Advancing Community Health Through Strategic Planning: A Framework for Transforming Health & Housing for Medi-Cal Populations with GIS-Driven Policy & Behavioral Change

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Introduction

In 2022, California Advancing and Innovating Medi-Cal (CalAIM) was launched to create a more coordinated, person-centered, and equitable health system. This initiative focuses on addressing the needs of vulnerable populations, especially those experiencing social inequalities through policy-driven interventions and behavioral health supports.

Key Challenges in the Current System:

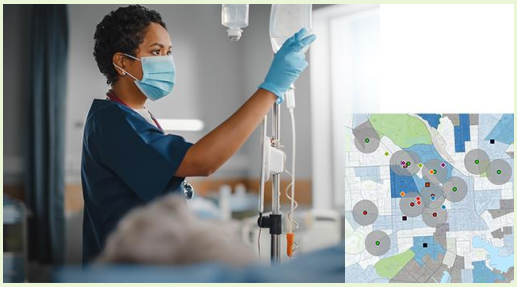
- Fragmented Services → Lack of coordination between healthcare, housing, and social services.
- High-Need Populations → Individuals with complex medical & behavioral health conditions face barriers to care.
- Inequitable Resource Distribution → Some regions lack sufficient behavioral health and housing support services.

Solution: Strategic Planning + GIS Integration for Policy & Behavioral Change

Why GIS?

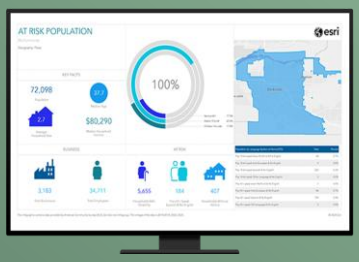
Geographic Information Systems (GIS) provide spatial analysis to:

- **Identifying High-Need Populations:** Mapping housing instability, ED utilization, and behavioral health crises.
- **Pinpointing Service Gaps:** Highlighting shortages in mental health care, housing support, and preventive interventions.
- **Optimizing Resource Allocation:** Mapping hotspots of unmet needs to guide funding decisions.
- **Tracking Policy Impact:** Assessing the effectiveness of health and housing interventions over time.
- **Enhancing Collaboration:** Providing a shared visual tool for stakeholders to improve coordination and decision-making.
- **Visualizing concepts in a more holistic way:** Reviewing statistics, such as percentages, bars and charts.



Target Population

This study examines mental health access and utilization among individuals aged 8-24 in low-income areas, highlighting disparities across counties. **Riverside & Los Angeles Counties** face limited access and low utilization, indicating service gaps. **Alameda, Butte, San Diego, & Shasta Counties** show high access and utilization, possibly suggesting inefficiencies. **Sierra County** maintains balanced access, while **Stanislaus County** exhibits high utilization with average access.



GIS technology such as Esri plays a crucial role in health equity. It helps health professionals understand social determinants of health, identify inequities, and improve service levels. GIS aids in mapping care access, highlighting underserved communities, and tailoring interventions to bridge gaps.

Research methods

This study uses a mixed-methods approach:

1. **Data collection**:
   - Quantitative: public health datasets, census data, electronic health records (ehrs), crime reports, and housing statistics.
   - Qualitative: interviews and focus groups with community members and healthcare providers.
2. **Data processing and mapping:**
   - Gis software (e.g., arcgis) overlays health outcomes, demographics, service locations, crime rates, and housing conditions.
   - Zip codes and geographic identifiers are used to segment data by location.
   - Hotspot analysis identifies underserved areas and service gaps.
3. **Data analysis:**
   - Descriptive & inferential statistics: identifying trends and correlations.
   - Thematic analysis: coding qualitative data to assess community needs.

Process for mapping social determinants of health (sdh)

1. **Identify key indicators:**
   - Health factors: chronic disease prevalence, ed visits, mental health diagnoses.
   - Housing factors: homelessness rates, eviction rates, affordable housing availability.
   - Crime and safety: crime rates, violent incidents, neighborhood safety metrics.
   - Socioeconomic indicators: unemployment rates, median income, education levels.
   - Transportation access: availability of public transit, distance to hospitals, travel time for emergency **services.**
2. **Geocoding and spatial analysis:**
   - Collect location-based data using zip codes, census tracts, or administrative boundaries.
   - Overlay datasets in gis to visualize disparities across regions.
3. **Identifying service gaps:**
   - Use spatial clustering to detect underserved areas lacking healthcare, housing, or social services.
   - Compare access levels across different demographic groups.
4. **Tracking changes over time:**
   - Monitor intervention impacts by regularly updating maps.
   - Use trend analysis to evaluate policy effectiveness.

. Conclusion

GIS fosters a data-driven, location-based approach to health equity. By mapping disparities, communities advocate for their needs, policymakers make informed decisions, and healthcare access improves for all.

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