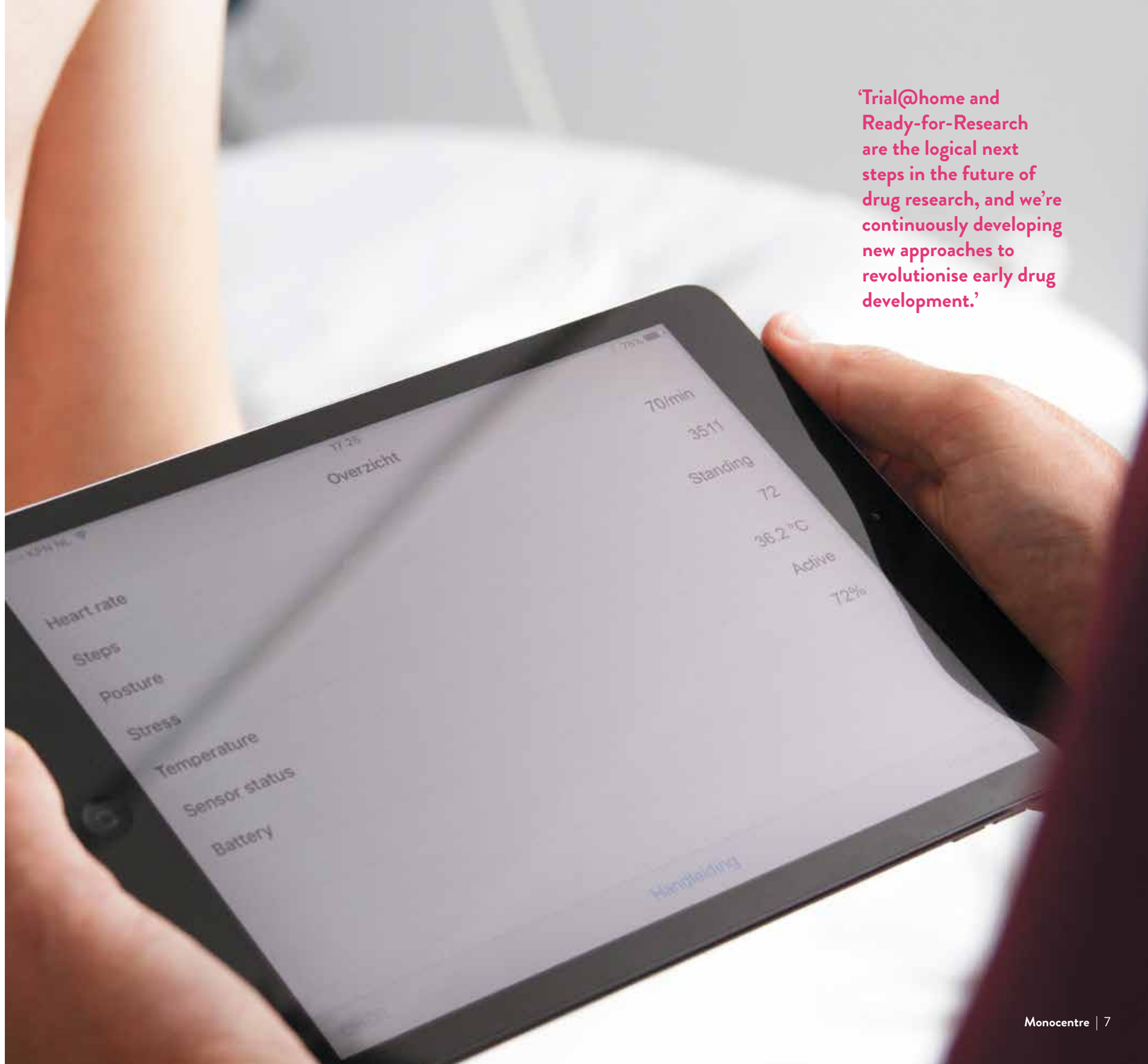
Trial@home™

At CHDR, the monocentre approach has been extremely successful. For example, the monocentre approach was combined with another of CHDR innovations – Trial@home – for use in outpatient dermatology studies. Cohen explains: ‘Because dermatology relies heavily on visual observations, we can perform many of these studies using the digital camera that’s already in nearly everyone’s pocket: the smartphone. We developed an app that notifies the patient when he or she needs to apply the test compound and prompts the patient to take a picture of the lesion. Then, wherever the patient is at the time, he or she simply sends the picture to our data collection centre. This hi-tech, yet remarkably simple approach has literally transformed the way we conduct outpatient clinical trials.’

The next step forward in Trial@home is the use of self-adhesive sensors that can measure a wide range of physiological values, including temperature, skin conductance, and even ECG. Using just a Bluetooth connection and their smartphone, patients can upload their data to researchers at CHDR. With this approach, much larger patient groups can be studied on an outpatient basis while they go about their normal daily business. Cohen: ‘At CHDR, we believe that Trial@home and Ready-for-Research are the logical next steps in the future of drug research. But we won’t stop there; we are continuously developing new innovative approaches to further revolutionise early drug development.’



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Why choose CHDR?

The Centre for Human Drug Research specialises in early-phase clinical drug research. CHDR's overall mission is to improve the drug development process by collecting as much information as possible regarding the candidate drug in the early phases of development. This information helps sponsors make informed decisions regarding the course of clinical development for their product.

Why choose CHDR?

Research at CHDR covers a wide range of fields, including the central nervous system (CNS) and pain, the cardiovascular system, haemostasis, immunology, and dermatology. In addition, CHDR is at the forefront in developing novel biomarkers and methods for measuring drug-related effects in all of these research areas.

Pharmacology matters

Whether studying a new cognitive-enhancing drug, a next-generation painkiller, or a new monoclonal antibody designed to treat rheumatoid arthritis, the goal is to determine how the compound's effects correlate with both the dose and blood concentration at any given moment. In addition, understanding which biological systems are activated is an essential first step towards quantifying this relationship. At CHDR, our focus on pharmacology is reflected clearly in what we call question-based drug development.

Question-based drug development

CHDR actively uses question-based drug development - or QBD - as a more rational approach to drug development compared to conventional approaches. QBD can be best described as a series of questions that are addressed throughout the process. These questions often seem simple enough, but failing to answer even one question - or even addressing the questions in the wrong order - can have dire consequences. Thus, using this approach can potentially save companies millions of dollars by helping predict a catastrophic issue early in the development process, before the more expensive latter stages (for example, large-scale clinical trials or the marketing phase).

From a general perspective, the most important questions are:

1. Does the biologically active compound and/or active metabolite(s) reach the intended site of action?
2. Does the compound cause its intended pharmacological and/or functional effect(s)?
3. Does the compound cause any unintended pharmacological and/or functional effect(s)?
4. Does the compound have a beneficial effect on the disease and/or clinical pathophysiology?
5. What is the compound's therapeutic window?
6. How does any variability with respect to the drug response in the target population affect the product's development?

Contact

To learn about CHDR's full range of services, contact us today.

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