

# **M-health: Using mobile telephony in healthcare**

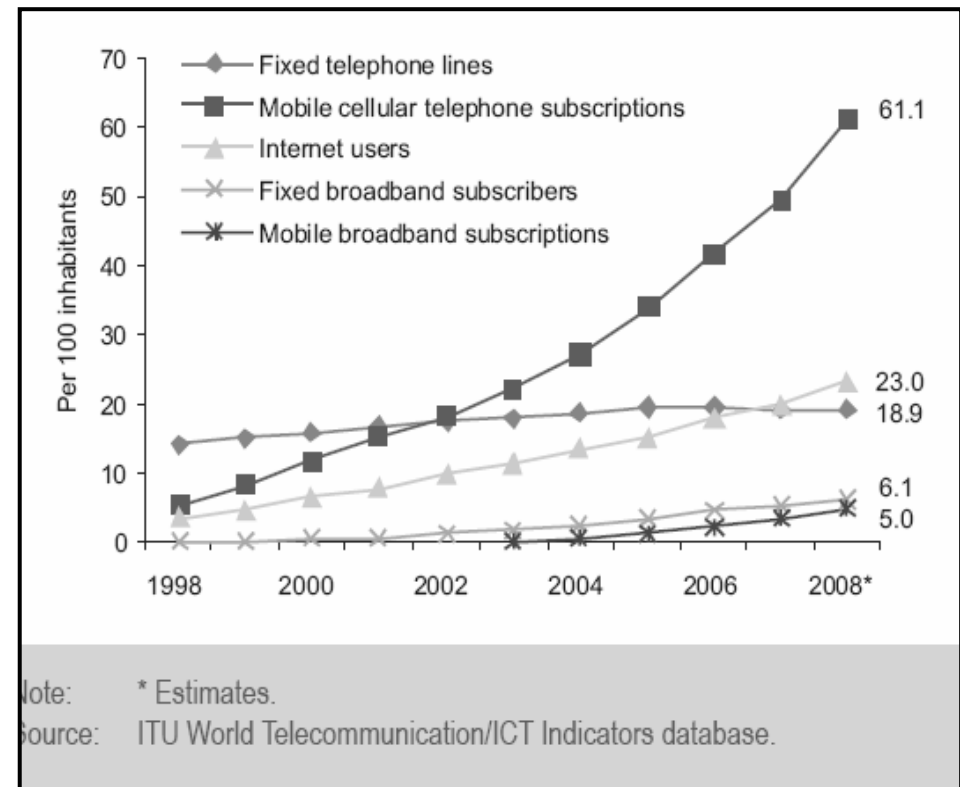
**Dr Henry W W Potts**

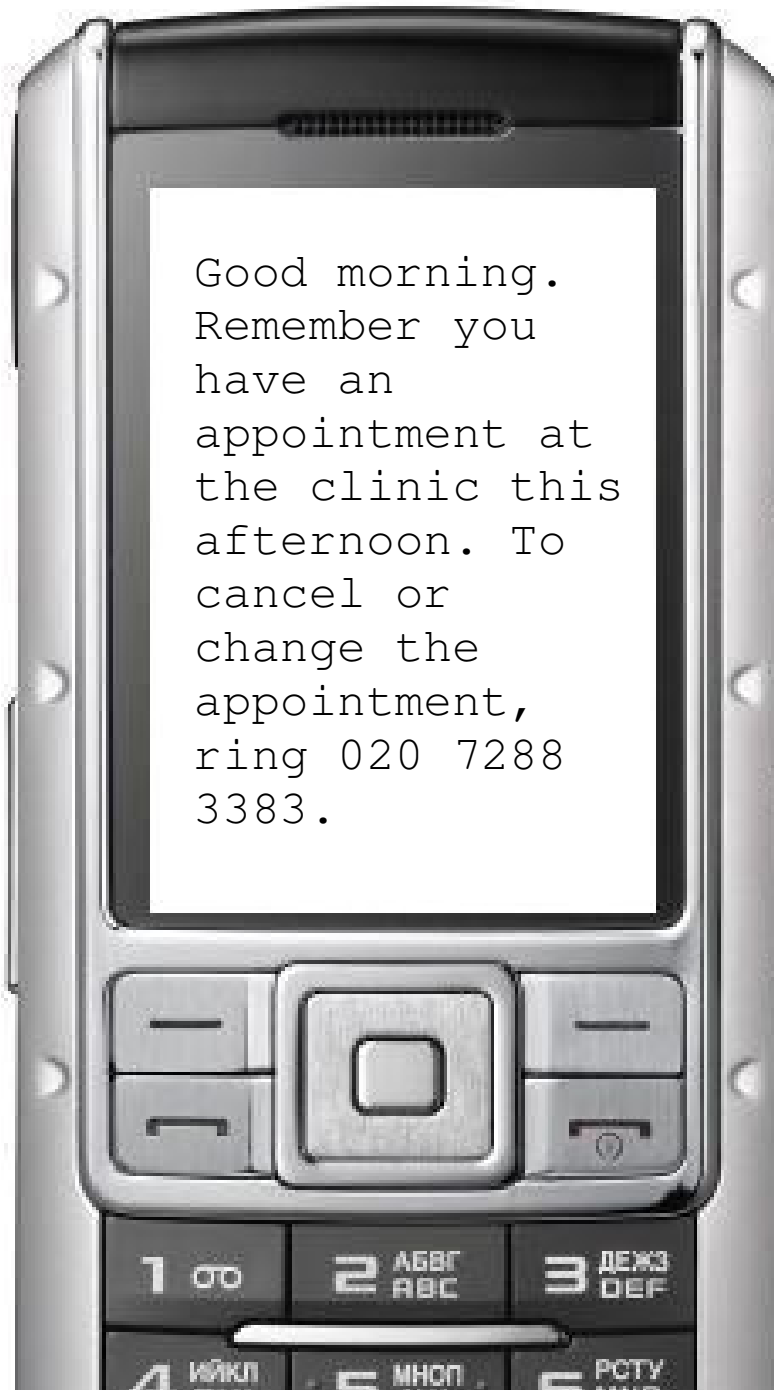
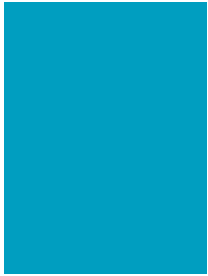
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## Mobile is here

- 4.6 billion users worldwide
- Always-on, always-with-me
- Phone  $\Rightarrow$  computing device
- Potential within health & social care to reach different populations in novel ways
- Big commercial interest and investment in mobile health
  - 78% increase in medical apps downloaded (2010)

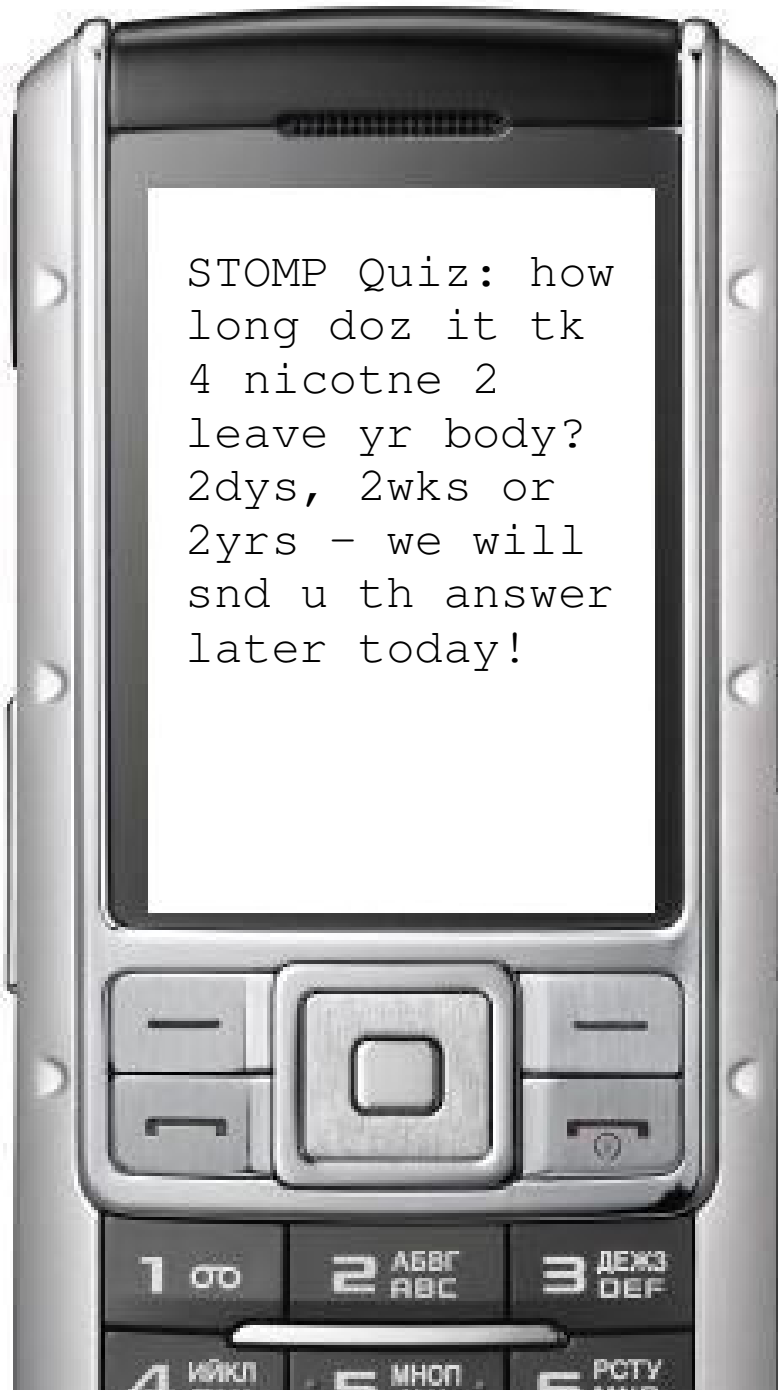
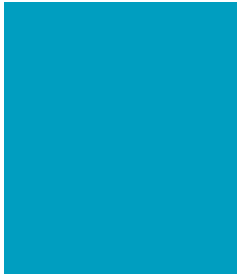




## Appointment reminders

## Appointment reminders

- 22 million missed appointments in the NHS *per* year, costing ~£790 million
- SMS (text) reminders widely used outside medicine, from hairdressers to vets
- SMS reminders reduce non-attendance rates between 6-38% in RCTs
- SMS reminders demonstrated to be cost-effective
- Need to be integrated into booking systems



## Behaviour change

Example from Rodgers *et al.* (2005), *Tob Control* 14: 255-61

## Behaviour change

- More intensive than a single reminder
- Proven to work
  - Smoking cessation: 1.7-2.4 times higher likelihood of giving up smoking
  - Medication adherence: 11%-23% improvements
  - Long-term conditions: various trials showing improvements for diabetes
- Possible future uses
  - Computerised Cognitive-Behaviour Therapy
- Simple SMS technology or more complex apps



**M2M**  
**(machine to  
machine)**

## M2M (machine to machine)

- Direct messaging from home glucometer/ coagulometer/ sphygmomanometer
- Patient-reported outcomes on hospital wards (with a cheap, easy-to-clean, droppable device)
- Emergency alerting systems



Dr Foster's Patient Experience Tracker





## Personal health records

## PHRs: personal health records

- Electronic health record controlled by the patient, or with patient access
- Patient's mobile phone acts as an additional way of accessing the PHR



**And the  
future...?**

Devices attached to the mobile phone  
— eSTI<sup>2</sup> receives £4M grant

## “Utopia is that which is in contradiction with reality” – Albert Camus

- So many promises have been made for technology that were not delivered
  - Choose & Book (Green *et al.*, *BMC Med Informatics Dec Mak* 2008, 8, 36)
  - Connecting for Health (Greenhalgh *et al.*, *BMJ* 2010, 340, c3111)
- Problems scaling up m-health systems
- M-health still dominated by technology ‘push’ rather than clinician ‘pull’
- Proprietary, commercial systems under-delivering

## But remember the 1880s...

- We got used to (fixed) phones!
  - The Lancet warns that if patients can telephone and converse with their doctors “for a penny, they will be apt to abuse the privilege” (1883); to diagnose by telephone rather than in person is “not in accord with the true ideal of professional duty” (1887)
- What we need from m-health now is...
  - Scalability
  - Interoperability
  - Clinically reassuring

*“The future of cellular telephony is to make people’s lives better – the most important way, in my view, will be the opportunity to revolutionise healthcare.”*

Martin Cooper, inventor of the mobile phone

**Thank you**

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