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Mobile phones

A text a day...

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The medical uses of mobile phones show they can be good for your health

WHAT impact can mobile phones have on their users' health? Many people worry about the supposed ill effects caused by radiation from handsets and base stations, despite the lack of credible evidence of any harm. But evidence for the beneficial effects of mobile phones on health is rather more abundant. Indeed, a systematic review carried out by Rifat Atun and his colleagues at Imperial College, London, rounds up 150 examples of the use of text-messaging in the delivery of health care. These uses fall into three categories: efficiency gains; public-health gains; and direct benefits to patients by incorporating text-messaging into treatment regimes. The study, funded by Vodafone, the world's largest mobile operator, was published this week.

Using texting to boost efficiency is not rocket science, but big savings can be achieved. Several trials carried out in England have found that the use of text-messaging reminders reduces the number of missed appointments with family doctors by 26-39%, for example, and the number of missed hospital appointments by 33-50%. If such schemes were rolled out nationally, this would translate into annual savings of £256m-364m.

Text messages are also being used to remind patients about blood tests, clinics, scans and dental appointments. Similar schemes in America, Norway and Sweden have had equally satisfying results—though the use of text-message reminders in the Netherlands, where non-attendance rates are low, at 4%, had no effect other than to annoy patients.

Text messages can also be a good way to disseminate public-health information, particularly to groups who are hard to reach by other means, such as teenagers, or in developing countries where other means of communication are unavailable. Text messages have been used in India to inform people about the World Health Organisation's strategy to control tuberculosis, for example, and in Kenya, Nigeria and Mali to provide information about HIV and malaria. In Iraq, text messages were used to support a campaign to vaccinate nearly 5m children against polio.

Finally, there are the uses of text-messaging as part of a treatment regime. These involve sending reminders to patients to take their medicine at the right time, or to encourage compliance with exercise regimes or efforts to stop smoking. The evidence for the effectiveness of such schemes is generally anecdotal, however, notes Dr Rifat. More quantitative research is needed—which is why his team also published three papers this week looking at the use of mobile phones in health care in more detail. One of these papers, written in conjunction with Victoria Franklin and Stephen Greene of the University of Dundee, in Scotland, reports the results of a trial in which diabetic teenagers' treatment was backed up with text messaging.

Diabetes needs constant management, and requires patients to take an active role in their treatment by measuring blood-sugar levels and administering insulin injections. The most effective form of therapy is an intensive regime in which patients adjust the dose of insulin depending on what they eat. This is more onerous for the patient, but allows for a greater dietary variety. Previous studies have shown that intensive treatment is effective only with close supervision by doctors. Dr Franklin and her colleagues devised a system called Sweet Talk, which sends patients personalised text messages reminding them of the treatment goals they have set themselves, and allowing them to send questions to doctors. The Sweet Talk system was tested over a period of 18 months with teenage patients receiving both conventional and intensive diabetes treatment. A control group received conventional treatment and no text messages.

The researchers found that the use of text-messaging significantly increased “self-efficacy” (the effectiveness of treatment, measured by questionnaire). More importantly, among patients receiving intensive therapy, the level of haemoglobin HbA1c—an indicator of blood-glucose and hence of glycaemic control—was 14% lower than for those in the control group. Since even a 10% decline in HbA1c level is associated with a reduction in complications such as eye and kidney problems, this is an impressive result. It suggests that texting can cheaply and effectively support intensive therapy among teenagers, who often demonstrate poor compliance.

Despite such promising results, Dr Rifat notes, many of the medical uses of text-messaging have not yet been subjected to clinical trials, because they are so new. And even where the benefits are proven, the technology has not been systematically deployed on a large scale. But when it comes to improving outcomes and reducing costs, text messages would seem to be just what the doctor ordered.