

## Radio frequency identification could offer an affordable way to serve the medical needs of the world's growing elderly population.

Aug. 27, 2007—Telemedicine is an emerging trend that uses information technology to facilitate a patient's medical diagnosis, consultations and treatments from a distant location. This concept has been driven by the need to accommodate the increase in the world's elderly population, particularly within countries in the European region. The United Kingdom alone is expected to account for approximately 17 million patients suffering from long-term health conditions.

This rise in the number of seniors is expected to increase pressure on existing health-care delivery systems already faced with a crunch in resources and funding. The answer, therefore, lies in remote health-care systems based on RFID and other electronic assistive technologies. This would optimize the service efficiency for aged patients within the settings of their own home, ensuring their independence.



RFID-based systems allow for virtual consultations since doctors can automatically access patients' histories via mobile devices backed by knowledge databases and related information systems. In cases of emergency, this real-time information access will prove critical to ensuring the best medical care for each patient. However, the challenge with remote health-care systems lies in integrating RFID data centers across various hospitals, clinics and health-care facilities, so as to avoid any interoperability issues.

The concept of RFID-backed remote health care also enables cost-effective medical treatment for post-surgical patients, by avoiding extended hospitalization costs and also freeing up critical resources within hospitals and health-care facilities. The most significant benefit of using RFID systems is likely to stem from the potential increase in patient compliance rates. Monitoring patient compliance with regard to prescribed drug dosage can increase the success of medication. Moreover, smart packaging options such as embedding RFID tags within bottles and blister packs can ensure accurate medication schedules are maintained, resulting in improved patient recovery rates.

Age Group	Population (Millions)		
	2005	2025	2050
<b>North America</b>			
0-14	68	71	75
15-24	47	50	52
25-59	161	173	192
60-79	44	78	85
80+	12	16	33
<b>Europe</b>			
0-14	115	104	98
15-24	101	75	67
25-59	361	330	263
60-79	125	161	163
80+	26	37	63
<b>Asia</b>			
0-14	1086	1067	954
15-24	712	701	650
25-59	1743	2254	2382
60-79	327	623	996
80+	38	83	235

Source: World Population Prospects (2004 Revision), United Nations, 2005 & Frost & Sullivan

Automated remote health-care systems are not likely to replace existing health-care delivery systems entirely, since direct contact and interaction with patients is a critical necessity in some cases. However, the use of technologies such as RFID will enable remote health-care concepts to play a complementary role in overcoming existing resource challenges, while also improving the service delivery of health-care providers. The benefit of RFID in accessing relevant information increases, especially when enabled by a low-cost mobile device.

Recent technology developments include skin patches with embedded RFID sensors used in conjunction with cellular networks to provide wireless health-care monitoring. This enables low-cost diagnostic applications by involving the patches, cell phones and the Internet.

It is important to understand that RFID is but one technology that may be used to support telemedicine or remote health-care systems. The challenge for RFID adoption in remote health-care applications, unlike in other application markets, is not likely to be technical. Consumer behavioral issues assume greater importance in this particular application sector, since a patient's physical and mental needs must be addressed by remote health-care systems.

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