

# CareBank: the Power of Peer-Care in the Palm of Your Hand!

## Abstract

Today, almost half of all American women 75 and older are living alone, afraid that something may happen and no one will know. Loneliness is a key predictor of a cascading range of co-morbidities, including: cognitive decline, depression, substance abuse and suicide. Poor medication adherence costs over 125,000 preventable deaths and \$289 Billion in excess healthcare costs every year. Peer-Care tools, empowered by innovative Internet of Things (IoT) technologies, may synergistically solve medication adherence and social isolation problems while closing the growing gap in unfulfilled eldercare services.

## Problem

A recent New York Times article<sup>1</sup> describes the “4,000 lonely deaths a week of the world’s most rapidly aging society” in which Japanese elders “died without anyone knowing, only to be discovered after their neighbors caught the smell.” Is this a fate that awaits 14 million older Americans who are living alone? Like their Japanese contemporaries, many fear that nobody will know if something happens to them, until it’s too late and they suffer the ultimate indignity of a lonely death.

Social isolation and medication nonadherence are epidemic public health problems.<sup>2</sup> Older Americans are aging in place by choice or necessity at historically unprecedented rates, amid a growing caregiver gap with fewer healthcare professionals and family caregivers to provide support for their rising needs. Elders are especially at risk because they are more likely to suffer from health problems and shrinking social connections due to the loss of friends and family. This white paper examines how IoT + Mobile technologies can empower people with new Peer-Care tools to strengthen their social networks, ease age-related risks and help solve these health problems in time to escape the fate of lonely deaths.

## Background

Socially isolated older adults, who lack meaningful contacts, are at greater risk for poor health and death than connected elders. Medicare spending data has revealed that a lack of social contacts among older adults is associated with an estimated \$6.7 Billion in additional federal spending annually.<sup>3</sup> In addition to differences in the cost and use of healthcare services, researchers found that risk of death is about 50 percent higher for socially isolated elders. The researchers concluded that interventions should explore the desirability and feasibility of using technology to reduce isolation among older adults.

Social relationships affect health behaviors, mental health, and mortality risk. Forty five thousand Americans die by suicide every year.<sup>4</sup> The annual age-adjusted suicide rate is 13 per 100,000 individuals. For elders, the rates are much higher: 18 and 19 per 100,000 for 75 – 84 year olds and 85+ respectively. And for every suicide, there are 25 attempts, costing the US \$69 Billion annually. In addition, medication nonadherence has been associated with 125,000 deaths, 10% of hospitalizations, and costs \$289 Billion annually.<sup>5</sup> These negative health and economic effects of medication nonadherence and social isolation may be prevented by applying Behavioral Economic Principles to incentivize Peer-Care services.

Remote patient monitoring is an emergent field of connected healthcare services, particularly for the expanding population of elderly Americans. The use of IoT sensors to remotely monitor the health status and safety of elders in their homes is a potentially valuable eldercare investment. Savings resulting from implementing smart technologies offer immediate value, to both individuals and healthcare systems.<sup>6</sup>

## Solution

The CareBank rewards peers for mutual medication and safety monitoring to help save lives and money. The CareBank App puts the power of Peer-Care in the palms of our hands. It is designed to empower people with smart technology to participate in the Care Sharing Economy, providing innovative tools to help improve medication adherence and life-affirming behaviors while strengthening social connections.

Unlike those old fashioned Help Buttons, CareBank alerts summon peer help when **nothing** happens:

## Help Button versus The CareBank



**Fear-based.**

No Button pushed - No Help comes.

**Peer-based.**

Help comes, no Button needed.

The CareBank is peer-based, not fear-based like Help Buttons, and uses IoT sensors to alert Peer-Care givers about problems before they become emergencies. Our patent pending Method and System for Social Care Networking uses an IoT Sensor Net to catch potential problems before they become crises. Problems are detected and reported automatically to the Peer-Care Circle's smartphones, empowering them to provide trustworthy, low-cost monitoring and first response services from the comfort of home.

Small wireless sensors monitor how peers are going about their daily activities like eating meals and taking medication regularly. Peers agree to share this information with their Peer-Care Circle consisting of their trusted neighbors. If the sensors detect that a Peer may not be okay, their Peer-Care Circle will receive an alert on their smartphones to call the Peer who may be in danger. Most of the time, everyone in the Peer Circle is fine. However, if someone has stopped eating or forgotten to take their medication, trusted peers will be the first to know – and respond. The first responder's CareBank account is credited automatically for taking good care to call and help resolve the problem before it escalates to a crisis.

## Testimonials

*It's like an Advanced Directive – you want to get this set-up before you need it.*

*You don't want to wait for a crisis to implement something that will help you stay safe at home.*

*It feels like someone's looking out for you. Yeah! Someone cares. So you have to keep up your routine to let them know that you're okay.*

*I think it's very beneficial because what goes around comes around. If I'm going to be a good, helpful monitor, someone will do the same for me.*

*That's what life's all about – The Golden Rule: Do unto others as you'd have them do unto you.*

*I would definitely recommend it. It's a brilliant idea!*

## Conclusion

We urgently need holistic solutions that empower us to take better care of ourselves and each other. How many of the 170,000 lives lost each year to medication nonadherence and suicide could we save by engaging elders in Peer-Care? How much of the \$365 Billion in preventable healthcare costs resulting from medication nonadherence, social isolation and suicide might be saved annually through Peer-Care?

The CareBank offers unique value propositions for public, private and personal healthcare services:

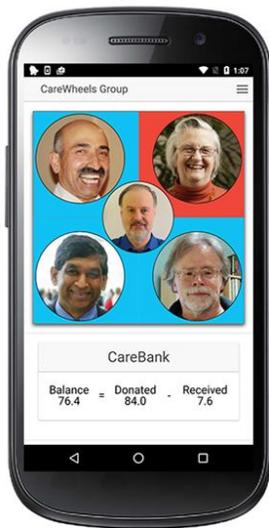
- Medicare savings from increased medication adherence and reduced social isolation,
- Senior service organizations' increased revenues from attracting and retaining more clients,
- Peers' health benefits from taking better care of themselves by taking good care of each other.



**Claude A. Goodman**, Founder & President of CareWheels, is a Columbia University educated Biomedical Engineer, Gerontechnologist and Inventor with seven patents in the field of biomedical engineering, and decades of experience in health-sciences related research, development and technology transfer as a guest scientist at the University of California, Lawrence Berkeley National Laboratory and the National Institute of Standards and Technology. He served as a founding member of CAST, the LeadingAge Center for Aging Services Technologies and as a founding Consortium Council Member of the Oregon Center for Aging Technology. He founded CareWheels in 2001 as an Oregon §501(c)(3) non-profit corporation, with grant funding from the Intel Research Council, to explore new technologies designed to strengthen the Social Determinants of Health.

CareWheels established the Living Lab Method of in-home Participatory Design Research to develop social care network technologies that support elder empowerment within the home and interdependent living in the community. This research revealed the transformative power of Peer-Care: we take better care of ourselves when we take good care of each other. [CAG@CareWheels.org](mailto:CAG@CareWheels.org)

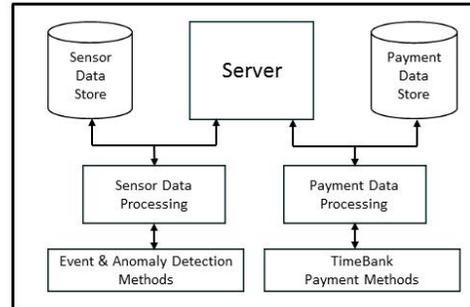
CareBank Platform = Apps + Sensors + Server



Wireless IoT Sensors



Sensors: Meals, Meds & Presence



Patent Pending: US 15/694,942 – System and Method for Social Care Networking

The CareBank is a cloud-based Care Sharing Economy Platform that integrates TeleCare IoT Sensors with a virtual TimeBank and Behavioral Economic Incentives into a simple, easy to use Mobile App that puts the power of Peer-Care in the palms of our hands to help save lives and money.

## References

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- <sup>6</sup> Reduced Healthcare Use and Apparent Savings with Passive Home Monitoring Technology: A Pilot Study. Journal of the American Geriatrics Society 65(6), April 2017 DOI: 10.1111/jgs.14892  
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