

Continuous, Passive Biomonitoring for Health and Prevention

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A number of new technologies are available for personal and home use that can monitor mobility, sleep patterns and general activity. In the home, these technologies are already being used to monitor elderly patients and patients with chronic conditions. Continuous, passive monitors are also worn in personal devices to monitor physiological parameters such as motion, body heat, heart rate, and breath rate. Using sophisticated algorithms, these parameters can be used to provide useful information such as energy expenditure and physical activity. Combined with software for health coaching, these monitors can improve health and help manage disease, both for the individual and their healthcare provider.

These technologies hold promise over other disparity reducing advances due to their ease of use and potential for advances in our understanding both of diseases and of individual or personal variations. Some potential applications of continuous, passive biomonitoring include:

- Identification of early warning signs of a disease
- Determining the effectiveness or toxicity of a treatment
- Defining “normal” and “abnormal” ranges in individuals to determine disease, leading to more accurate diagnosis of disease and disease trends

There are two particular areas where continuous, passive biomonitoring might play a key role in reducing health disparities: preventing the incidence of high disparity diseases and helping patients manage existing high disparity diseases. However, biomonitoring alone cannot significantly impact health disparities. It has the ability to identify risk factors and monitor disease, but low income individuals may have little ability to do anything about it due to social and environmental factors such as lack of access to health care, and inability to change behavior within their environment.

Currently, cost is the most significant barrier for the use of continuous, passive biomonitoring for disparity reduction. The Disparity Reducing Advances project and the Biomonitoring Futures Project developed a number of recommendations to speed up the development and deployment of this technology, focusing on use in the general population and underserved communities:

- Develop interoperability standards
- Build capacity at the community level to study continuous, passive biomonitoring in underserved communities
- Launch pilot projects using continuous, passive biomonitoring in underserved communities
- Develop guidelines for implementation of continuous, passive biomonitoring in underserved communities and for diseases with high health disparities
- Ensure diffusion of best practices
- Enhance public private partnerships for development and evaluation of continuous, passive biomonitoring as well as development of reimbursement strategies.
- Develop a network for information sharing on biomonitoring for disparity reduction

Review the full report at: http://www.altfutures.com/DRA/Continuous_Passive_Biomonitoring.pdf. For more information on the DRA Project, visit our website at www.altfutures.com/draproject.

“The challenge is not only to anticipate the future, but to create it.”

The DRA Project - Institute for Alternative Futures

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