The Economist
Economist.com
JANUARY 16TH–22ND 2010

Pills get smart

Potential encapsulated

NEW YORK

Medicines that can talk to doctors herald a new direction for drugs firms

NOVARTIS, a Swiss pharmaceuticals giant, is involved in two deals at the moment. Its $50 billion takeover of Alcon, an American eye-care firm, unveiled early this month, has been hogging the headlines. But its decision on January 12th to spend $24m to secure exclusive licences and options on drug-delivery technologies developed by Proteus Biomedical, a Californian start-up, may be just as important in the long run. It makes Novartis the biggest pharmaceuticals firm to embrace "smart-pill" technology.

Despite its trifling size, the deal hints at a promising new strategy for a troubled industry. Patents on many lucrative drugs are on the verge of expiry. Most firms have not come up with enough treatments to replace them. In an effort to diversify and stabilise their revenue, some drugmakers are beginning to sell ancillary services tied to their wares. Proteus's technology, which enables pills to relay data about a patient back to doctors after they have been swallowed, is a prime example.

When one of Proteus's pills is taken, stomach fluids activate the edible communications device it contains, which sends wireless signals through the body to another chip worn as a skin patch or embedded just under the skin. That, in turn, can upload data to a smart-phone or send it to a doctor via the internet. Thus it is easy to make sure a patient is taking his pills at the right time, to spot adverse reactions with other drugs and so on.

"This technology has tremendous utility," declares Trevor Mundel of Novartis. Various studies have estimated that a third to half of prescription drugs are not taken as prescribed—or at all. This leads to poor health: one study estimates needless hospitalisations as a result of such failings cost $100 billion a year in America alone.

Though Proteus is in the vanguard, it has rivals. Philips, a big Dutch electronics company, has just set up a commercial group to promote its "intelligent pill", which is able to deliver drugs at precisely the right spot in the digestive tract. MicroCHIPS, an American start-up, is developing smart, implantable microchips which have reservoirs to hold drugs or tiny monitoring devices. John Santini, its boss, says his company is working on drug delivery with a big pharmaceuticals firm, and that his laboratory curiosity will be a commercial reality within three to five years.

Terry Hisey of Deloitte, a consultancy, argues that the coupling of smart pills with wireless networks and mobile phones, allowing the information the pills capture to be beamed to doctors, patients and relatives, turns the technology into "a disruptive innovation about to happen". Vitality, an American firm, has come up with a cap for pill bottles that telephones hapless patients if they fail to take their medicine on time. Vodafone, a mobile-phone operator, has just set up a mobile health unit in Britain. Orange, a French rival, already offers a service that records measurements from implanted heart monitors and transmits them to doctors via the internet. In Mexico, TelCel, the country's biggest mobile operator, plans this month to launch a service that allows customers to determine whether they have flu using their mobile phones. Kalorama, a research group, estimates that sales of such services will leap from perhaps $4.3 billion last year to $9.6 billion by 2012.

There are some potential pitfalls, however. Stephen Oesterle of Medtronic, a devices firm involved in remote patient monitoring, thinks it a bit Orwellian for drugmakers to keep such intimate tabs on their customers. He wonders whether spooked patients might disable all this clever kit. Tim van Biesen of Bain, a consultancy, believes that patients will need some kind of financial incentive to use smart pills.

But Leslie Saxon, chief of cardiology at the University of Southern California, argues the reverse. She believes patients will clamour for more data about their health, much as banks' customers embraced the internet as a means of keeping better track of their accounts. Moreover, many governments that provide medical care for their citizens (including America, if Barack Obama's health proposals become law) are beginning to demand that drugs firms prove the effectiveness of expensive new pills in practice as well as in theory. Peter Lawyer of the Boston Consulting Group reckons such policies could push pharmaceuticals companies to embrace innovations that ensure pills are properly used.

Furthermore, the technology should be lucrative for all concerned. Drugs firms currently lose billions of dollars in sales from patients on long-term prescriptions who do not take their pills. And features that encourage patients to take their medicine and ensure it is working well should make a pill more valuable to insurers and national health systems, and thus justify higher prices. ■

Take it or it will call your mother