

Caring For Members Where They Live

A GIS Opportunity for Kaiser Permanente Home Care

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Outline

- **Kaiser Permanente Southern California (KPSC) Home Care Services: **Current State** and **Challenges** On The Horizon**
- **Vision for Home Care: **Services Reimagined** and **Delivered At Scale****
- **GIS's Role In Executing On This Vision: Combining Highly Efficient Service Delivery with Data About "Place"**



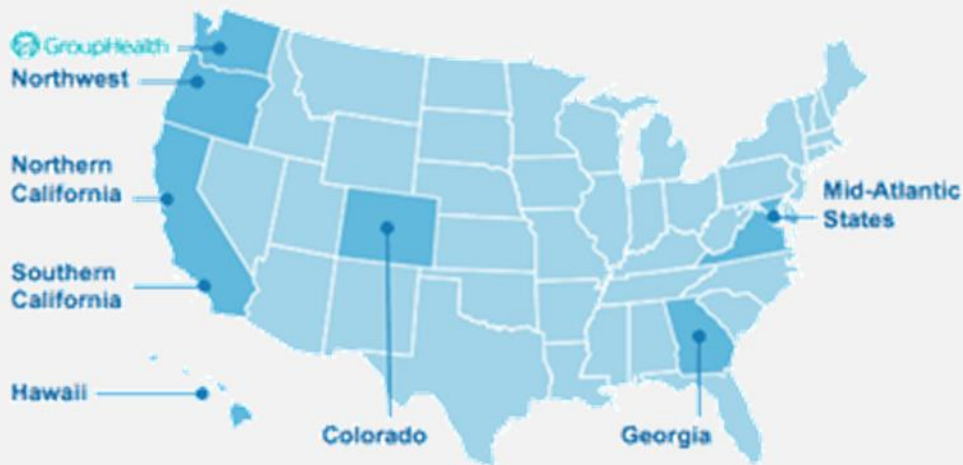
KAISER PERMANENTE®

**199,320
Employees**

38 Hospitals
661 Medical Offices

**11.3 Million
Health Plan
Members**

Across 8 States + D.C.



Kaiser Permanente Southern California (KPSC) Today

Service area spans over **17,000 square miles**, from San Diego to Bakersfield

In 2016, generated **120,000+ referrals** for home care services in KPSC alone

7 licensed Home Health Agencies (HHAs) owned and operated by KPSC



KPSC Home Care Services Today



- Typically delivered by a skilled clinician (RN, PT) – hands-on, face-to-face, in member's place of residence
- Specific qualification criteria (homebound, needs specific skilled nursing)
- Most often for post-operative care, wound care, chronic disease management, and infusion
- Most users covered via KP Medicare plan

The Big Challenges on the Horizon

Demand Increasing Exponentially

Population Demographics & The Aging Population

37 million baby boomers turn 65 in the next decade – and already, 70% of KPSC's home care volume are members age 65 and older

Intentional Shifting of Services

Expensive, intensive inpatient hospital setting shifting to outpatient clinics and home

We Already See Demand Booming

From 2014 to 2016, while membership increased 11%, home health referrals in KPSC **increased 27%**

The Evolving Consumer

Healthcare industry shifting from provider-centric to **person-centered** care – recognizing the importance of social/nonmedical determinants of health

Expectations of technology-enabled, personalized, 24/7, convenient access

People Want Us To Be More Like...



And Less Like...



Vision For Our Future: Better Outcomes, Lower Cost

Demand Increasing Exponentially



Highly efficient, centralized operations

- Launch centralized **Integrated Care Center** to develop capacity to handle volume (coordination, triage, dispatch) and high-quality case management
- Allocate face-to-face resources most efficiently
- Manage care virtually where possible

The Evolving Consumer



Expand *who* gets home care and *what* those services look like

- Better address **needs of existing users**: coordinated care teams, individually-tailored care plans
- Broader **service options**: clinical care, personal care, health education and coaching, caregiver support, and/or social nonmedical resources
- **New segments** of people who could benefit from care in the home: medically fragile, chronic disease, healthy millenials with an acute need

GIS's Role in Executing On This Vision

Demand Increasing Exponentially

The Evolving Consumer

Highly efficient, centralized operations

Expand *who* gets home care and *what* those services look like

We need platforms, systems, and data to do this at KPSC's scale.

Today we'll share **three areas of opportunity** we see through using our enterprise ArcGIS and other ESRI products.

**Optimal Personnel
Dispatching**

**Geographic Data for
Strategy Development**

**Geographic Data for
Personalizing Care**

Enterprise-Wide Access to Geographic Data at KP

Electronic Medical Record: KP HealthConnect (Epic)

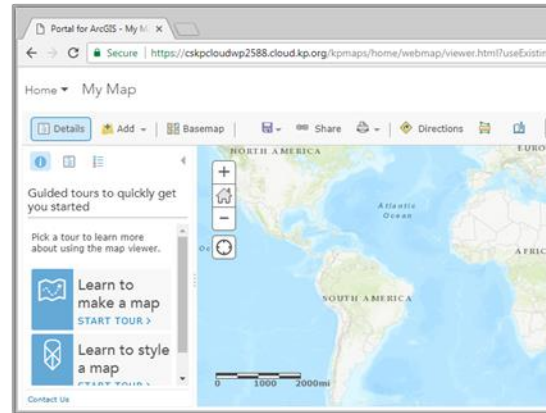
Member **address** is captured during health plan enrollment and confirmed at the point-of-care, and is stored in an Oracle database (11 million+ members!)



All KP hospital and clinic locations, including addresses, are stored as a table in this database, too. (700+ locations!)

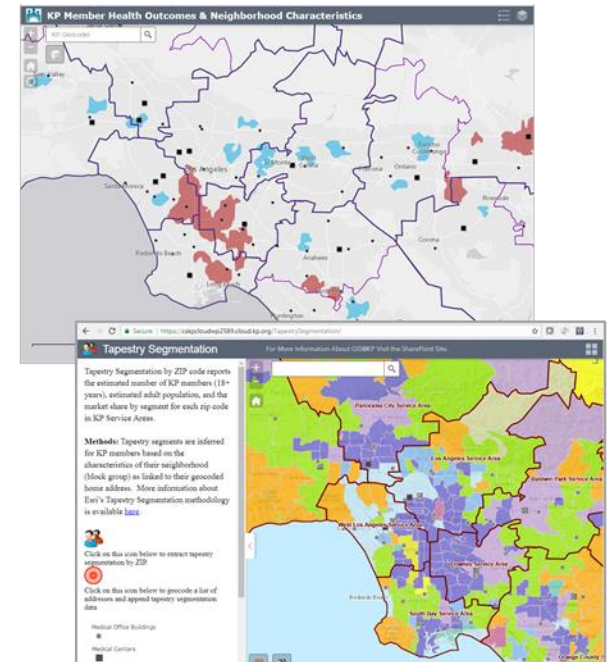
ArcGIS Enterprise Portal: KP Maps (Intranet)

Users can extract raw data and **geocode** addresses using our ArcGIS Enterprise Portal Website's premium geolocator



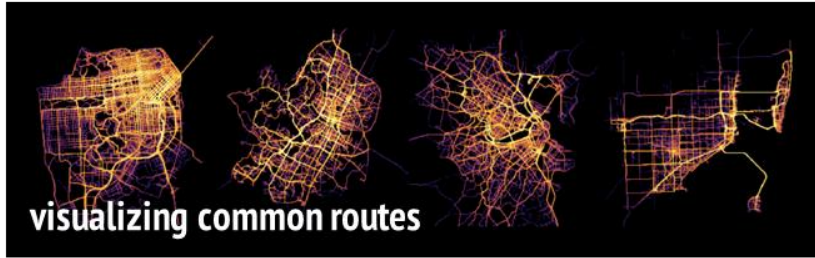
- > Access through a browser (no desktop program needed)
- > Fast, easy learning curve for casual users like me!

Geocodes can be **enriched** with ESRI data layers (Tapestry, Business Analyst) and **spatially analyzed** using ArcGIS analysis and travel time modeling functions



Example 1: Optimal Dispatching

We are **inspired** by other industries...



Text Message
Today 12:48 PM

Hey Savannah, Wag! here. One of our best walkers will be walking your neighbor's dog today at at 2:30pm, and I wanted to see if you'd like them to walk your pup right after? Since the walker is already nearby, this walk will be 15% off. Reply "YES" to this text to schedule this walk and it will be automatically set up for you.

proximity-based notification



progress transparency

Example 1: Optimal Dispatching

We are beginning to use GIS to solve **classic logistics issues** (Traveling Salesman Problem)...

Home ▾ My Map New Map ▾

Details Add ▾ Basemap Analysis Share Directions Bookmarks KP Geocoder

Perform Analysis

- Summarize Data
- Find Locations
- Analyze Patterns
- Use Proximity
 - Create Buffers
 - Create Drive-Time Areas
 - Find Nearest
 - Plan Routes**
 - Connect Origins to Destinations
- Manage Data

Plan Routes

You provide a set of stops and the number of vehicles available to visit the stops, and Plan Routes determines how to efficiently assign the stops to the vehicles and route the vehicles to the stops.

Use this tool to plan work for a mobile team of inspectors, appraisers, in-home support service providers, and others; deliver or pick up items from remote locations; or offer transportation services to people.

0 0.3 0.6 mi

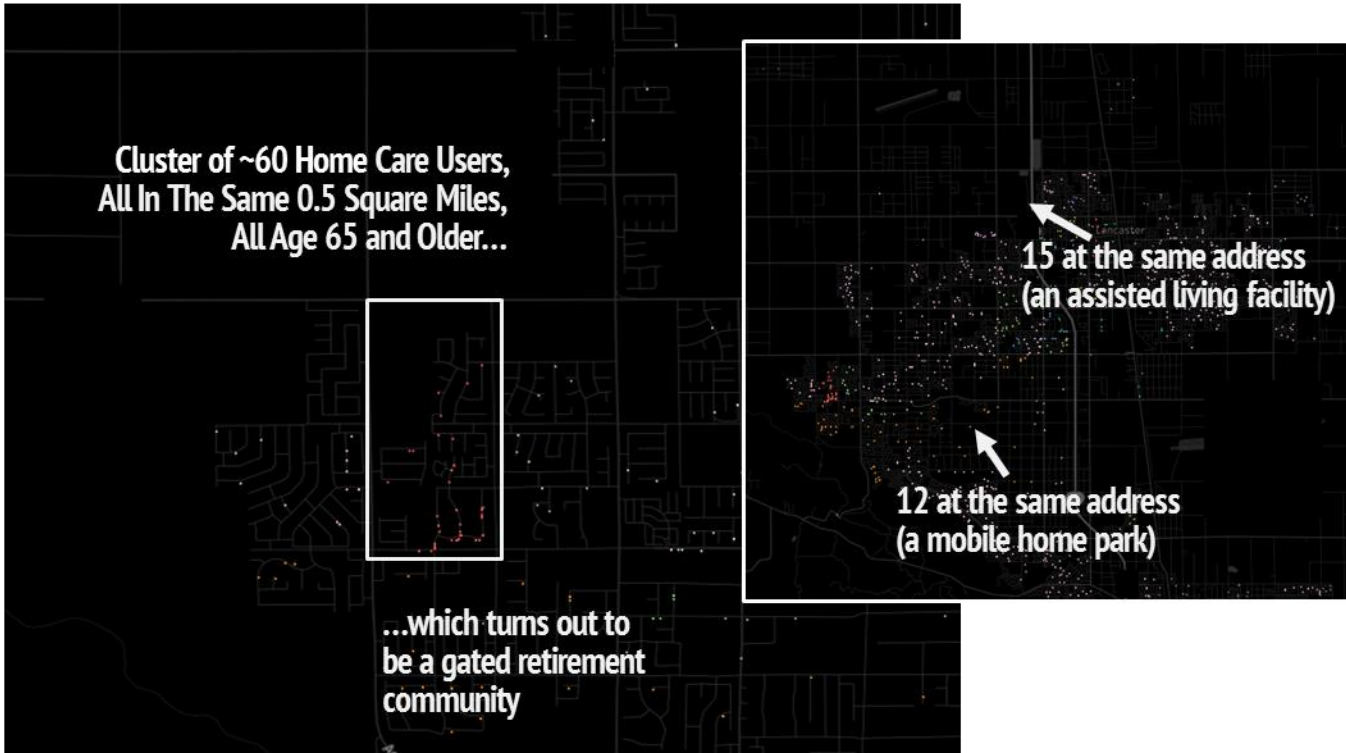
County of Los Angeles, Bureau of Land Management, Esri, HERE, Garmin

How might we improve the efficiency of what we're currently doing manually?

Given a list of member locations to split between providers, what's the optimal allocation and optimal sequence of visits?

Example 1: Optimal Dispatching

...But are also using it to explore **new service delivery concepts**.



How might we better
forecast and anticipate
where the need will be?

How might we capitalize on
proximity to proactively
schedule visits?

Could we improve outcomes
and address social isolation
through connecting nearby
members?

Example 2: Geographic Data for Strategy & Planning

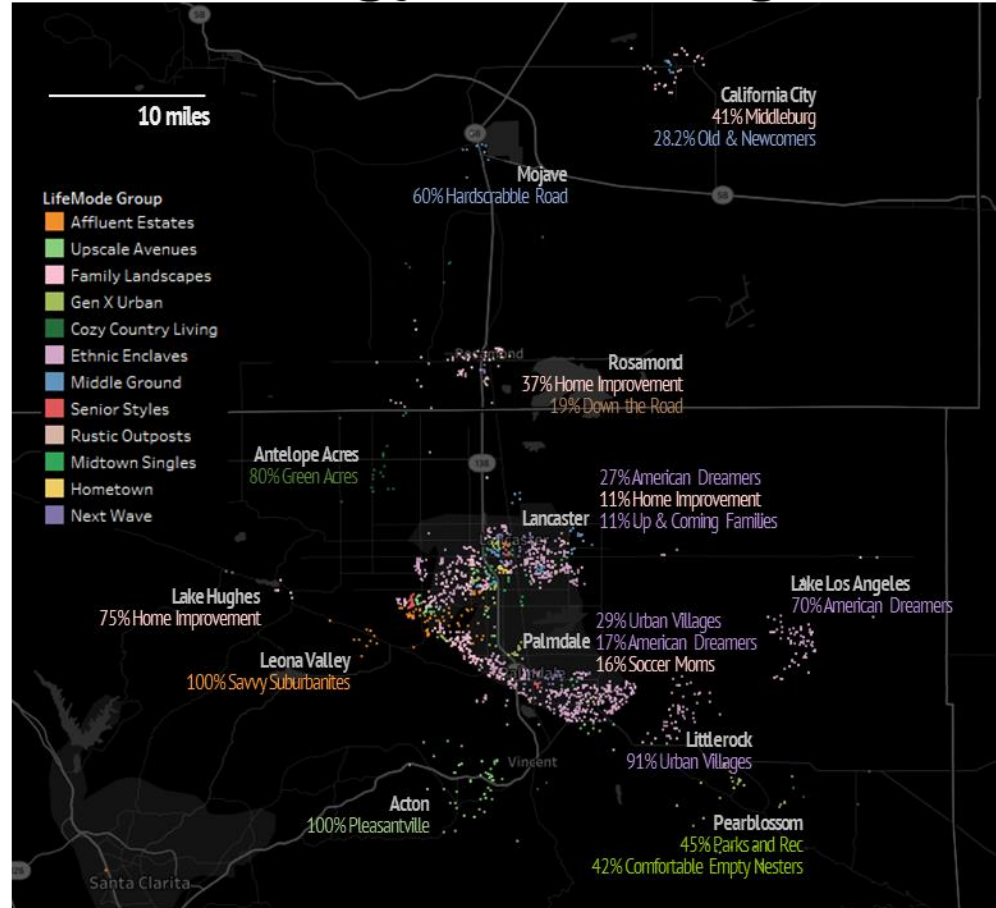
We mapped all the members who are referred to our field office in **Antelope Valley**, and explored trends in their ESRI Tapestry Segment.

Seeing the distribution across the service area helped us build “system intuition”

“How might we customize Antelope Valley’s service offerings by combining medical record data and consumer data insights?”

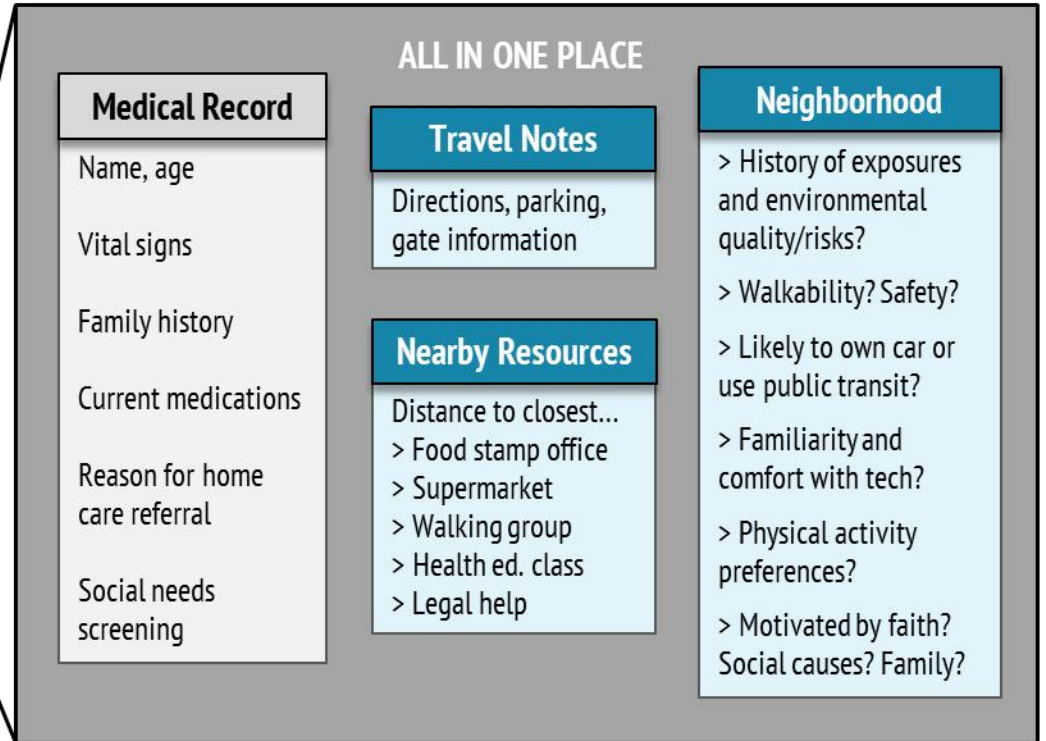
ESRI Tapestry Segment data enables person-centered paradigm shift

Note: The data mapped here is from a *synthetic dataset* that mimics the same aggregate properties of KP’s actual data but does not reveal Protected Health Information (PHI) about our members’ addresses.



Example 3: Geographic Data for Personalized Care

Long-Term Technology Strategy: Fully integrating GIS tools for our home care providers, at the point-of-care, can **enrich medical information** with practical logistics, locations of nearby resources, and relevant neighborhood-level trends.



We're **Early** In This Journey

Our goal with home care is to not simply adjust to growth – but to execute on a whole new innovative way of doing business. **Because of the geographically distributed nature of home care, GIS and place-based data are helping us chart the path forward.**

We are excited to share these early ideas and to learn from others who are also on this path.

Thank you!

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