

mMed™ Patent Portfolio

for mobile medication management

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Licensing through New Directions Technology Consulting, LLC

Description: The mMed patent portfolio relates to technology that could take a comprehensive mobile medication management system to patients wherever they are. The technology, protected by five issued U.S. patents, could significantly advance medication management, by delivering essential medical information not available today.

Market Problem: The successful management of chronic and acute health problems that require medication therapy depends on patients' following instructions for treatment prescribed by medical professionals – here defined as adherence. Annual U.S. cost estimates for patients' non-adherence reach \$300 billion and beyond. Even though a 2005 World Health Organization report states that more health benefits would result from boosting adherence to current treatments than developing new ones, little has been done to ensure medication adherence.

Market Solution: As the world's mobile-communications user community grows, there are more opportunities to increase patient autonomy and wellness, improve treatment outcomes, and lower healthcare costs – by providing new "smart" tools that help patients themselves manage medication therapies outside institutional settings.

mMed Value Proposition/Adherence+: An advanced mobile medication management system based on the mMed patent portfolio would not only provide a critical boost to medication adherence, but it also could provide additional benefits to all stakeholders – patients, caregivers, employers, insurers, government and taxpayers – in the healthcare supply chain.

Licensing/Partnership Opportunities: New Directions Technology Consulting is a consultancy focusing on telemedicine; medical products information management; and medication management. Managing Director Napoleon Monroe is the inventor of all the mMed patents. Through New Directions, the exclusive market developer for the mMed portfolio, business opportunities include:

- Licensing of patents or the entire portfolio
- Partnering to develop tools, platforms, systems based on the patents

Market Opportunity: Greater patient autonomy through technology presents opportunities for those at the technology forefront of the evolving mHealth market.

Cambridge Strategic Management Group: U.S. revenue from mobile health will reach \$4.5 billion in 2014.

ABI Research: Wi-Fi-enabled healthcare devices and services in the U.S. would top \$4.9 billion in revenue by 2014.

Global Data: The global mHealth market will grow to more than \$8 billion by 2018.

Frost and Sullivan: Revenue for the medication management market is expected to have a very high growth rate. Medication monitoring will be a key component of future telehealth systems.



Notes: mMed is a trademark of New Directions Technology Consulting, LLC | www.mmedhealth.com
Henry Schein, Inc., is the assignee of the patent portfolio.

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Potential System Elements

A system based on mMed patents could include:



A medication delivery device or container with embedded sensors and AIDC capability



Communication device with applications



Capabilities for communications of medication management data to patients through a smart phone or other device with short- and long-range communications capabilities and delivery of information to caregivers and/or a central monitoring facility operated by medical professionals

More details about adherence+

Besides providing reminders to take the medication or prompts to initiate the replenishment process, an advanced medication management system based on technology protected by the mMed patent portfolio could also:

- automate identity of the patient and the medication in the patient's hands
- verify dosing
- relate quantity of medication available
- provide medication-condition alerts (e.g., premature degradation, breakage)
- inform re drug interaction, adverse drug reactions, abuse
- instruct for proper use and disposal
- integrate real-time usage data into medical records
- deliver information to medical professionals in a central monitoring facility
- facilitate communication with and support among healthcare professionals
- assist in real-time diagnosis and formulation of the treatment plan
- enable monitoring of patient condition and informing clinicians, patients and others before, during and after medication administration
- support healthcare-provider counseling, training and feedback; for example, the system could provide instant instruction, as well as follow-up training, for using an epinephrine injector. Monitoring center healthcare professionals could participate through discussion or live chat

The portfolio of granted U.S. patents:

U.S. Patent No. 7,752,085 (issued 7/6/2010): Product Information Management System

U.S. Patent 7,871,393 (issued 1/18/2011): Injection Device and Case with Reporting Ability: Covers means for showing that a drug containing injector is not being carried by the assigned person by comparing two location reports.

U.S. Patent 8,044,778 (issued 10/25/2011): Injection Device and Case with Reporting Ability: Covers means for including one or multiple medications and dosage forms in cases and communicating added information.

U.S. Patent 8,149,111 (issued 4/3/2012): Central Facility that Communicates with Portable Container via Mobile Device

U.S. Patent 8,212, 658
(issued 7/3/2012): Product Container for Use with Device Capable of Long-Range and Short-Range Communications

The Israel and Australia patent offices have granted patents extending protection of some allowed claims from the United States to those two countries. A patent is pending in the E.U.

