At least 13 "real-world evidence studies" are underway as part of the HealthCore collaboration, Sweet says, and the company will be "transparent" in sharing the results. The link with HealthCore will give AstraZeneca access to a vast repository of patient data, as UBC (HealthCore's parent company) has over 34 million 'members' or policy holders. Medco also manages massive volumes of patient data, having managed 740 million prescriptions in 2010.

Unlike randomized clinical trials, real-world studies draw on observational data, including patient registries, electronic health records, claims information and patient-reported surveys. Although they lack the statistical rigor of controlled clinical trials, they can explore questions that such trials usually factor out (e.g., patient compliance) or the influence of various factors (e.g., co-morbidity, age, gender or race) on a patient's response to a given drug. Real-world studies (also called pragmatic trials) follow the actual experience of patient populations or subpopulations and can help to fill knowledge gaps about a drug's performance.

Real-world evidence includes observational information on disease states as well as comparative effectiveness research, but rarely provides clear-cut answers. "It's messy data, even when you do good studies," says Peter Neumann, director of the Center for the Evaluation of Value and Risk in Health, at Tufts Medical Center, in Boston. Trade-offs, uncertainties—and additional questions—are the norm. Even so, the field has evolved over the past decade, aided by developments in IT and in the management of electronic healthcare data. "I think there's also a better appreciation of the discipline of outcomes research," HealthCore president Marcus Wilson says, pointing to the present acceptance of evidence based on claims data. "Ten years ago, we didn't know how best to use this data for research."

Although real-world studies are typically far less expensive than clinical trials, for blockbuster drugs, the investment will still be significant. "I don't think the drugs bill is going to be higher. I think the pressure on pharmaceutical margins is the issue," he says. Salimi counters suggestions that such studies will delay drug development. "There is potential to shorten the development cycle, [but] we [still] have to demonstrate this," she says.

The US has, arguably, most to gain from comparative effectiveness research because of the huge scale of its healthcare expenditure ($2.5 trillion or 17.6% of gross domestic product in 2009) and the notorious inefficiencies embedded within its healthcare system. Yet it has also been the most resistant to introduce evidence from care-related settings to inform healthcare decision makers, preferring to use evidence obtained in the limited and artificial environment of a clinical trial. "It's based on the fear of cost effectiveness rather than clinical effectiveness being the driver of what is available in the US healthcare system," says Gliklich.

Another problem, says Neumann, is that comparative effectiveness "smacks of NICE"—the acronym stands for the UK's National Institute for Health and Clinical Excellence, which routinely conducts cost-effectiveness appraisals of drug treatments (and other interventions) that directly influence clinical care in the National Health Service. NICE often raises the hackles of US critics because of the reliance on cost-per-quality-adjusted-life-year (QALY) thresholds for benchmarking the cost-effectiveness of unrelated interventions across different diseases. "It seems like it's bureaucrats getting between physicians and patients—that's the rhetoric around it," Neumann says.

At least some aspects of that ethos are slowly working their way into US healthcare, however. The American Recovery and Reinvestment Act of 2009 provided an initial impetus, with a $1.1 billion appropriation for comparative effectiveness research. The Patient Protection and Affordable Care Act of 2010, one of the cornerstones of President Barack Obama's healthcare reform, stipulated the formation of the Patient-Centered Outcomes Research Institute (PCORI) as an independent, nonprofit corporation with a mandate to conduct comparative effectiveness research. But legislation expressly forbids the Washington, DC–based PCORI from using cost-per-QALY thresholds in its assessments or recommendations.

Comparative effectiveness studies, even if cost considerations are excluded, are intended to support better decision-making by patients and their physicians. But, argues Gaspers, there is no guarantee that they will. "To my mind, the issue with comparative effectiveness is the way it's implemented in PPACA [Patient Protection and Affordable Care Act]. They make the information available, but there's really no mechanism to make physicians pay attention to it," he says. The incentives under which physicians operate are key. "Unless you change those incentives, along with the new information, you don't change the behavior," says Neumann.

As comparative effectiveness research gradually emerges from its specialist niche and into the mainstream, it is impossible to predict its precise impact. If the pharma industry's good intentions can be believed, it will lead to better decision-making and, by inference, better drugs—or at least better-targeted drugs. "It's calibrating what needs to be done," says Salimi.

Cormac Sheridan *Dublin*

IN brief

Money pot for SMEs

The European Commission (EC) has allocated €654 ($941) million to fund 38 health-related topics, and this time small- and medium-sized enterprises (SMEs) are encouraged to apply. The EC's 6th call for health research proposals, funded by the 7th Framework Programme for 2012, was launched in July and contains several changes that should be of clear benefit to SMEs. "I've never seen such a quick turnaround from feedback into action," comments Nathalie Moll, secretary general at EuropaBio in Belgium. One change, applicable to 14 of those topics, requires participating SMEs to receive anywhere between 15% and 50% of total EC funding for a project. Another change is a two-stage application that allows firms to present a short proposal first to get a sense of its success before expending resources on a detailed proposal that might fail. The EC has also cut the minimum number of obligatory participants from five to three, which will help small companies take the helm in managing projects. "It's potentially a huge pot of money," says Tom Saylor, CEO of Cambridge, UK–based Arecor. "EC money could help companies carry their research to higher stages of value without depending on private markets." The turnaround time between application and funding, which can take up to a year, is a cause for concern, and the complexity of the paperwork often puts people off, Moll adds. "It would be nice if there were a help hotline for SMEs." *Gunjan Sinha*

China's $300 billion goal

China's central government will spend 10 billion yuan ($1.6 billion) and raise an additional 30 billion yuan ($4.8 billion) from provincial governments to gain a leading position in global biopharma. This strategic investment is part of its Five-Year Plan, aimed at shedding the nation's reputation as a cheap producer of low-quality products. Of the seven industries selected for investment, biotech is one of them. "The government is pouring money to really support innovative work," says Dan Zhang, CEO of Fountain Medical Development in Beijing, who is reviewing grant proposals for the Ministry of Science and Technology (MOST). "Almost all of the grant money will go to preclinical and clinical studies of truly innovative projects." MOST vice-chairman Liu Yanhua announced at a bioeconomy meeting in Tianjin in June that the government hopes biotech revenue will exceed 2 trillion yuan ($311 billion) by 2020. Many Western biotechs view China's commitment to innovation as a boon for both sides, as analysts predict that partnerships between China and the West will flourish over the next decade. Whether China's expectations for a meteoric rise will threaten the West's biotech leadership is uncertain. Ingrid Yin, senior analyst for Oppenheimer in New York, believes China must first expand its research infrastructure and attract a talent base before it can develop into a world power in biotech. "It will be a gradual process," she says. *Heiko Yang*