

healthyGIS

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GIS for Health and Human Services

Finding and Keeping Quality Nurses

Stanford Medicine is taking a geographic approach to recruiting and retaining a top-caliber team of nurses.

"Recruiters have had hunches for decades about which features—such as pay, shift, and location—would be attractive to nurses," said David Schutt, who handles human resources workforce planning and analytics for Stanford University Medical Center. "GIS analysis has once and for all laid the location controversy to rest. We found that the nurse comfort zone for Stanford University Medical Center is about a 12-mile radius. Looked at another way, this is also a retention factor."

Stanford Medicine, located in Palo Alto, California, includes the Stanford University School of Medicine, Stanford Hospital and Clinics,

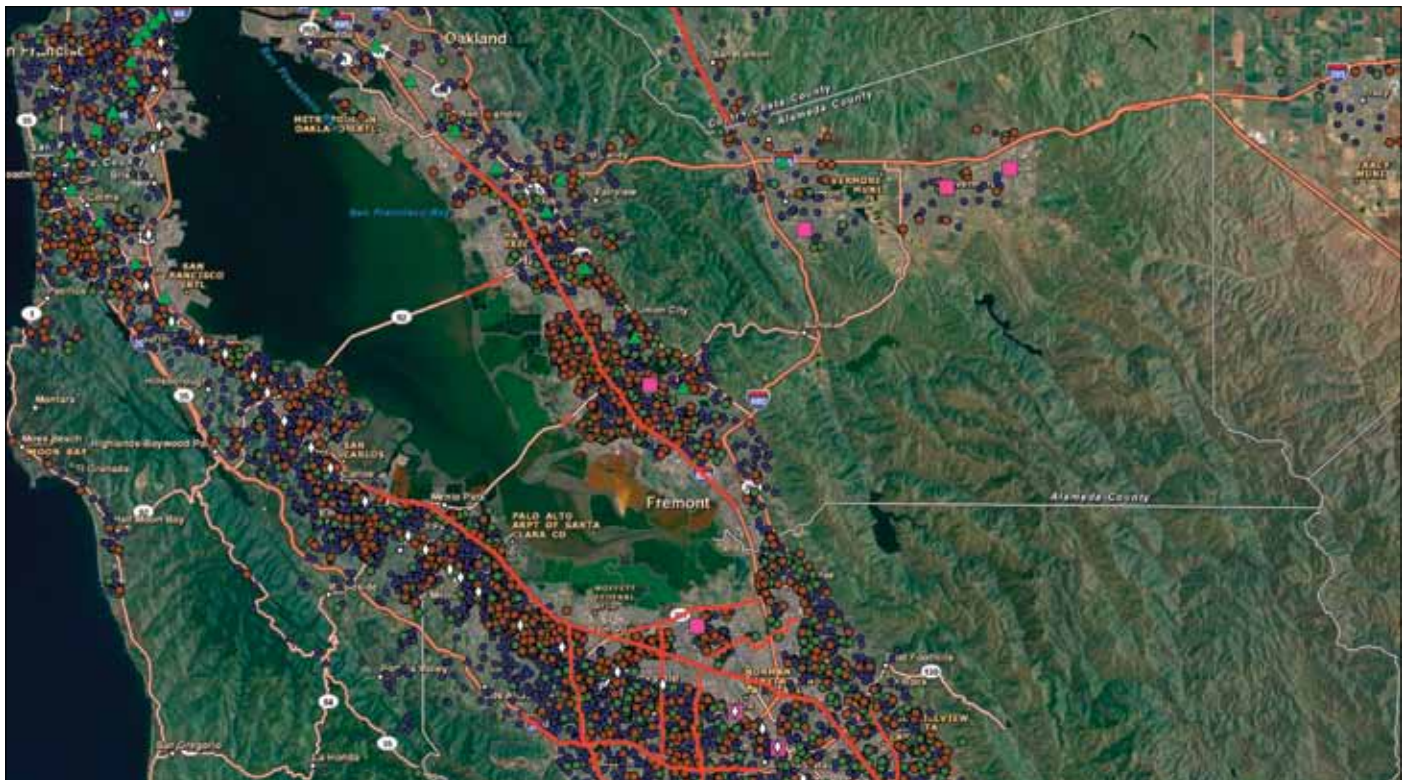
and Lucile Packard Children's Hospital. With 885 licensed beds, Stanford University Medical Center serves as the primary teaching hospital for the Stanford University School of Medicine and provides a clinical environment for research. The nursing staff occupies the largest clinical workforce category, with approximately 2,700 registered nurses.

Since practically every external clinical professional at any hospital must be state licensed and registered, Schutt said it is easy to map the geographic location of nurses. GIS analysis and mapping of this external data, combined with internal human resources workforce data, provides an overview of the hospital nursing supply and demand, as well as information about

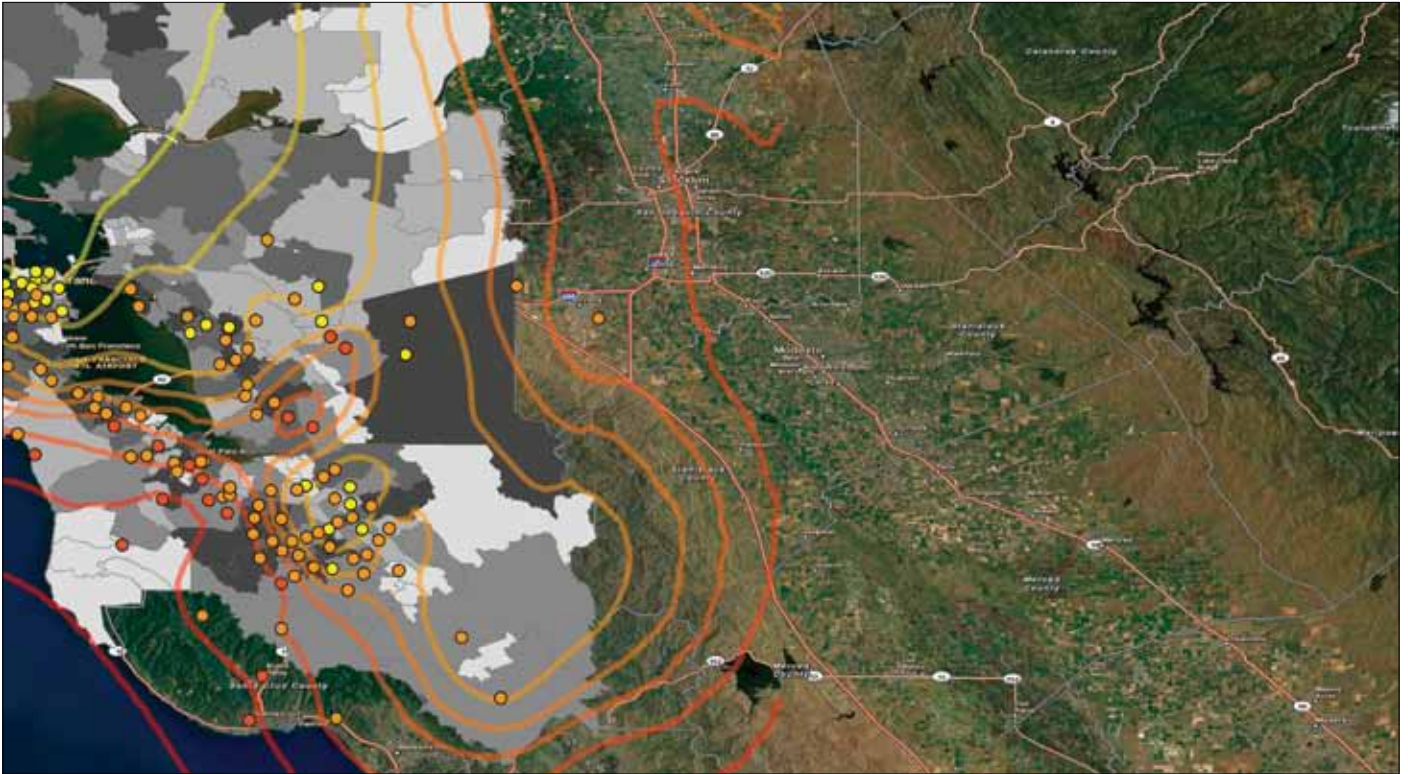
employee commute patterns and distance traveled to work.

With internal and external nurse populations mapped, GIS can then be used to answer questions related to workforce planning. Queries include How will we attract new entrants to our workforce given that many of our nurses living within a 6–12-mile radius of our hospitals are projected to retire in 10 years and the rise in home prices "mid-peninsula" has become far too expensive for just about any clinical professional? or What if we experience an earthquake in the middle of the night, but the majority of our nurses live on the other side of a major bridge affected by the quake?

"We have been able to ask and answer all these and many more questions," says Tony Redmond,



Shifts and commuting patterns are analyzed, with various shifts represented by blue, green, and brown dots. Commuting options are shown as white diamonds, green triangles, pink squares, and orange lines.



Hospital registered nurse age ranges are shown, with dark orange dots representing those closest to retirement, overlaid onto 2000 Census data of households with members 62 to 64 years of age for comparison. Contour lines show the predicted direction of aging.

director of nursing and allied health talent acquisition programs at Stanford University Medical Center. “Our human resources and hospital leadership are no longer experiencing a business intelligence deficiency as it relates to the development of actionable workforce plans.”

Although Stanford Medicine’s long-term planning related to GIS analysis is still in process, a large return on investment is already being realized. The recruitment advertising budget has been reduced by at least 50 percent—a monumental amount considering the San Francisco Bay Area is one of the most expensive advertising regions in the United States.

GIS enables the hospitals to identify places where there are too few nurses or too much competition and stop wasteful advertising in those areas. Through GIS, the hospitals now precisely target candidates and can use direct mail to reach them.

Mapping and analysis of workforce retention data provide insight into why nurses leave Stan-

ford University Medical Center to work elsewhere. Schutt performed a GIS analysis of all area hospitals with respect to the nurse comfort zone, the geographic location of each facility, and internal retention data. It became visually obvious that nurses just starting their careers could actually leapfrog from one hospital to another, up and down the San Francisco peninsula, looking for the right pay and the right shift.

“This knowledge helps anticipate and mitigate potential interruptions to continuity of care and avoid the astronomical costs associated with hiring and training replacements,” Schutt said. “Because of GIS analysis, we can potentially free up approximately \$22.5 million over the next two years that would otherwise be spent on replacement and training costs.”

For more information on this GIS workforce planning solution, contact David Schutt by e-mail at dschutt@stanfordmed.org.



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