

Reducing cost of in-force blocks by managing the risks of aging

The rationale

Currently in the US, there are about 7 million in-force Long Term Care(LTC) policies with maximum potential benefit values of about \$2T. An [NAIC analysis](#) shows that a person who bought the average long-term care policy at age 60 would have paid \$52K in premiums by age 82. The amount of total benefits available to him at age 82 is \$547K. While not everyone will use the full amount, these policies are deemed problematic due to historical errors in their underwriting projections, increased longevity, and other factors. Prior efforts to remedy this situation have focused mainly on increasing premiums and introducing barriers to the claims process . To date, the insurance industry has done little to reduce the future need for LTC. We propose to apply strategies that have proven successful in healthcare, such as early intervention and population health management, to reduce the future LTC needs of policyholders.

LTC insurance primarily covers home care services, assisted living facilities and nursing homes. Most policyholders go through a protracted period of health decline before engaging these covered care services. During this period of decline, family members and friends are typically relied upon with increasing frequency to provide support and care at home. Therefore, the factors that influence how long a policyholder is able to age at home without utilizing covered services depends on both their health trajectory and their family's ability to continue to provide care, with the latter often limited by caregiver burnout.

We propose that supporting family caregivers while preventing policyholder functional decline will help delay utilization of covered services and is therefore a high ROI investment for LTC carriers with in-force LTC blocks.

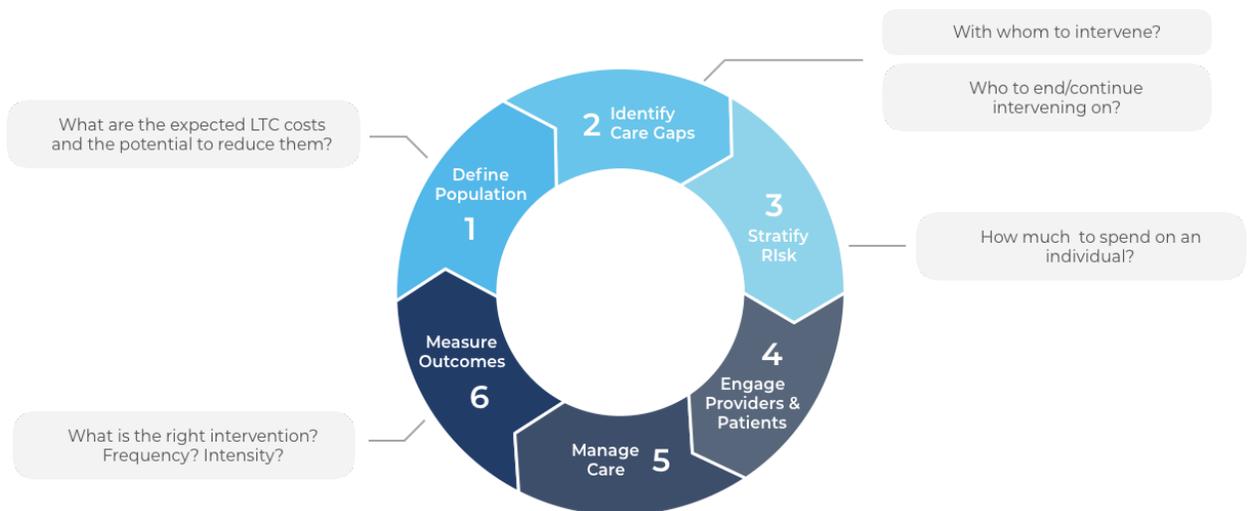
Interventions to prevent clinical deterioration/illness are well studied in healthcare. Disease management companies are already successfully using predictive modeling (e.g. “precision medicine”) to match the right clinical intervention to individuals.

Our approach - LTC focused population health management

Taking a proven population health management approach, our team of physicians and data scientists developed a system to to delay need for LTC. Some policyholders will become claimants later and some will not at all.

Population health management(PHM) is an approach to manage a population to achieve certain endpoints. It involves allocation of resources, interventions, monitoring and reporting.

PHM is a quantitative approach similar to others used in insurance. (e.g. the allocation of investments in a portfolio). (see diagram below for steps)



In LTC, the endpoints, datasets and complexity are different from those in healthcare but the methods/questions are the same.

In general, PHM is about the right intervention for the right person and the right time. This requires answers to few critical questions-

- What are the expected LTC costs and the potential to reduce them?
- With whom to intervene?
- What is the right intervention for him/her?
- How much money to spend on a policyholder (i.e. individual budget)?
- When to conclude/continue intervention?
- What should be the frequency/intensity of intervention?

Through research on hundreds of thousands of lives for 20+ years, we identified a set of predictors which allow us to better assess the risk of utilization for individuals in the next 1-6 years. These were incorporated into predictive models which provide actionable insights and answers to the aforementioned PHM questions. Examples of such answers include risk scores, intervention matching and required duration and frequency of intervention.

The interventions we utilize

Early intervention is the key to reducing the need for LTC. Our platform was designed through the combination of feedback from hundreds of family caregivers and comprehensive study of the literature around preventing functional decline and deterioration that lead to LTC usage.

The average LTC policyholder and their family experience little tangible value from their policy for most of the early years during which they are paying premiums. It is precisely this time period during which we propose to support the family and reduce future LTC need. Supporting the family caregivers can include counseling, support in finding the right resources, social support and respite and backup care for whenever

they need it. Supporting the aging adult includes ongoing assessment and proactive prevention of complications as well as support during and after acute events (e.g. hospitalizations).

We are agnostic to the source of intervention, as long as it is proven.

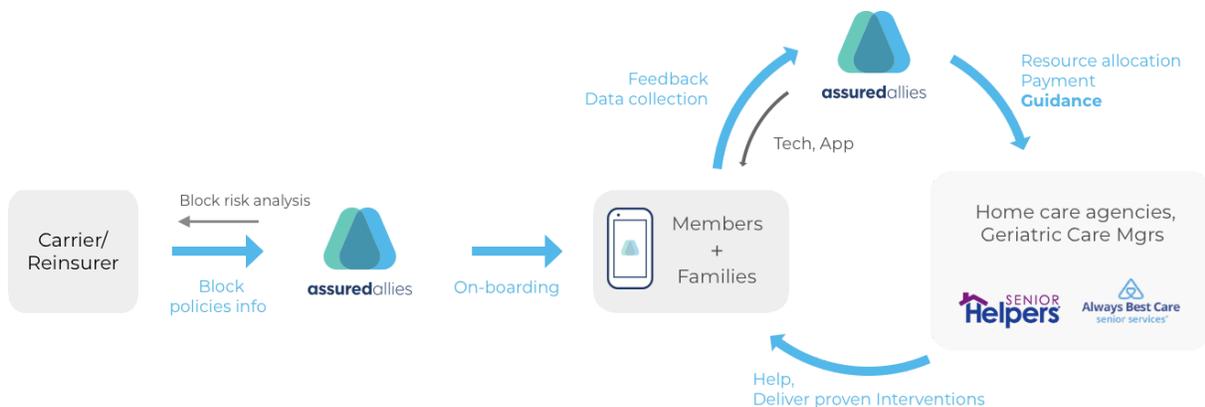
Our advantage lies in using the predictive models to properly target, execute and track the interventions. This approach is similar to how advertising companies target users online with the right contextual ads. Some of the interventions we offer are in the following table:

Study	Average effect and metrics*	Relevant segment	Tier
Programs of All-Inclusive Care for the Elderly (PACE®)	95% of nursing home eligible remain at home (and leverage home care and adult day care centers) >80% spent fewer than 30 days in a nursing home before dying	Age 55+ eligible for nursing home care	1
Improving caregiver well-being delays nursing home placement of patients with Alzheimer's disease (NYUCI)	Nursing home placement incidence reduction of 28.3%	Alzheimer's dementia	1
Fall prevention (1,2,3) (USPTF recommendation)	Adjusted risk of nursing home admission One non injurious fall- 3.1 (95% CI,1.9-4.9) 2+ non injurious falls- 5.5 (95% CI, 2.1- 14.2) 1 injurious fall- 10.2 (95% CI, 5.8 to 17.9) USPTF interventions reduce ~36% of falls	65+	1
Home visits to prevent nursing home admission and functional decline in elderly people	33% reduction in nursing home placement when >9 visits/year. 24% less functional decline	Age>75 or comorbidities	2

End-to-end solution

In our solution, the friction and the healthcare/caregiving related work is abstracted from the carrier. We enable a “doing the right thing” financial strategy to benefit from risk arbitrage on in-force blocks. Carriers can also control the level of intensity of the program, and in doing so, realize higher gains. The Assured Allies network (e.g. home care agencies, geriatric care managers, other services providers) is a core component of our end-to-end solution that operates as follows:

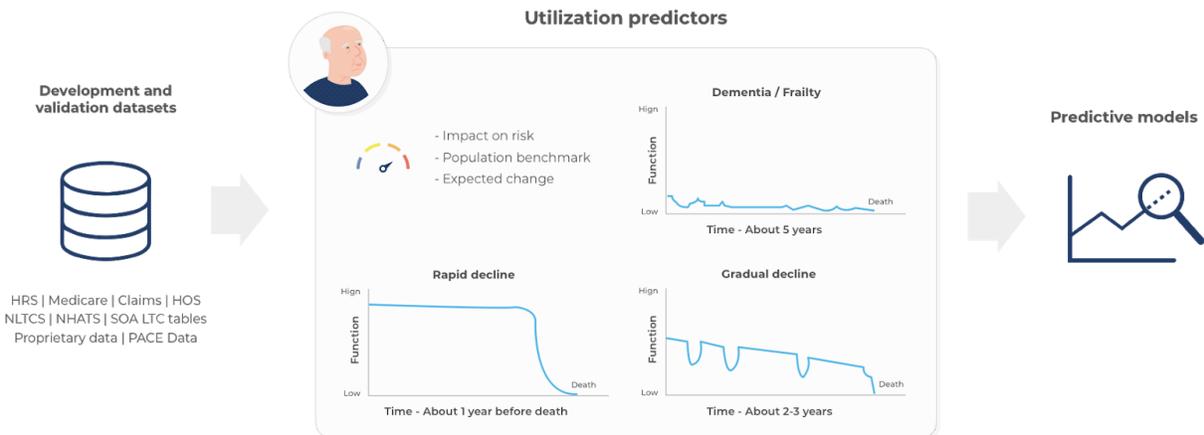
- We onboard policyholders and collect data using our proprietary questionnaires and home assessment process.
- We use our simulation models which output a deeper analysis of the state of the block, future projections and potential for improvement.
- We use analytics to match and target **already proven** interventions with policyholders and families, resulting in a personalized care plan.
- We pay home care providers and other professionals for their services directly.
- We monitor the execution and the caregiving journey (through our app and our partners) and intervene if problems arise.
- We continuously update our models and process with the collected feedback.



Actuarial simulation (based on Society of Actuaries data tables) of reduction of nursing home utilization using our interventions on an average ~13K lives closed LTC block should yield **expected saving of over \$100M.**

Our research and technology

Transforming insurance for the aging population requires modeling both the aging and the family caregiving processes. We use a combination of publicly available and proprietary medical and social data sets. Our technical approach is depicted in the following diagram. Our day-to-day execution is heavily reliant on technology for passive and active data collection for risk stratification, matching of interventions and simulation of expected improvement.



Value proposition and differentiation

- **Real world proven interventions:** We use interventions developed and proven by others to work in large scale real world populations and respectable clinical journals. This is a best of breed approach where our focus is sifting through policy blocks to identify the right people to deploy, well before the need for LTC services. (we start intervening a few years before claims start)
- **Data driven:** We identified utilization predictors in the 20+ years of data of hundreds of thousands of seniors. We used this data to build our predictive

models to predict what is likely to happen to policyholders and match them with the right interventions. We collect data actively and passively from the family and use it with our models to guide our interventions and provide carriers with a deeper view of their block - projection of block's cost and improvement potential.

- **Zero friction:** We provide an end-to-end solution that allows carriers to reduce cost of blocks without the need to experiment, research and face friction. Moreover, we charge a fixed per-member-per-year fee and allocate the budget per our risk stratification of the policyholders.
- **Win-win solution:** Families caring for aging adults are desperately seeking additional support. By offering interventions earlier in the caregiving journey, value is created for both the carrier and the policyholders and their families. A core focus of our approach is helping the 45M informal (family) caregivers in the USA which do a labor of love to help their loved ones. Our company started from the desire to support this invisible workforce, but we realized that if this is done properly as part of targeted interventions, a strong business model can be built.

About Assured Allies

Assured Allies is a venture-backed startup comprised of a passionate team of medical professionals and entrepreneurs, with 30+ years of experience in clinical analytics, mobile user profiling, patient engagement, and patient reported outcomes. We have lived the challenges of caring for our parents first hand and decided to apply our experiences in other industries to improve the lives of the aging population and their families. Utilizing machine learning, design and data, we are building affordable solutions to support family caregivers that in turn, improve the performance of existing and new LTC policies.