The Workforce Collaborative of the Redwood Coast

Strategic Work Plan

for Education Needs, Health Information Technology, Recruitment and Retention for the Diversified Healthcare Industry Cluster

Prepared by the California Center for Rural Policy at Humboldt State University for the County of Humboldt Workforce Investment Board

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The Workforce Collaborative of the Redwood Coast Regional Partners

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Strategic Work Plan for the Redwood Coast
2010-2013

Executive Summary

The strategic work plan was developed for the Diversified Healthcare Industry (DHCI) Cluster for four counties of the Redwood Coast, Counties of Del Norte, Humboldt, Mendocino, and Trinity, in two phases. The first phase was conducted by Gainer & Associates under contract from the County of Humboldt, utilizing a Community Development Block Grant (CDBG) Planning and Technical Assistance Grant. The blueprint for a strategic plan that resulted from the first phase identified seven key goals and issues for developing a Diversified Healthcare Industry Cluster (DHIC), opportunities, assets and quick wins for the industry cluster, with recommendations for strategies and projects.

During the first phase, three separate outreach methods were used: Focus groups were held in Del Norte, Humboldt, Trinity and Mendocino Counties. Interviews with key leaders, who could not attend focus groups, occurred. Lastly, a survey of health care practitioners helped to underscore and define priorities for strategic action.

Phase 2 of the Strategic Plan development expanded on three strategies recommended during Phase 1. The California Center for Rural Policy, a research center at Humboldt State University whose mission is to conduct and support research connected to rural policy development, was tasked with gathering input from key informants (see Acknowledgements) to draft a strategic plan with more detailed steps tied to staffing and a timeline.

Strategy 1 focused on "Building a local pipeline of workers to address allied health workforce shortages," specifically by creating healthcare career educational highways that begin in the high schools and continue through articulated programs at College of the Redwoods (CR) and Humboldt State University (HSU). The major steps involved are:

- Convening a Task Force and working groups (Appendix B) that would provide regional and diverse leadership to oversee implementation of the workplan associated with the articulation of the educational highways and its translation to easily accessed "roadmaps."

- Facilitating the articulation agreements between high schools and CR and HSU regarding DHCI training, with prioritization based on surveying regional workforce needs (Appendix C) relative to the delivery of health care and workforce training targeted low income populations and underserved Tribal and Latino communities.

- Developing "roadmaps" which describe the educational highways developed through the articulation process that also integrate existing experiential and volunteer opportunities and internship placements for students in training (Appendix D). During DHCI roadmap development, a needs assessment will identify where "on-ramps" and "bridge" programs are needed to help increase and retain students moving through their training along the DHCI educational highways. These would also include assessment of and training in basic job skills such as communication, problem solving and teamwork (Appendix D).

- The DHCI roadmap is available as a Web-based tool, which not only maps out current educational and training options linking classes at the high school level to post-secondary classes, but also to real-time employment opportunities and openings for each occupation. Users guides are available on-line and as training for students, parents, and guidance counselors, with an association PR campaign.

- DHCI roadmaps interface, where possible, with existing assessments currently being used by County Offices of Education and schools.

- The use of the DHCI Roadmap tool is also made directly available for students through DHCI Career Exploration Fairs or Days throughout the four-county region, with preferences for the format of the career exploration experience to be guided by local school districts and job training organizations.

In addition, five additional stand-alone program options were recommended as additional "a la carte" menu options for enhancing the above steps to implement Strategy 1, in order to increase the numbers of persons entering the DHCI workforce from low-income, Tribal and Latino populations on the Redwood Coast. These are:

- To plan and pilot at two high schools, a High School Career Coaching Program, based on a model for career coaching developed by the Virginia Community College System (Appendix F), in which career coaches are made available for high school students who participate on a voluntary basis.

- To plan and pilot an Education Navigators Program at College of the Redwoods for low income, Tribal and/or Latino populations (HS students and adult learners seeking career change) to help students through the dance steps of enrolling, advising, financial aid, class registration, and career and education planning.

- To plan and pilot pre-college on-ramps and/or bridge programs identified in previously mentioned needs assessment, with priority target populations being low income, Tribal, and/or Latino students and workforce. An example from Washington State provides a model for how such programming can be codeveloped with other partner agencies and CBO's (Appendix G).

- To explore experiential programs to provide under-represented students with hands-on experience in diversified health care occupations, specifically the evidence-based model program, the Youth Health Service Corps developed by the Area Health Education Centers (Appendix I).

- To pilot "health literacy across the curriculum" in K-12 educational settings to best prepare all students at the beginning of the career educational highways, by adapting or developing health literacy lessons that can be delivered in classroom settings, including engaging older peer mentors who are already engaged in DHC education or engaged as participants in youth experiential programs.

Strategy 2 focused on "Apply Best Practices to recruiting and retaining healthcare professionals needed in the region" through improving our web-based presence, strengthening ties with medical universities, maintaining Health Professional Shortage Area (HPSA) and other designations that give providers additional funding for seeing low income patients, sharing specialists through the use of telemedicine and improving social support for health care providers that move to our region. The major steps involved are:

- To develop a first rate recruitment website(s)

- To provide additional funding support for local candidates for in-area and out-of-area training

- To establish relationships with training programs that have rural tracks

- To explore additional distance learning opportunities to assist entry level employees to get higher level instruction

- To apply for grant funding opportunities to get low income and minorities into training programs

- To improve access to residency programs—especially those with rural tracks
- To research creating a "teaching clinic"
- To maintain HSPA and other shortage area designations which gives physicians additional revenue for seeing low income patients by assessing sub-county eligibility for mental, dental & primary care shortage area designations
- To research telemedicine expansion opportunities
- To connect new providers and families to other community resources
- To conduct exit surveys when health professionals leave the community

Strategy 3 focused on "Training a local workforce in Healthcare Information Technology (IT) design and implementation" through the development of a partnership between local educational institutions (high school through college) and workforce development organizations that would create healthcare IT career educational highways to train a local workforce pool with healthcare IT expertise and software development skills. The major steps involved are:

- To create an Occupational Working Group for Health IT with the educational and workforce development partners described above.
- To examine existing classes in Computing Information Science and Health Occupations and align the curriculum to create a "new workforce" education program in Health IT.
- To create a regional HITS (Health Information Technology Systems) Resource Center funded as a federally designated center for curriculum and faculty training, with curriculum developed and equipment needs identified by the Occupational Working Group for Health IT.
- To develop certificates and/or degrees in Health IT and submit for approval by the California Community College Chancellor's Office.
- To work with the College of the Redwoods to design courses and programs that lead to proficiency in software, hardware, and systems design in the Healthcare IT arena.

Strategy 4 intends to "Increase opportunities for information exchange among practitioners in the region." Achieving meaningful use of the Electronic Health Records (EHR) technology is dependent upon digital communication between providers, hospitals, and service providers such as clinical laboratories. While the federal stimulus program, Health Information Technology for Economic and Clinical Health (HITECH), describes in detail desired capacities and meaningful use of EHRs, there is not a specific model for digital communication (Health Information Exchange, HIE). This lack of a model applies to both the way communities could connect technically and how they could form successful organizations to house the required equipment and staff. The Redwood Coast region is particularly well positioned to accomplish this task because of the region's high rate of EHR adoption, collaborative organizational relationships, and existing HIE efforts such as the North Coast Referral Network for Internet based patient referral (IRIS).

Whereas the interface between a practice EHR and a digital information service provider such as a hospital or a clinical laboratory may cost in excess of $10,000, our region is composed mostly of small Rural Health Clinics that lack both the financial and technical capacity to make individual investments of this size for the several

interfaces needed and to maintain such a system. Strategy 4 will build and support an HIE network as a "hub and spoke" architecture that can leverage a 2-way interface amongst providers and the hub. In addition, an HIE organization could warehouse readily accessible information so it can be quickly obtained when needed, and compile quality data across the community for the use of clinicians and patients. Such an HIE network would make our region very competitive in recruiting quality clinical providers, as well as make meaningful use possible for our small rural practices. The major steps involved with implementing Strategy 4 are:

- To develop the scope of potential information exchange including health care providers, hospitals, skilled nursing facilities, County Public Health, County Mental Health, and others (Appendix L)
- To develop a regional inventory of practices, information providers (clinical labs, etc.), and existing information exchanges.
- To analyze inventory with regard to assessing readiness of organizations and practices to participate in HIE, i.e., EHR products in use, potential to adopt EHRs, and interest in HIE.
- To investigate community models and governance of HIE, and to build community consensus for a selected HIE model (see Work-To-Date on required functionality, Appendix M).
- To develop priorities using the selected model, based on patient impact, "meaningful use," availability of exchange partners, technology, cost, willingness to participate, and availability of funds. Integrate Health Information Technology Assessments of small and Critical Access Hospitals.
- To survey federal and state organizations to coordinate with their HIE activities, e.g., Cal eConnect, Cal X, and others.
- To develop a business model and fund activities.
- To train and monitor HIE users on privacy regulations. Develop and communicate patient, provider, and community consensus on privacy regulations consistent with state and federal regulations.
- To build out the HIE based on selected model, priorities and funds, and construct and maintain data warehouse.
- To provide meaningful use support, including quality reporting and disease registries.
- As regulation permits, to construct gateway to National Health Information Network.

Strategy 1: Build local pipeline of workers to address allied health workforce shortages- Create healthcare career educational highways that begin in the high schools and continue through articulated programs at CR & HSU

Objectives & Tasks	Leaders/Resource People & Organizations	Milestones	Notes (inc. proposed timeframe)	Implications for Budget, Staffing, etc.
1. Convene DHC Roadmap Task Force & form Working Groups 1a) Leaders recruit other stakeholders to Task Force (e.g.,NoRTEC, SBDC,students) 1b) Develop roles & charge for T.F. & their work related to strategic plan 1c) Select T.F. co-chairs and set meeting schedule 1d) Determine appropriate Occupational Working Groups & membership 1e) Form Career Technical Preparation Working Group [or enlist Pre-college Career Technical Advisory Committee] that will advise on development of curriculum and experiences for career preparation for middle and high school students, pertaining to DHC occupations	See Appendix B for proposed Task Force roster	• Task Force convenes • T.F. meetings & meeting objectives relative to strategic plan developed	-T.F. meets quarterly, on-going (a 3-year strategic plan?) - Working Groups meet monthly - Send e-mail to Task Force members to request for their involvement with this project, should the plan be funded.	- 1.0 FTE Project Coordinator (staffs the Task Force & primary responsibility for overseeing implementation of Strategic Plan for 1C) -0.75 FTE Administrative Assistant - Meeting costs
2. Identify and prioritize occupations for which to develop DHCI career highways 2a) Launch web survey to determine what the highest needs are for DHCI training 2b) Analyze and interpret results, projecting the numbers of qualified graduates needed at "destinations", i.e., trained workers ready to enter the workforce. Target in particular training and education for youth and adults in low income populations and underserved tribal and Latino communities (see #10 & 11).	Staff & Task Force, Working Groups	• Survey launched • Survey results analyzed • Prioritized list of occupations • Identification of DHCI highways to be built or improved • Schedule developed for highway construction & improvement	Appendix C is draft structure for survey Months 1-2 for launch, analysis & interpretation of results Months 3-6 for highway planning Cross Industry Cluster Meetings are needed to make sure there is no duplication of work	- Staff time - Meeting costs

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2c) Prioritize DHCI career highways to be built or improved, based on which are the "most travelled" educational routes, relative to numbers of projected students on highways, as well as "highest need" educational routes that target low income and tribal or Latino populations. 2d) Develop schedule for highway building (e.g., some highways built in Year 1, Year 2, etc.)				
3. Develop articulation agreements for each DHCI career highways 3a) For math- or science-based occupations, work 'backwards' from certification requirements to determine math and science prerequisites at all levels (college, high school, junior high/middle school) 3b) Identify, integrate and map existing experiential and volunteer opportunities and internship placements ("bike lanes"?) that enhance the career highways, e.g., Open Door Teen Health Clinics, Spare Change, Planned Parenthood Youth Experiences in Careers. Also **include the potential for the teaching health clinic (HRSA planning grant) as part of the internship possibilities. See also #11.** 3c) Identify and include the generic basic job skills (with accompanying assessments) in areas like	Occupational Working Groups, e.g., Rural Healthcare Worker Committee, etc. Decade of Difference Vocational Counselors Also Pre-college Career Technical Advisory Committee Job Market/EDD Chris Winsor?	• Each DHCI highway (& on- and off-ramps) developed has articulation agreements & resources. • • Completion of maps	Months 6-18 for highway construction. Use Career Pathways Roadmap web tool (open source) to build articulation agreements & maps. Depends on how teachers are convened; recommending teleconferences use of Roadmap web tool. Working Groups meet together periodically to re-align career highways Using telemedicine video-conferencing to	- Staffing time - Meeting costs (big kick-off launch (½ or full day) for high school, CR & HSU faculty involved with health care career prep, to build buy-in to the exciting potential & benefits of widening & strengthening the career highways, to accommodate increased student traffic. - Printing costs - Sub pay & stipends for teachers & professors to participate in

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Communication, Problem Solving, and Interpersonal (Teamwork) – possibly Work Keys (ACT) curriculum (see **Appendix D**) 3d) Create a DHCI map and legend for the career highways 3e) Identify needs for "on-ramps" & "bridge" programs to help increase & retain (ensure success of) the numbers of students travelling the DHC highways **(see #10 and #11)**			do articulation workshops. Consider meeting with Consultants: Sivecki & Assoc., developers of the Career Pathways Roadmap web tool will tailor webtool to regional specifications & train relevant stakeholders (see **Appendix D**) If Chris Winsor can't work on this should we do an RFP?	articulation workshops (summer?) - In-kind use of telemedicine video-conferencing facilities to do articulation workshops. - Consultant and training fees (Sivecki & Assoc.) for for tailoring software & training (**Appendix D**) - Server hosting fees - Costs of WorkKeys curriculum & assessment package, if desired
4. Identify appropriate career or personality aptitude assessments and connect assessment outcomes to relevant DHCI career highways 4a) Identify and link and interface aptitude assessments (Kuder Navigator used by HCOE, DNCOE, Mendocino HS) to Career Pathway Roadmap Webtool 4b) Obtain input from and validate with Occupational Working Groups.	Staff & Pre-college Career Technical Advisory Committee. Occupational Working Groups & Task Force input. Job Market/EDD Decade of Difference	• Aptitude assessments identified and outcomes linked to career highways	Months 6-12	- Staffing time - Meeting costs - Sivecki Assoc. consultation & training to interface Roadmap software with Kuder Navigator

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Objectives & Tasks	Leaders/Resource People & Organizations	Milestones	Notes (inc. proposed timeframe)	Implications for Budget, Staffing, etc.
5. Develop a user's guide on how to use the maps for students and guidance counselors 5a) Add aptitude outcomes as first step in using the map. 5b) Develop booklet 5c) Develop interactive website based on users guide 5d) Add videos of real persons employed in various careers to website	Staff & Pre-college Career Technical Advisory Committee. Website designer Graphic artist	• Completion of users guide • On-line users guide is live	Months 9-15 Launch use of interactive tools after guidance counselors are trained.	- Staffing time - Meeting costs - Printing costs - Graphic art contract - Website development contract
6. Disseminate information about the DHCI maps 6a) Develop communication plan for DHCI maps and users guide 6b) Develop ad campaign, brochures, and presentation 6c) Recruit Speakers Bureau members 6d) Put on training for Speakers Bureau	Staff & Pre-college Career Technical Advisory Committee. Occupational Working Groups and Task Force input. Speakers Bureau Graphic artist	• Speakers Bureau roster • Speakers Bureau training developed and held • Promotional materials printed • Website has visitor registration		- Staffing time - Printing costs - Ad & promotional materials costs - Graphic art contract - Website development contract

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Objectives & Tasks	Leaders/Resource People & Organizations	Milestones	Notes (inc. proposed timeframe)	Implications for Budget, Staffing, etc.
7. Plan and implement DHCI Careers Exploration Fair/ Days for the region. 7a) Recruit guidance counselors & ROP key personnel to serve on DHCI Careers Exploration Working Group and convene the working group 7b) Career Fair Working Group plans formats for how DHCI careers will be rolled out in each county. 7c) Orient guidance counselors in the region from middle school through college and employment centers to the DHCI maps	Staff & Task Force Occupational Working Groups Representatives from relevant existing advisory boards, e.g., Humboldt ROP Employer Advisory Board	• Orientation sessions held in each county • DHCI Career Exploration Working Group convenes.	- Let local schools decide format for DHC career exploration: on-going class(es) that meet throughout school year or once a year Career Fair. - Begin planning Month 1 - Humboldt ROP (Lori Breyer) has good model for placing instructors with industry experience via special teaching credentialing in several high schools so they can be full-time employed **(COE takes care of liability insurance)** - Orient to DHCI maps in Year 2	- Staffing time - Staff travel, lodging & per diem for career fairs - Printing costs - Ad & promotional materials costs - Graphic art contract - Instructor pay (if on-going HS course) - Stipends to cover travel for instructors and speakers - Food for speakers and students if Career Fair
The following (8-12) are a la carte menu options for the Strategic Plan – Target low-income, Tribal and Latino student and workforce populations				
8. Plan and pilot High School Career Coaching Program (2 high schools?) 8a) Select high schools that will participate in pre-college career coaching program	Staff & Pre-college Career Technical Advisory Committee.	• Workplan for HS Career Coaching Program developed and funding secured	**Perhaps target high schools with low income, tribal, and/ or Latino student populations.**	Cost of training and manuals Salaries, Part-time Career Coaches

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Objectives & Tasks	Leaders/Resource People & Organizations	Milestones	Notes (inc. proposed timeframe)	Implications for Budget, Staffing, etc.
8b) Develop workplan for program implementation and evaluation 8c) Determine funding sources and/or apply for grant funding 8d) Hire program coordinator and career coaches 8d) Conduct training 8e) Market coaching services 8f) Implement program 8g) Collect evaluation data and assess program success 8h) Determine if program should be sustained and further disseminated in region	Pre-college Career Coaching Training Consultation & training fees – Scott Kemp, Career Pathways Coordinator, Workforce Development Services, Virginia Community College System	• High schools selected for pilot programs • HS career coaches hired • Coaching training implemented • Process and outcome evaluation conducted to assess success of program • Decision to sustain program made and how to sustain	See **Appendix F** on career coaching program of the Virginia Community College System. Excellent outcomes with regard to increased dual enrollments & enrollments in college. Also comparison of coaching & navigators, **Appendix F**	
9. Plan and pilot Education Navigators Program for low income, Tribal and/or Latino populations (HS students and adult learners seeking career change) 9a) Select appropriate department/person at CR to oversee Education Navigators Program. 9b) Develop workplan for program implementation and evaluation, which includes how CR Education Navigator program interfaces with HSU's programs. 9c) Determine funding sources and/or apply for grant funding 9d) Hire program coordinator and education navigators (with target	Staff & Pre-college Career Technical Advisory Committee.	• Appropriate CR department develops workplan for Education Navigators & funding secured • Education navigators hired • Navigator training implemented & materials developed • Process and outcome	Implement at CR only? HSU has several programs already (EOP, ITEPP, INRSEP), but could enhance connections with career highways. See **Appendix H** on Education Navigators (King County, WA). Responsibilities include: • Help students through the dance	Need to research costs Cost of training Salaries, Education Navigators

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Objectives & Tasks	Leaders/Resource People & Organizations	Milestones	Notes (inc. proposed timeframe)	Implications for Budget, Staffing, etc.
populations in mind) 9d) Conduct training 9e) Market navigation services 9f) Implement program 9g) Collect evaluation data and assess program success 9h) Determine if program should be sustained		evaluation conducted to assess success of program • Decision to sustain program made and how to sustain	steps of enrolling, advising, financial aid, class registration, career & educ planning • Identify funding sources • Connect with employers • Partner with case managers (if CBO's are involved)	
10. Plan and pilot pre-college on-ramps and/or bridge programs identified (see 3e), with priority target populations being low income, tribal, and/or Latino students and workforce. 10a) Select appropriate agencies & CBO's to partner and oversee proposed on-ramp and bridge programs. 10b) Develop workplan for program implementation and evaluation, which includes how on-ramp and bridge programs align with the DHC career highways that are mapped. 10c) Determine funding sources and/or apply for grant funding 10d) Hire program coordinators and staff (with target populations in mind) 10d) Conduct training 10e) Market program services	Staff & Task Force. Pre-college Career Technical Advisory Committee.	• Existing on-ramp or bridge programs identified to enhance, and/or new on-ramp or bridge programs identified to develop, based on needs assessment conducted during "highway planning" (see #3e) • Host agencies or educational institutions develop workplans for on-ramp and/or bridge	See definitions of on-ramps and types of bridge programs, **Appendix G** – King County Funders Collaborative Choose programs to pilot, based on needs assessment results, i.e., where is there the highest need for programming? At the on-ramp level? Pre-college bridge level? College bridge level?	Depends on programs selected

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Objectives & Tasks	Leaders/Resource People & Organizations	Milestones	Notes (inc. proposed timeframe)	Implications for Budget, Staffing, etc.
10f) Implement program 10g) Collect evaluation data and assess program success 10h) Determine if program should be sustained		programs & funding secured • Staff hired • Staff training implemented & materials developed • Process and outcome evaluation conducted to assess success of program • Decision to sustain program made and how to sustain		
11. Explore experiential programs to provide under-represented students with hands-on experience in diversified health care occupations. 11a) Select appropriate programs and host agencies & CBO's to partner and oversee proposed experiential programs. **Excellent candidate: Youth Health Service Corps developed by AHEC.** 11b) Develop workplan for program implementation and evaluation, which includes how experiential programs align with the DHC career highways that are mapped. 11c) Determine funding sources and/or		• Existing experiential programs identified to enhance, and/or new experiential programs identified to develop, based on needs assessment conducted during "highway planning" (see #3e) • Host agencies	Youth Health Service Corps developed by AHEC already has curriculum developed and evaluation model. **See Appendix I.**	Depends on programs selected

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Objectives & Tasks	Leaders/Resource People & Organizations	Milestones	Notes (inc. proposed timeframe)	Implications for Budget, Staffing, etc.
apply for grant funding 11d) Hire program coordinators and staff (with target populations in mind) 11d) Conduct training 11e) Market program services 11f) Implement programs 11g) Collect evaluation data and assess program success 11h) Determine if program should be sustained		educational institutions develop workplans for programs & funding secured • Staff hired • Staff training implemented & materials developed • Process and outcome evaluation conducted to assess success of program • Decision to sustain program made and how to sustain		
12. Pilot "health literacy across the curriculum" in K-12 educational settings to best prepare all students at the beginning of the career educational highways 12a) Research health literacy curricula appropriate for K-12 and models for curriculum infusion. 12b) Identify schools interested in piloting curriculum. 12c) School partnership develops workplan for health literacy lessons can	Staff & Task Force. Pre-college Career Technical Advisory Committee. Possible Leads: Pat Girczyc and Tina Tvedt	• Host schools develop strategic plan & funding secured for health literacy curriculum implementation • Student peer mentors and DHC HS instructors identified that can deliver health		Depends on programs selected

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Objectives & Tasks	Leaders/Resource People & Organizations	Milestones	Notes (inc. proposed timeframe)	Implications for Budget, Staffing, etc.
be delivered in classroom setting using current resources, including older peer mentors who are already engaged in DHC education or engaged as participants in youth experiential programs **(see #11).** 12d) Determine funding sources and/or apply for grant funding 12e) Hire program coordinators and staff (with target populations in mind) 12f) Conduct training 12g) Curriculum delivered 12h) Collect evaluation data and assess program success 12i) Determine if program should be sustained		literacy lessons. • Program coordinator and staff hired • Staff training implemented & materials developed • Process and outcome evaluation conducted to assess success of program • Decision to sustain program made and how to sustain		

Strategy 2: Apply Best Practices to recruiting and retaining healthcare professionals needed in the region.

Objectives & Tasks	Leaders/Resource People & Organizations	Milestones	Notes (inc. proposed timeframe)	Implications for Budget, Staffing, etc.
Web Based Strategies: Most young health care professionals expect to see polished and professional websites for communities recruiting. Websites regional are maintained mostly by volunteer-run organizations.				
1. Develop a first rate recruitment website(s) a. research model website designs b. find funding for website(s) c. create an RFP for development and maintenance	Hospitals H/DN Medical Society Clinics SBDC	Creation of a committee to oversee the project. Model websites reviewed by Committee. Creation of the RFP Website(s) launched		Staff Time Meeting Cost Funding for website development
Education-Based Strategies—Also see Strategy 1: We need to increase incentives for local youth to seek training in other communities and return to work in our region.				
2. Provide additional funding support for local candidates for in-area and out-of-area training	Community	Scholarship funds are created	Del Norte County has already created scholarship funds—Both Elk River and Smith River Tribes offer scholarships.	
3. Establish relationships with training programs that have a rural tracks	Rural Medical Education Program (RMED), University of Ill **(Appendix J)** U.C. Davis	Tribal students attend medical school	RMED has agreed to recruit tribal students from our region for medical school	$5,000 to bring local students to RMED for a tour Funding to bring RMED staff back to the region Staff time Travel cost
4. Explore additional distance learning opportunities to assist entry level employees to get higher level instruction	CR HSU Office of Education Hospital North Coast Clinics Network			Faculty time Staff time Meeting cost

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Objectives & Tasks	Leaders/Resource People & Organizations	Milestones	Notes (inc. proposed timeframe)	Implications for Budget, Staffing, etc.
5. Apply for grant funding opportunities to get low income and minorities into training programs	Department of Health & Human Services CR & HSU WIB EDD RCAA Rural Human Service		Rural Human Services in Del Norte has a successful program that provides up to $5,50 funding support –including child care	Staff time Grant writer
6. Improve access to residency programs—especially those with rural tracks	Humboldt/Del Norte Medical Society			
7. Research creating a "teaching clinic"	CR HSU CHA and the medical community	Feasibility study	CHA has received a HERSA grant to do a feasibility study	Staff time Meeting time
Financial Strategies: There are a number of things that economic development can do that impact the financial security of health care small businesses. Maintaining HSPA/MUA/MUP shortage area designation gives physicians additional revenue for seeing low income patients. In addition, HPSA/MUA/MUP shortage areas physicians will get additional funding if they adopt Electronic Medical Records. Many of the physician practices in the region are small businesses that would not be able to continue seeing low income patients without this funding. In order to maintain designation we must to the following:				
8. Assess sub-county eligibility for mental, dental & primary care shortage area designations a. submit applications for all eligible areas	CCRP Bonser-Bishop & Assoc. Alliance for Rural Community Health	• Assessment report completed • HSPA application submitted	See Appendix K 1-3 months	$4,000 in staff research time
9. Monitor shortage area designation rulemaking a. assess impact of proposed changes on region b. share findings c. make advocacy recommendations	Bonser-Bishop & Assoc. North Coast Clinics Network		• 6 months – 1 year • Proposed new regulations give HPSA areas funding priority for workforce training programs	Staff time Travel time Meeting costs

Strategy 2: Apply Best Practices to recruiting and retaining healthcare professionals needed in the region.

Objectives & Tasks	Leaders/Resource People & Organizations	Milestones	Notes (inc. proposed timeframe)	Implications for Budget, Staffing, etc.
10. Maintain an updated list of current providers and actual FTE	Humboldt/Del Norte Medical Society Alliance for Rural Community Health		• Every six months - year • This will allow us see if additional communities qualify for HSPA	Staff time
11. Maintain Regional Workforce Comparison charts for physicians and specialists **(Appendix K)**	CCRP Bonser-Bishop & Assoc. EDD		• Every six months - year	Staff time
12. Maintain Medi-cal utilization and low income Comparison **Appendix K**	CCRP Bonser-Bishop & Assoc. EDD		• Every six months - year	Staff time
Practice Strategies: There are a few things economic development can do to improve working conditions for the rural health care workforce, especially those who are part of small businesses.				
13. Look for opportunities to share specialists regionally through telemedicine	North Coast Clinics Network		Will allow for an increase in the workforce Remote areas will benefit!	Staff time
14. Research telemedicine expansion opportunities	North Coast Clinics Network			Staff time
Community Support for Social and Family Needs Strategies: Community issues –especially spousal issues are highly ranked reason for health care workers leaving rural communities.				
14. Increase interaction between new health care workforce members and the community	Chambers of Commerce Main Street Hospitals Clinics		Del Norte Health Care District is funding a staff member and the Chamber of Commerce	Staff time Coordinator PR/marking funding Meeting costs

Strategy 2: Apply Best Practices to recruiting and retaining healthcare professionals needed in the region.

Objectives & Tasks	Leaders/Resource People & Organizations	Milestones	Notes (inc. proposed timeframe)	Implications for Budget, Staffing, etc.
a. Welcome Wagon b. Receptions/mixers c. Welcome listing in the newspaper	Hum/Del Norte Medical Society Service Orgs Business Groups			
16. Connectproviders and their families to other community resources a. Tours of region b. Invites to local events	State/Federal Parks Offices of Education Service Orgs Business Groups			Staff time travel
17. Plan for spouse support, community integration, collegial support and peer mentoring	Community	Spouse get a welcome letter & survey re: work, family and interests		Staff time
18. Conduct Exit Surveys when health professionals leave the community.		Web based survey Data collected		Staff time

Strategy 3: Train a local workforce in Healthcare IT design and implementation

Objectives & Tasks	Leaders/Resource People & Organizations	Milestones	Notes (inc. proposed timeframe)	Implications for Budget, Staffing, etc.
1. Create a Occupational Working Group for Health IT	CR Occupational Working Group for Health IT	• Group meets		Staff time
2. Look at existing classes in CIS and Health Occupations and align the content to create a "new workforce" education program	CR Adult Education ROP HSU	• New course work developed		Staff time
3. Use regional HITS resource center (federally designated center for curriculum and faculty training)		• Curriculum developed • Equipment needs identified		Faculty and staff time travel
4. Certificates and/or degrees developed and submitted for approval to the California Community College Chancellor's office		• Curriculum and programs approved		Staff time Faculty development
5. Work with College of the Redwoods to design courses and programs that lead to proficiency in software, hardware and system design needed in healthcare IT	Occupational Working Group for Health IT		CR may be able to change scope of work on DOL grant to HIT otherwise funding will be needed	Staff time

Strategy 4: Increase opportunities for information exchange among practitioners in the region.

Narrative Paragraph

Health Information Exchange

Health Information Technology for Economic and Clinical Health (HITECH), the federal stimulus program for Health Information Technology (HIT), offers great promise to our region. The act has a number of programs; three of them will be particularly important in our region:

- Incentive payments to eligible professionals and hospitals for adoption and meaningful use of Electronic Health Records (EHRs). Payments range from $44,000 to $63,750 (Medicare vs. MediCal) per physician while hospitals can realize payments in the millions. Generally the payments are made over a 5 year term with increasingly demanding meaningful use requirements.
- Health Information Technology Extension Program designed to offer a basket of services to help physicians adopt EHRs and meet the meaningful use requirements.
- State Health Information Exchange Cooperative Agreement Programs (Cal eConnect in California), which can fund elements of the development of Health Information Exchange (HIE) network infrastructure.

Achieving meaningful use of the EHR is dependent upon digital communication between providers, hospitals, and service providers such as clinical laboratories. While HITECH is very detailed about the capacities and meaningful use of EHRs, there is not a specific model for digital communication (Health Information Exchange). This lack of a model applies to both the way communities could connect technically and how they could form successful organizations to house the required equipment and staff. Our community is particularly well positioned to accomplish this task because of our high rate of EHR adoption, good relationships, and existing HIE efforts such as the North Coast Referral Network for internet based patient referral (IRIS).

An interface between a practice EHR and a digital information service provider such as a hospital or a clinical laboratory can easily cost $10,000 or more and requires continued maintenance. Our region is composed mostly of small practices (many Rural Health Clinics) that lack both the capacity to make individual investments of this size for the several interfaces needed and the technical capacity to maintain them. An HIE network can build a “hub and spoke” architecture which can leverage one interface to many providers and the reverse. An HIE organization can warehouse certain information so it is available quickly when needed and compile quality data across the community for the use of clinicians and patients. The availability of this HIE network will make our region very competitive in recruiting quality clinical providers and will also make meaningful use possible for our small rural practices.

Strategy 4: Increase opportunities for information exchange among practitioners in the region.

Objectives & Tasks	Leaders/Resource People & Organizations	Milestones	Notes (inc. proposed timeframe)	Implications for Budget, Staffing, etc.
1. Develop the scope of potential information exchange including: health care providers, hospitals, skilled nursing facilities, County Public Health, County Mental Health, and others.	Humboldt Del Norte Independent Practice Association (HDNIPA) working with the Community Health Alliance IT committee. (Group membership described in **Appendix L**)	• Scope	Months 1-2	-Working Group time -Staff time (HDNIPA)
2. Community inventory of practices, information providers (clinical labs, etc.), and existing information exchanges.	HDNIPA working with the Community Health Alliance IT committee	• Inventory	Months 1-2	-Staff time (HDNIPA)
3. Analyze inventory, assess readiness to participate in HIE. Identify EHR products in use, potential to adopt EHRs, and interest in HIE.	HDNIPA working with the Community Health Alliance IT committee	• Report – Capacity and interest in HIE	Months 2-3	-Staff time (HDNIPA)
4. Investigate community models of HIE and community governance of HIE.	Community Health Alliance and partners, including patients	• Report – HIE model for County	Possible grant from CHCF – 50K Months 3-5	-Site visits -Community process
5. Develop community consensus on HIE model.	Stakeholders: County, hospitals, physicians, and public leaders	• General agreement on plan	**Appendix M**, Work-To-Date on required functionality Months 5-6	-Community process -Staff time

Strategy 4: Increase opportunities for information exchange among practitioners in the region.

Objectives & Tasks	Leaders/Resource People & Organizations	Milestones	Notes (inc. proposed timeframe)	Implications for Budget, Staffing, etc.
1. Using the model, develop priorities based on patient impact, "meaningful use", availability of exchange partners, technology, cost, willingness to participate, and availability of funds. Integrate Health Information Technology Assessments of small and Critical Access Hospitals (Southern Humboldt, Mountain Community Medical Services).	HIE participants, staff, leadership	• Gap analysis • Timeline	Potential funders: HDNIPA, information providers, local hospitals, physicians Months 5-6	-Staff time -Meeting costs -Consultants (Redwood MedNet), C. Rural Health Information Technology Consortium, others
2. Survey federal, state activities to coordinate with their HIE activities. Coordinate with Cal eConnect, Cal X, and others.	HIE	• List of applicable programs, partners	Months 5-6	-Staff time
3. Develop a business model and fund activities.	HIE participants, staff, leadership	• Business model	Months 7-24	Continuum from grant funding to fees or long term provider community support
4. Develop patient, provider, and community consensus on privacy regulations consistent with state and federal regulations. Train and monitor HIE users on privacy regulations. Communicate community consensus.	HIE, CCRP	• Privacy Manual • Community communication	Markel Foundation, Connecting For Health Months 7-8	-Staff time -Meeting costs -CCRP costs
5. Build out the HIE based on model, priorities and funds, construct data warehouse, and maintain.	HIE and community	• Active "sites" and transactions	Months 7-24	-Staff time -Site staff time -IT equipment -Consultants (Redwood MedNet),others
Objectives & Tasks	Leaders/Resource People & Organizations	Milestones	Notes (inc. proposed timeframe)	Implications for Budget, Staffing, etc.
6. Provide meaningful use support including, including quality reporting and disease registries.	HIE and participating practices	• Public reports • Quality reports to practices	Months 12-24	-IT systems -Staff time -Practice participation
7. As regulation permits, construct gateway to National Health Information Network (NHIN)	HIE	• Gateway operational	Months 12-16	-Staff time

Diversified Healthcare Industry Cluster
Strategic Work Plan for the Redwood Coast
2010-2013

Introduction

This strategic work plan was developed for the Diversified Healthcare Industry Cluster with input from health care practitioners across the Redwood Coast region. Focus groups were held in Del Norte, Humboldt, Trinity and Mendocino counties. Additionally, interviews with key leaders, who could not attend focus groups, were conducted. Lastly, a survey of health care practitioners helped to underscore and define priorities for strategic action.

The plan covers Key Issues, Opportunities, Assets and Quick Wins for the industry cluster, followed by seven goals with attendant strategies and projects. Gainer & Associates produced the plan, under contract from the County of Humboldt, utilizing a **CA Community Development Block Grant (CDBG) Planning and Technical Assistance Grant**. The intent is for this plan to be implemented and updated continually as the cluster develops and conditions evolve.

I. Key Issues:

A. Physician recruitment and retention to fill shortages. At the same time, this rural region does not have a sufficient population base to support local specialists in many healthcare specializations. Healthcare is currently a physician-centered industry. Physician recruitment and retention is very difficult in rural areas and complicated by legal restrictions. Therefore, the Redwood Coast region must assess the most needed and sustainable array of care providers, and mobilize all of its resources and assets to be able compete for the types of providers most needed.

1. **Redwood Coast Healthcare Websites do not look like we are recruiting.** This region does not effectively present itself to the outside world of prospective young professionals we hope to recruit. Websites are difficult to maintain for mostly volunteer-run organizations. For young professionals, the internet is among the preferred methods for investigating a prospective employer and re-location.
2. **Rural hospitals cannot hire physicians.** Currently, California is one of a small handful of states that does not allow hospitals to hire physicians. This creates difficulty in many rural communities because it forces doctors to manage their own practices or join other practices taking on much more responsibilities than just practicing medicine.

B. Workforce shortages in healthcare are increasing.

1. **We need more local youth**, who want to live in this rural region, to pursue careers and get the training to fill the vacancies in healthcare occupations.
2. **There are several excellent education and training programs, but there are also many fields that require training unavailable locally.** Healthcare workers either have to leave the area for training, or choose to pay private school fees for on-line degree programs.

C. A disconnect exists within the industry cluster between complementary and alternative medicine (CAM) and conventional medicine of hospitals and licensed physician's practices.

D. Strategic, cross-cluster linkages for planning and development could benefit this industry, tap expertise and benefit other clusters in the region.

E. **The impending demands of the Baby Boomer generation.** This population trend will affect all facets of the industry. Almost any improvements this region makes to better serve Boomers will also better meet the needs of other populations with special health needs and disabilities. This also affects workforce as retiring healthcare professionals are often difficult to replace. Research is needed to determine whether the Program of All-inclusive Care for the Elderly (PACE) model would benefit our region.

F. The federal government debate on healthcare reform has caused uncertainty and confusion for healthcare planning on the Redwood Coast. Still, there is ample opportunity to focus our efforts on improvements we can affect locally and throughout the region.

G. **Our rural isolation and persistent poverty create both greater urgency and challenges** for health care delivery and economic sustainability for the industry.

II. Opportunities:

A. **Physician recruitment and retention**. Physician recruitment and retention strategies present opportunities to support other goals for this cluster. Best strategies for recruitment will help with retention, such as recruiting physicians who embrace rural, small-town lifestyles, are trained in and prepared to implement information technology systems, and are trained in and ready to work in holistic healthcare teams with a variety of practitioners. We have learned from the physicians that we have not been able to retain that in addition to salary, there are a number of other steps we can take to improve retention. Clearly, in most cases, we are recruiting new families, not just an individual. Furthermore, the Prosperity Network of economic development organizations in the region have experience and access to expertise in business retention and expansion (BR&E). Their partnership with the healthcare industry cluster is an opportunity to bring the BR&E strategies, business training, and financing to the region's retention and expansion of providers and diversified healthcare businesses.

B. **Tremendous demand for healthcare workers is an opportunity for local people to earn living wages and stay close to their families.** It is an opportunity for all youth considering a career. Collaboration among local schools, CR, and HSU for the development of career pathways will allow the healthcare workforce to grow and to prosper. A close and efficient working relationship for this industry cluster with the Humboldt, Del Norte, Trinity and Mendocino County Offices of Education, Redwoods Community College District and Humboldt State University nursing and health-related programs is essential for maintaining an educated healthcare workforce in this region. There is a new law (California Assembly Bill 1295, Fuller) that specifically requires articulated nursing degree transfer pathways between the California Community Colleges and CSU prior to the commencement of the 2012-13 academic year. This presents a timely opportunity to coordinate advanced educational opportunities specific to nursing within the Redwood Coast region. A scale of efficiency and effectiveness in healthcare workforce training would be set with this mandate.

C. **Connecting complementary and alternative medicine (CAM) and conventional medicine of hospitals and licensed physician's practices:** Strategies to increase communication, coordination, and training in interdisciplinary team work, within the cluster will strengthen a professional team approach to draw upon the full range of practitioners for healthcare available in the region. Many CAM practitioners can benefit from training in business practices so that it is more convenient for clinics and other professional offices to contract for their services.

D. **Strategic, cross-cluster linkages for planning and development could benefit this industry, tap expertise and benefit other clusters in the region.** Cross-cluster exchange will foster innovation and enterprises within diversified healthcare, as well as

other industry clusters of the region. For example, developing the benefits of more cross-cluster linkages, i.e. wellness and healing destination and hospitality/tourism; healthcare and information technology, will foster progress toward their respective goals. Workforce health and fitness is such a significant factor in all of the region's industry clusters that a concerted effort to develop and adapt employee wellness programs and incentives for small businesses will strengthen all of the other industry clusters. It will also require cross-cluster collaboration to accomplish big picture, long-term projects for the region, such as establishing this region as a destination for populations with disabilities to enjoy the beaches, trails, forests, and small towns.

E. **The Baby Boomer generation of "customers."** We see an opportunity, but need to critically and creatively assess how the Redwood Coast diversified healthcare industry could be competitive in marketing its strengths to the large population of aging "Baby Boomers," in order to serve and benefit from customers who live outside the region. Boomers are generally more comfortable with and desire alternative strategies to conventional medicine, and are willing to pay for it.

F. **Policy and legislative analysis and regional collaboration around a common legislative advocacy agenda could improve the economics and the quality of care delivery.** Currently, California is one of a small handful of states that does not allow hospitals to hire physicians. This creates difficulty in many rural communities because it forces doctors to manage their own practices or join other practices taking on much more responsibilities than just practicing medicine. An important function of a Regional Healthcare Industry Cluster is to strengthen effort to change and improve federal and state policy. Assemblyman Wesley Chesbro's AB 648, would authorize a rural hospital to employ a physician to provide medical services at the rural hospital or other health facility that the rural hospital owns or operates and retain all or part of the income generated by the physician for these medical services and billed and collected by the rural hospital. It would require a rural hospital that employs a physician and surgeon pursuant to this bill to develop and implement a policy regarding the independent medical judgment of the physician.

G. **New research and innovative pilot programs offer solutions for our rural region.**

1. **Primary Care Renewal Collaborative is producing useful data for care providers to save time, improve their bottom lines, and improve the quality of care they deliver. This is a** local effort to develop a more consumer-driven system of healthcare. Primary Care Renewal (PCR) is a patient-centered medical home pilot collaborative to improve population health and individual patient experience, and reduce the cost of care. The Primary Care Renewal Collaborative within this cluster is currently conducting research to determine the changes necessary to improve the quality and reduce the cost of healthcare in the region. The fact that this rural area has one of the few IPAs in the country, the Humboldt-Del Norte Independent Practice Association, provides the industry cluster with a caliber of healthcare performance assessment that is rare for a rural region, and are intended to lead to organized efforts for improvement. Local physicians are providing leadership in this work at the national level.

2. **Telehealth/telemedicine** provides opportunities for the region's clinics and hospitals to efficiently share expertise within the region and to access specialists from out of the area. Partnerships between local educational institutions, clinics and hospitals will train the local workforce for the increased use of telemedicine technologies.

3. **Adopting the PACE (Program of All-inclusive Care for the Elderly) model**. Centered around the belief that it is better for the well-being of seniors with chronic care needs and their families to be served in the community whenever possible, PACE serves individuals who are age 55 or older, certified by their state to need nursing home care, are able to live safely in the community at the time of enrollment, and live in a PACE service area.

Although all PACE participants must be certified to need nursing home care to enroll in PACE, only about seven percent of PACE participants nationally reside in a nursing home. If a PACE enrollee does need nursing home care, the PACE program pays for it and continues to coordinate the enrollee's care. Delivering all needed medical and supportive services, the program is able to provide the entire continuum of care and services to seniors with chronic care needs while maintaining their independence in their homes for as long as possible. Care and services include: Adult day care that offers nursing; physical, occupational and recreational therapies; meals; nutritional counseling; social work and personal care. As the PACE model has been successfully adapted in many different communities, interest has grown in adapting the model to serve older adults in rural areas. Rural counties currently have a higher proportion of seniors than urban counties; however, rural seniors are less likely to have access to community-based services and more often have no choice but to enter a nursing home when they have long term care needs.

H. **Healthcare IT is an opportunity to improve the efficiency and effectiveness of health care delivery.** Healthcare I.T. is broadly defined, the application of electronic tools to improve health outcomes. The Redwood Coast diversified healthcare industry cluster has an opportunity to receive federal support to implement I.T. in the operations of the region's hospitals, clinics, and practices. Regional collaboration can bring significant funding from the federal government into the development and implementation of healthcare IT. On February 17, 2009, President Obama signed into law the American Recovery and Reinvestment Act of 2009 (ARRA) which includes stimulus measures relating to health information technology (HIT), including incentives for adoption of electronic health record (EHR) systems. Federal funds will support implementing a wide variety of I.T. systems within this industry cluster, including:

1. Practice Management Systems: business optimization / analysis for understanding workflow to improve efficiencies in:
2. Appointments, Billing, Registration, Patient demographics
3. Nursing documentation and clinical reporting to meet guidelines.
4. Electronic Health Records systems designed to increase efficiencies and therefore, ROI; assist practices to benefit from pay-for-performance initiatives and stimulus reimbursement.
5. Population Management Systems: patients with particular conditions, i.e. diabetes population analysis and chronic disease management
6. Health Information Exchange: ePrescribing automatically checks prescriptions against a patient's medications and allergies. Currently, there are three main silos of information for reporting on medications: pharmacies, insurance companies, and hospitals. Interoperability within the medical community's hospitals, labs, pharmacies, and specialists, will be important to securely exchange patient information for patient safety and patient privacy.
7. At-Home, Mobile Sensing: A study released summer 2009 by ABI Research projects that there will be approximately 15 million wireless telehealth sensors and devices in use by 2012, or more than double the number of wireless telehealth systems in use today. ABI says that these systems will be used primarily to "monitor and track the status of patients with chronic conditions" so that their providers can detect early warning signs before they become dangerous. *Source:http://www.networkworld.com/news/2009/090809-healthcare-wireless.html*. In addition to steadily increasing costs of healthcare and chronic disease in aging populations, rural communities are further challenged by distance from specialists and hospitals, lack of economies of scale and specific environmental health issues. Evolving health policy is predicated on community resilience, the concept that individuals and communities can take more responsibility for their health and service provision. Therefore, sensor systems, mobile devices, location based services, software models to support coordination and intelligent information management, and individualized techniques could all enhance

interactions with health and social care systems for young and older people in rural communities. (Excerpt paraphrased from Rural Digital Economy - University of Aberdeen)

8. This local and nationwide implementation of I. T. within the diversified healthcare industry presents and opportunity for local firms with healthcare I.T. expertise and software development to provide their services and grow their businesses. Partnerships with local educational institutions and workforce development organizations can supply them with a trained local workforce pool from which to hire the employees they will need with business growth. **It is important to note that most of these forms of telemedicine are dependent on increased bandwidth for the communities of the Redwood Coast region.**

III. Assets and Resources

- Humboldt State University nursing, health and kinesiology program an expertise such as sensing and robotics.
- College of the Redwoods' nursing and health care occupations training programs
- Mendocino College health care training programs
- California Center for Rural Policy at Humboldt State University
- California Endowment, local program officer, and the foundation's dedication of resources to Del Norte County and Redwood Coast Native American Tribes
- Humboldt –Del Norte Independent Practice Association (IPA) and their Primary Care Renewal Collaborative
- Telehealth/telemedicine center
- The wide array and high quality for complementary and alternative medicine practitioners
- Humboldt Bay Regional Simulation Center

IV. Quick Wins:

- **Professional Resume Exchange**: Similar to the example of the builders exchange, this would include the largest employers and the smaller employers seeking professional/executive staff. This will be especially helpful for the family members of physicians/healthcare professionals we are recruiting. *(We are recruiting families, not individuals, to move here.)* This can also be used for employees who are "training up" for promotion to higher paying jobs. This can be virtually, all on a website. The hospital CEOs interviewed were very positive about the idea. It's been talked about for at least a decade; enough time. *I spoke with Rollin about it and he said that it has not moved forward at HSU.* If a Headwaters grant could kick-start the design/architecture of the website, and the subscribing employers pitch-in for regular updating, what local entity within the region would be the most successful/responsible home for it? In Del Norte, Gina Zottola, Executive Director of the Crescent City Chamber of Commerce, has been awarded grant funds to work on this in Del Norte.
- **Secure funding for rural healthcare models.** The region's hospitals, clinics, primary care organizations, etc. will soon be submitting proposals to the federal government for a variety of opportunities to establish rural healthcare models here. They will need to demonstrate

widespread community support with letters and expressions of committed partnership. The Prosperity Network could inform and assist leaders in all industry clusters (all affected by the cost of illness and healthcare). Notifying them in advance who to contact, which organizations will respond quickly, who will help round up letters, etc.

- **Establish healthcare business management courses** tailored to three main groups: (1) Administrative staffs of local primary care practices; (2) Small out-source companies that provide billing/records management and other business services for physicians and other professionals; and (3) Complementary and alternative medicine (CAM) practitioners. Organize a professional development group for the small companies that are outsourced billing, records management, and business management of practices.

Diversified Healthcare Industry Cluster Goal 1—Strategically invest in the recruitment and retention of needed workforce for the Redwood Coast region healthcare delivery system.

Strategy 1A: Apply best practices to recruiting healthcare professionals needed in the region.

Project	Leaders/ Resource People	Stakeholder Organizations	Status Notes
Research of region's healthcare workforce needs to determine best practices for recruitment; identify barriers to recruitment and retention; to align with research in Del Norte, so that we can address the needs of the region.	HSU -CCRP; CA Endowment H-DN IPA	IPA Sutter Coast St. Joe System Phelps Howard Ukiah VMC Mendocino Coast MRCH NC Clinics Network	The larger hospitals have been dedicating significant time and resources to recruitment. Prosperity Network organizations can bring to this initiative their perspective and expertise of treating the recruitment of physicians as any business attraction and retention strategy. The hospitals and clinics have had "pipeline" relationships for interns with medical schools; explore this further.
Produce a GIS map of the region's healthcare delivery system with healthcare districts, hospital districts, clinics, public and private.	HSU- GeoSpatial Analysis Lab	All above	This comprehensive regional map of the industry cluster will be useful to show the delivery system for local planning and even to show prospective recruits of physicians and other business to the area.
Assess needed specialty care and our region's ability to sustain such specialists.			

Strategy 1B: Coordinate, focus and enhance existing primary care recruitment/retention methods, and address specific barriers.

Project	Leaders / Resource People	Stakeholder Organizations	Status Notes
Address housing affordability	Trinity County and Mendocino Coast; developers, realtors	Hospitals, clinics	Review this need in all counties; greatest need expressed in Trinity and Mendocino Coast.
Regional Professional Resume Exchange to help recruit physicians with partners & spouses.	H. Spetzler, Joe Mark, Eugene Suksi, Rollin Richmond, Jeff Marsee	Region's largest employers & employers of high paid professionals & executives	Confer with RTC, Film & Digital Media Commission, Headwaters Fund, Prosperity Network, WIBs for plan on how to launch.
Loans and financial package incentives to set up	Prosperity Network		Verify with employers that they would be

new practice in the region	lenders		willing to set up a reasonable fee structure to support maintenance.
Cultural competency training	Interpreters association	LatinoNet UIHS	Language and cultural competency have been identified as important factor in follow up with patients (i.e. Mammograms, etc.)
Organize social networking & educational opportunities for recruited physicians to help them establish themselves in the community		H-DN IPA H-DN Med Foundation	Explore further "pipeline" opportunities with UCSF and medical schools
Meet to explore and decide how a coordinated regional approach could benefit local communities in all counties.	Laura Olsen Geneva Wiki Joe Rogers Eugene Suski Cathy Frey Tim Rine	Cal Endowment Wild Rivers C Fdn Redwood Memorial Sutter Coast Trinity Hospital ARCH NCCN	
Strategy 1C: Build local pipeline of worker to address allied health workforce shortages.			
Project	**Leaders/ Resource People**	**Stakeholder Organizations**	**Status Notes**
Create healthcare career educational highways that begin in the high schools and continue through articulated programs at College of the Redwoods and Humboldt State University.	Jon Sapper Designees of Rollin Richmond and Jeff Marsee	HCOE HSU CR	AB 1295 will require reporting on status in 2010.

Diversified Healthcare Industry Cluster Goal 2—Enhance implementation of healthcare information technology in the operations of the region's hospitals, clinics, and practices.

Strategy 2A: Develop funding for implementation of health care IT to be applied in practices

Project	Leaders/ Resource People	Stakeholder Organizations	Status Notes
Grants research and fund development Identify local public and private support for proposals	Ezquiel Sandoval of Infinite Consulting	Hospitals, clinics Small businesses	This could be accomplished with one funding workshop with follow-up email updates and information exchange.

Strategy 2B: Train a local workforce in healthcare I.T. design and implementation.

Project	Leaders/ Resource People	Stakeholder Organizations	Status Notes
Professional development, education and training for software, hardware and systems design needed in healthcare IT	K-12 Education C R HSU	Hospitals, clinics, H-DN IPA	
Workforce education and training in new remote and sensing technologies	HSU-Ken Owens	Hospitals, clinics, H-DN IPA	Vendors of new sensing equipment and professional trainers

Diversified Healthcare Industry Cluster Goal 3—Increase communication and coordination of care among the full range of practitioners and healthcare providers.

Strategy 3A: Increase opportunities for information exchange among practitioners in the region.

Project	Leaders/ Resource People	Stakeholder Organizations	Status Notes
Develop an on-line directory for CAM regionally	Maya Cooper Lead person in each county	Trinity Alliance for the Healing Arts - http://www.taha.org Del Norte Healing Arts Center - http://www.thehealingartscenter.net/index.html Fort Bragg - Autumn & Jess Stuckey of Bamboo Gardens http://www.bgschoolofmasssage.com	Each county's CAM practitioners and organizations organize an annual event/ health fair in their county.
Provide opportunities for shared professional development and learning:	CR HSU	Hospitals, clinics, IPA, private practices	These training events will be most effective if they are cross-training for

seminars, conferences, symposiums in the region.			professionals from more than one discipline of healthcare.

Strategy 3B: Increase healthcare literacy in public and through employers			
Project	**Leaders/ Resource People**	**Stakeholder Organizations**	**Status Notes**
On-going efforts to educate the public about patient-centered care and the ways to reduce cost and improve care	H-DN IPA Cal Endowment HumPAL Health sport County Public Health; Schools		Cal Endowment's 10 Outcomes for Healthy Communities has been adopted by Del Norte Co. The Humboldt Partnership for Active Living is made up of a wide variety of agencies, organizations and businesses.

Diversified Healthcare Industry Cluster Goal 4—Training to improve business practices

Strategy 4A: Provide business education and training, tailored to the needs different groups within the industry cluster.

Project	**Leaders/ Resource People**	**Stakeholder Organizations**	**Status Notes**
Business Basics training course for CAM practitioners; contracting; billing; legal requirements	HSU NorCal SBDC CR certificate North Coast SBDC	ISIS Institute, Trinity Alliance for the Healing Arts,	Example: It would be easier for CAM practitioners to be hired as consultants, if they were more prepared to handle contracts, billing, etc.
Business Management training for administrative staffs of physicians' and professional practices	same		
Business Management Practices training for companies that provide the outsourced billing and office mgt. firms on services, products, programs, and I.T. for healthcare	same	Northcoast Mgt Services	Northcoast Mgt Services has suggested that it would benefit the few small companies that manage medical offices to form a professional group.
Primary Care Renewal	Collaborative of providers	H-DN IPA	In process

Diversified Healthcare Industry Cluster Goal 5—Increased customer base for health care services to be "exported" out of the region.			
Strategy 5A: Evaluate regional assets and potential for marketing the cluster's strengths to clients and patients from out of the area.			
Project	**Leaders/ Resource People**	**Stakeholder Organizations**	**Status Notes**
Regional cluster market research on what assets could be developed or marketed; evaluate what's needed and its feasibility on serving healthcare needs of seniors.	HSU-SBDC Competitive Intelligence Research Unit Cindy Denbo-Area 1 Agency on Aging Cathy Larsen, So Trinity	Hospitals ARCH North Coast Clinics Network --CAM Isis Institute	See: http://oecbd.org/ciresearch/home Area 1 Agency grant to make this area **"Senior Ready"**
Develop joint marketing strategy based on research	same		
Strategy 5B: Conduct market research and apply best practices in addressing needs of Boomers			
Conduct market research and best practices review on how to serve and market to seniors	same		
Research and participate in PACE	Cindy Denbo-Area 1 Agency on Aging		

Diversified Healthcare Industry Cluster Goal 6—Strategic cross-cluster linkages between diversified healthcare and other industry clusters of the region.			
Strategy 6A: Identify mutually-beneficial goals and quick wins across clusters			
Project	**Leaders/ Resource People**	**Stakeholder Organizations**	**Status Notes**
Map the industry cluster regional inputs and outputs to identify potential of new venture creation.		Leadership and trade organizations of each industry cluster	Mendocino - Fort Bragg Hospital wellness destination for urban dwellers. - ***Hospitality & Tourism*** Manufacturing of health/med supplies/equipment - ***Niche Manufacturers*** Healthcare I.T. - ***RTC & regional Broadband efforts*** Diet/Nutrition/Herbal Therapies - ***Agriculture/organic***
Strategy 6B: Coordinate and collaborate with other clusters.			
Project	**Leaders/ Resource People**	**Stakeholder Organizations**	**Status Notes**
Develop opportunities for information exchange/meetings cross-clusters to foster regional innovations, create new business enterprises.		Leadership of each industry cluster	Each of the other clusters has a mutually-beneficial connection with diversified healthcare.

Diversified Healthcare Industry Cluster Goal 7—Policy that supports rural health care delivery and economic sustainability.			
Strategy 7A: Organize a unified voice for the region for healthcare policy and legislation.			
Project	**Leaders/ Resource People**	**Stakeholder Organizations**	**Status Notes**
Advocate for Rural Hospitals to be able to hire physicians.	Eugene Suksi, Ray Hino, Joe Mark, Joe Rogers, hospital CEOs	hospitals	CA Assembly member Chesbro's bill AB648
Develop advocacy team and plan			
Strategy 7B: Analyze healthcare policy and legislation affecting rural Redwood Coast.			
Project	**Leaders/ Resource People**	**Stakeholder Organizations**	**Status Notes**
Conduct policy and legislative analysis for the region's healthcare industry	CCRP	Hospitals, clinics, practices	

Acknowledgements for assistance in organizing regional input meetings to Kathy Kelley (Ukiah) and Zuretti Goosby (Eureka) of State Senator Pat Wiggins' Office; Pamela Patterson and Heather Gurewitz of West Company; Debra Donelson of Mendocino County Workforce Investment Board; Geneva Wiki, Executive Director of Wild Rivers Community Foundation; Trinity County Supervisors Wendy Weiss and Judy Morris; Anna Bengtsson, Executive Director of the One-Stop Center, Stewart Knox, NorTEC Workforce investment Board.

WEB SITE RESOURCES LIST / Bibliography

AGING IN PLACE INITIATIVE: A collaboration of national organizations and the MetLife Foundation.
http://www.aginginplaceinitiative.org/index.php?option=com_content&task=view&id=29&Itemid=58

ALLIED HEALTH REGIONAL WORKFORCE ANALYSIS
- Sacramento/Northern California Region (November 2009)
California Endowment http://www.calendow.org/
Timothy Bates, M.P.P., Susan Chapman, Ph.D, R.N., Jennifer Kaiser, B.A. ,Melanie Chan, B.A.

ALTERNATIVE, COMPLEMENTARY, AND CONVENTIONAL MEDICINE: IS INTEGRATION UPON US?
Bruce Barrett. The Journal of Alternative and Complementary Medicine. June 2003, 9(3): 417-427. doi:10.1089/107555303765551642.
Published in Volume: 9 Issue 3*: July 5, 2004*

AREA 1 AGENCY ON AGENCY ANNUAL REPORTS
3300 Glenwood Street
Eureka, CA 95501
(707) 442-3763
E-mail: administrator@a1aa.org
www.a1aa.org

Business Exchange Online
Corporate Wellness Plans
http://bx.businessweek.com/corporate-wellness-plans/

BUSINESS WEEK ONLINE VIDEO
10 Ways to Cut Health-Care Costs Right Now
Employers and hospitals don't have to wait for Congress to address inefficiencies and waste
By Catherine Arnst
Cover Story November 12, 2009, 5:00PM ES
http://www.businessweek.com/magazine/content/09_47/b4156034717852.htm?campaign_id=rss_null

CALIFORNIA ENDOWMENT
Healthy Communities Initiative - Ten Outcomes
www.calendow.org/healthycommunities

CREATING ACCOUNTABLE CARE ORGANIZATIONS: THE EXTENDED HOSPITAL MEDICAL STAFF
The Commonwealth Fund
February 22, 2007 | Volume 76
http://www.commonwealthfund.org/Content/Publications/In-the-Literature/2007/Feb/Creating-Accountable-Care-Organizations--The-Extended-Hospital-Medical-Staff.aspx

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CENTER FOR EXCELLENCE IN PRIMARY CARE
ENewsletter (December 2006 issue)
Featured article, An Interview with Alan Glaseroff, M.D.

HEALTHCARE TRENDS QUARTERLY - THE JOURNAL OF MEDICAL INNOVATION
http://www.futurehealthcareus.com/aboutus.aspx

HEALTH REFORM: Accountable Care Organizations -- The Real Thing This Time?
The New Health Dialog Blog; the New American Foundation
http://www.newamerica.net/blog/new-health-dialogue/2009/health-reform-accountable-care-organizations-real-thing-time-13385

Primary Care Renewal
***"A Regional Collaboration to Improve Population Health, Individual Patient Experience, and Lower the Total Cost of Care"* Alan Glaseroff MD, CMO**
Humboldt Independent Practice Association
Humboldt ITUP Conference, 12/1/09

WHAT ARE ACCOUNTABLE CARE ORGANIZATIONS?
Kaiser Health News, July 17, 2009, Phil Galewitz

What will the paperless medical revolution look like?
Erin Stevenson/For the Times-Standard
Posted: 12/03/2009 01:30:25 AM PST
http://www.times-standard.com/business/ci_13915967

Fewer and More Specialized: A New Assessment of Physician Supply in California
Kevin Grumbach, M.D., Arpita Chattopadhyay, Ph.D., and Andrew B. Bindman, M.D., June 2009
http://www.chcf.org/topics/view.cfm?itemID=133962

Open Door Health Clinic hosts national telemedicine conference
Donna Tam/The Times-Standard
Posted: 11/08/2009 01:24:13 AM PST
http://www.times-standard.com/localnews/ci_13742379

Maps: RUPRI's Center for Applied Research and Environmental Systems (CARES) works with the Rural Assistance Center to provide access to maps on rural topics.
http://www.raconline.org/maps/#hpsa

Sutter Lakeside Hospital to present Health & Wellness Expo Saturday
Lake County News Written by Elizabeth Larson
Friday, 08 May 2009 http://lakeconews.com/content/view/8538/764/

Healthcare in Trinity County http://users.snowcrest.net/wb6fzh/tchealth1.html

Appendix B

Suggestions for the Diversified Health Care Industries Task Force

Pat Girzcyc, FNP,MPH EdD College of the Redwoods' Interim Dean of Health Occupations & Public Service

Debbie DeCoito, Smart Business Resource Center (Trinity County)

Joe Rogers, Redwood Memorial Hospital (Humboldt County)

Tim Hoone, Del Norte Workforce Center (Del Norte County)

Tim Rine & Tina Tvedt, North Coast Clinics Network (Del Norte, Humboldt, and Trinity Counties)

Raymond Hino, Mendocino Coast District Hospital (Mendocino County)

Gary Blatnick, Health and Human Services (Del Norte County)

Steven Perez, Redwood Coast Regional Center (Del Norte County)

Alliance for Rural Community Health (Lake, Mendocino & Sonoma Counties) – Community HealthCorps Program of Northern California (Americorps)

Pru Ratliff, College of the Redwoods

Lori Breyer, Humboldt Regional Occupational Program

New Director of Nursing, Humboldt State University

Donna Wallace, Eureka Skilled Health

Harry Jasper, Southern Humboldt Health Care District (Humboldt County)

Hospice & Aging (address home care agency workers)

Director, K'ima:w Medical Center

Ann Lindsay, Humboldt County Public Health Officer

Linda Zorn, ROP, Northern California

Tara Moss, Open Door Health Teen Clinics

Denise Vanden Bos, Six Rivers Planned Parenthood

Stuart Knox, NorTEC

Jerry Simone, United Indian Health Service

Survey Title: Organizational Assessment of Diversified Health Care Workforce Needed

[**INTRO to Survey**] The [Counties of Del Norte, Humboldt, Mendocino, and Trinity] are applying for a [CWA grant] to implement a strategic work plan to move forward on training and sustaining the development of the Diversified Healthcare Industry Cluster in and beyond the Redwood Coast region. This strategic work plan was based on feedback from a survey of health care organizations and businesses in December 2009 [link to Maggie's report]. One of the recommended strategies was to **"build a local pipeline of workers to address allied health workforce shortages"** (Strategy 1C).

To determine which types of occupational training are most needed, we would appreciate your completing this survey that will ask you to assess the levels of ***types of diversified health care skills and services*** employed by your health care organization or business to operate optimally**.** It should take about 20 minutes of your time. In order to calculate the level of need accurately, please describe the level of staffing needed in terms of ***person hours***, and ***not in terms of individual positions***. This will facilitate analysis of levels of occupational skills needed by area, in order to prioritize the educational and professional development pathways on which to focus for workforce development. Also this will give us an idea if there are part-time employees who could be cross-trained in more than one healthcare skill and become full-time employees. For example, In addition to general education and health technology core courses, students could receive specialized training as a Basic Emergency Medical Technician (EMT-B), Certified Nursing Assistant (CNA), Medical Assistant (back and front office),Medical records technician , insurance billing and coding and Phlebotomy Technician (CPT)

The detailed strategic work plan will be available by [date], on [URL], with an update on grant funding status. Questions about this survey can be directed to Connie Stewart 707-826-3402 or Terry Uyeki at 707-826-3404. Thank you for your input on this survey!

~The California Center for Rural Policy, Humboldt State University

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1. Name of your organization / business:

2. Number of patients served: ___ (#) per [week / month / year]

3. Types of clients/patients (if relevant) and geographic area served (e.g, Native American patients in Del Norte County; seniors in Southern Humboldt; population in Humboldt Bay area):

4. Please describe the patient population you typically serve in terms of their medical coverage:

___% Uninsured

___% Medi-Cal/MediCare covered

___% Private insured

For each of the following diversified health care skills and services, please select the response that is the best estimate of the average ***number of person hours needed per week*** by your health care organization/business for each type or set of occupational skills described. For example, for radiology technologist work, you might estimate that your hospital would be at an optimal functioning level with two radiologic technologists working 30 hours a week, so your estimation would be 60 person hours per week.

NOTE: Occupations will be organized into logical groups, e.g., nursing, dental, with a progression built in, based on levels of education or training required.

1. Registered nursing

a. Does your hospital/clinic/practice/ agency employ person(s) with this type of occupational skill?

Yes [goes to next question in series]
No, skills or function are outsourced [goes to next question in series]
Not applicable to our workplace [skips to next occupational skill]

b. On average, how many total person hours per week does your hospital/clinic/practice/ agency need the type of
~~~

occupational skills described?

____ person hours per week

c. To get a sense of employee turnover for this position, select the response that best describes the average length of employment for a person hired in the position described at your workplace:

Not applicable (outsource for this)
< 1 years
1-2 years
3-4 years
5-6 years
> 6 years

d. To get a sense of employment patterns for this position, please check the responses that best describe your workplace's hiring patterns for this position:

- Part-time positions
- Full-time positions
- Year-round
- Seasonal (describe below)
- Other _____

e. Select the response that best describes the availability of a qualified local applicant pool for this position:

- Local applicant pool is ample – many qualified applicants to choose from.
- Local applicant pool is not sufficient to reliably recruit from. Must recruit from outside the region also.
- Local applicant pool is non-existent. Must always recruit / contract with persons outside the region.

f. Please describe the types of skills you feel are needed for your current staff in this position, or types of skills that you would like to see in newly trained persons in this position. What types of tasks do you wish your current staff (and newly hired staff) had the ability to do in order to improve patient outcomes?

g. Please provide other comments *specific to this occupation* that would inform the region's education and training agenda for building and sustaining a diversified health care workforce :

[Format of items a-g repeats for every Diversified Health Care occupation with sub-headings of Clinical and Care, Administrative, Clerical, and Other, that have been identified as Targets of Opportunity, with appropriate skip patterns built into the web survey]

[Survey Closing]

Thank you for taking this survey! If you would like to learn more about the strategic plan for which survey results will provide some direction, you can contact Connie Stewart at 707-826-3402.

Appendix D

Background and Credentials for Career Pathways

Sivecki & Associates developed the Career Pathways Roadmap Webtool for the State of Oregon to enable their community colleges to develop articulation agreements for all their degree and vocational certificate programs. The "Roadmaps are user-friendly, visual representations of the interaction between educational trainings, academics and labor market information that assist students in their decision to enter the workforce." (Portland Community College Roadmap Portfolio). The "common elements of roadmaps include skill set breakdowns, labor market forecasts, occupational information and college courses associated with certificates, credentials and degrees leading to employment in the particular field."

The software is open source, but they are in the process of getting the license for the software so that it can be released for use by out-of-state entities. It is anticipated that this should happen sometime this summer.

The attached pdf documents provide some background information about the Career Pathways Roadmap Webtool, its common elements and design principles upon which the tool was designed, and some examples of roadmaps developed.

The software developers are available for consultation to tailor the tool to client specifications, and can provide customized training on the use of the webtool, either in person, and/or via webinars. Their menu of services offered also includes hosting the software and database on their server.

In addition to serving as a communication and collaboration tool for development of articulation agreements for educational offerings and degree programs, the current version of the Career Pathways Roadmap Webtool extends from 9th to 12th grade levels up through college. Features of the program include:

- Ability to generate career pathway roadmaps, with entrance requirements and options for educational/ career 'destinations' built into the map
- Ability to generate degree requirements as a Program of Study in table format
- Links to current job postings
- Ability to embed maps in websites

Appendix D

Career Pathways Roadmap Common Elements &

Design Principles for Career Pathways Roadmap Webtool

The following common elements to be included in "roadmaps" developed for State of Oregon Program Approval for community colleges and for "end users": students, advisor/counselors, etc.

Common Elements:

1) Occupation
2) Competencies/skills
3) College courses associated with certificate, credential, degree
4) Wages
5) Labor market data/demand forecast
6) Industry-recognized standard or credential (if it exists)
7) Participating Employers

NOTE: Element 7): Participating Employers will be included for Program Approval. For "roadmaps" designed for end-users, this element is optional.

A Student Pathways Website and Career Pathway Common Roadmap Template will embrace the following design principles to serve as effective collaboration and communication tools for students, employers, and educators:

1) Are effective on a standalone basis without the need for additional explanations or legends
2) Facilitate the development of Career Pathways statewide by community colleges and educational institutions
3) Use database as foundation of roadmap and website infrastructure
4) Use a content management system to assure ease and cost-effectiveness of maintenance and updating
5) Focus on needs of students in making their career decisions and employers' workforce needs
6) Include entry and exit points are included on the map for opportunities in both education and employment. Define entry points prerequisite sets of competencies or credentials.
7) Are user-friendly; data is not more than two "clicks" away
8) Use Oregon Skill Sets used as an organizing framework to assure that high school students users see the link to community college roadmaps
9) Use OLMIS data as source of labor market information (so don't have to continually update labor market information)
10) Include for seven common elements: occupations, wage information, labor market information, competencies/outcomes/skills, college courses, industry-recognized credential or standard (if applicable), participating employers (this seventh element is required for program approval; not required for user roadmap)
11) Build on best practice from Southwestern, Lane, PCC, Clackamas roadmap design
12) Be descriptive; not prescriptive

Targets for Instruction

Targets for Instruction are guides designed to help educators and trainers develop curricula and instructional strategies for the WorkKeys skills areas. Use the Targets to:

- Identify skill levels of competencies and learning objectives
- Select developmental materials that match specific WorkKeys skill levels
- Estimate skill levels of materials you currently use
- Bridge the education and business communities together by using WorkKeys as a common language

WorkKeys Targets are available for each WorkKeys assessment skill area and include:

- Skill-building strategies
- Sample work-based tasks and problems for each level
- Guidelines for obtaining and using workplace materials
- A detailed description of each WorkKeys skill area and levels

See example skill-building strategies for our most popular WorkKeys tests:

Writing & Business Writing
Applied Mathematics
Reading for Information

Or view a sample table of contents

Combine the Targets with the job profiling and/or assessments components of the WorkKeys system for an integrated approach to career planning and workplace training.

To purchase WorkKeys *Targets for Instruction*, download the Targets for Instruction Order Information form *(PDF; 1 page, 23KB)* or call (319) 337-1875.

Virginia Community College System has an exemplary program in career coaching in high schools: http://myfuture.vccs.edu/Portals/0/ContentAreas/Workforce/CCPerformancesReport200809.pdf

Career Pathways

The VCCS is a leader in the development of career pathways in the commonwealth. As defined in the state's first strategic plan for a career pathways system, Bridging Business and Education for the 21st Century Workforce, career pathways are connected education and training programs and support services that enable individuals to secure employment with a specific occupational sector and to advance over time to successively higher levels of education or employment in that sector.

Virginia's Community College offer multiple career pathway programs and services including:

- Middle College
- Apprenticeship Related Instruction
- Postsecondary Perkins
- Tech Prep
- Career Coaches
- Career Readiness Certificate...and more

Population Served

Career pathways are targeted to the emerging, unemployed and underemployed, and incumbent workforces. VCCS career pathway programs and services target populations ranging from public school students to incumbent or displaced workers. They targeted 1/3 of the school population.

Program Features

Career Pathways deliver success by:

- Providing employers with a connection to a skilled workforce
- Providing Virginia residents with education and training to develop and adapt their skills to a changing economy

Career Pathways include the following elements:

- Connections to employers
- Articulation to higher levels of education and training
- Career planning services and educational advising
- Credentials that count in the workplace such as certifications, licensures, degrees, and certificates
- Experience-based learning including cooperative education, internships, service learning, and business-based projects

Interview with the program director, Scott Kemp

- One day training (cost, $1,500 plus travel & per diem)
- Materials: $100 for each manual
- On-line certification
- Training components:
    - Administration and marketing: Data collection for outcomes measurements; how to set up office; how to market coaching to students (voluntary)
    - Core coaching: Listening and coaching skills
    - Career consulting: How to find resources (industry, community college, etc.) about careers
- Funding (50%) through Perkins (state-level); Workforce Investment monies; Stimulus funding; Chancellor's Office; Dept. of Labor grant; also from schools
- Can tailor coaching to particular occupation, viz., Health Care Careers Coaching
- Coaches can work as "circuit riders" from school to school and be full-time employed

Quick Links

- Workforce Services
- Business & Industry
- Career Pathways
- Workforce Grants
- WDS Regional Locator
- Virginia Workforce Network

You are here: Home ➔ Workforce Services ➔ Career Pathways ➔ Career Coaches ➔

Career Coaches

What are you looking for?

Program Features
Program Outcomes
Program Resources
Career Coach Contact Lists

Virginia Community Colleges Career Coaches are community college employees who are based in local high schools to help high school students define their career aspirations and to recognize community college and other postsecondary programs, including apprenticeships and workforce training, that can help students achieve their educational and financial goals.

NEW! Career Coach Sustainability Workshop powerpoints

Program Features

The fundamental purpose of the VCCS Career Coaches Program is to empower students to make informed decisions about their career and educational plans and to prepare students for success in postsecondary education and training. While the day-to-day functions of a career coach vary according to local needs, major responsibilities include:

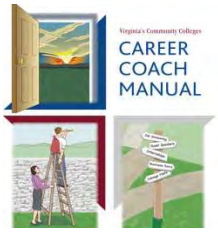
- Facilitating the development of individual career plans and portfolios.
- Relating information on careers, career pathways, and related employment.
- Connecting students to early college programs such as Tech Prep and Dual-enrollment.
- Easing the transition of students from high school to postsecondary education and the skilled workforce.

Program Outcomes

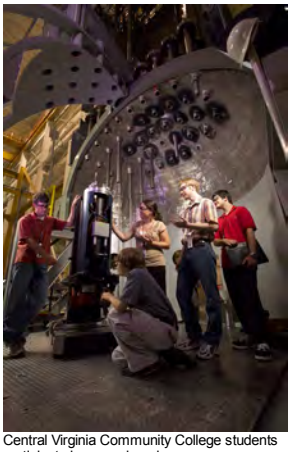
During the 2008-2009 school year, career coaches served in 154 high schools across Virginia, providing one-on-one or small group coaching to over 57,000 students. As a result of working with a career coach, over 28,000 students developed written academic and career plans. Detailed outcomes can be found in the 2008-09 Career Coach Annual Report. Some of the impacts of the program in 2008-09 include:

- 81% or greater satisfaction rate of students receiving coaching services based on the coaches interest in student career needs, knowledge of career information, and assistance in making career and college plans.
- 49% change in students without plans to continue to postsecondary education priorto meeting with the coach to having plans to continue to postsecondary education aftermeeting with a coach.
- 87% of high schools principals indicating that the coach program met or exceededoverall expectations.
- 5% increase over three years in the number of recent graduates from high schools with acareer coach that enroll in community college, as compared to enrollments before the high school had a career coach.
- 4% increase over three years in the number of recent graduates from high schools with a career coach that enroll in CTE Programs at the community college, as compared to CTE enrollments before the high school had a career coach.
- 4% increase over three years in the number of Dual Enrollment students from high schools with a career coach, when compared to high schools without a coach.

Program Resources



The new and improved career coach manual is now available, Contact careercoach@vccs.edu for more information.



Central Virginia Community College students participate in an engineering program partnership with AREVA Np, Inc. and the University of Virginia.

FEATURED ITEMS

Manufacturing Career Coach Page

Manufacturing Career Coach Advisory Council
Manufacturing Career Coach Contact List

PODCAST **Listen to Jenny Gardner,** a Career Coach at Blue Ridge Community College, discuss her role in the high schools on radio station Rebel 95.5 during their "Spotlight on Education" segment.

PODCAST **VaHigherEd Podcast: Episode 5** - Career Coaches Guide 'Realistic Dreams'
VaHigherEd Podcast features career coach Charles McLead for its fifth episode. Listen to the episode above, or check out the podcast at **VaHigherEd.com**.

Career Coach Student Survey
This survey is used by high school students who have received services from a career coach to share their feedback.

Presentation by Elizabeth Creamer and Scott Kemp on the VCCS Career Coach Program

PowerPoint

Program Information Pamphlet and Flyer

2009-10 Information Pamphlet

Career Coach Funding Budget

Career Coach Funding Budget

King County Funders Collaborative
Proposed definitions developed through Peer Learning, updated 04/03/09

Entry Points	On Ramps	Bridge Programs	Bridge Plus College
Organizations that provide services to low income populations and want to connect their clients to jobs and training for better paying jobs.	Basic or entry level skills training that helps individuals obtain a job and/or enter community college training for better paying jobs. *Features:* -- On Ramps provide basic skills training such as ABE, ESL, GED and computer skills. -- On Ramps provide entry level skills training for jobs in retail, culinary arts, warehouse, or others. -- On Ramps help individuals with labor market and industry sector information, career paths, goal setting, and assistance in navigating training and education options. -- On Ramps should offer personal support in the form of case management and support services	Pre-college reading, writing, math and computer skill building that prepares individuals for college level courses and the "college going" experience. *Features:* -- Bridge programs provide reading, writing and math skill building that lead directly to college level courses. -- Bridge programs provide computer skills that allow individuals to navigate the college and complete assignments. -- Bridge programs prepare individuals for the "college environment" with information on tutoring, advising, time management, test taking, support services, etc. -- Bridge programs are sector based; the remediation and preparation is focused on a specific industry sector -- Bridge programs should offer personal support in the form of case management and support services	Pre-college reading, writing, math and computer skill enhancement, and college preparation combined with college credit courses. *Features:* -- Bridge Plus College programs provide reading, writing and math enhancement that lead directly to college level courses. -- Bridge Plus College programs provide computer skills that allow individuals to navigate the college and complete assignments. -- Bridge Plus College programs prepare individuals for the "college environment" with information on tutoring, advising, time management, test taking, support services, etc. -- Bridge Plus College programs are sector based; the remediation and preparation is focused on a specific industry sector -- Bridge Plus College programs should offer personal support in the form of case management and support services

Early Lessons of Education Navigators, updated April 2009

Access to postsecondary education is an issue that is gaining considerable attention as a result of the efforts of the King County Funder's Collaborative (the collaborative). The collaborative aims to increase the number of low-income and low-skill adults that reach the "tipping point" and earn a one year credential. This credential can significantly boost the job opportunities for those living at the economic margins. With greater emphasis being placed on the importance of postsecondary education as a gateway to family supporting jobs, more low-income adults are entering training at local community colleges with support from community based organizations (CBOs) that are trying to ease the process of navigating the community college system. While navigation began as part of the case management function, it is a tenuous balance to maintain given multiple priorities and burgeoning caseloads. Thus, it has become clear that a new set of services, beyond case management and related supports, are needed to help participants maneuver through the community college system.

Enrolling in college is difficult given the multiple steps prospective students must take to move from the admissions process to class registration. Seattle Jobs Initiative (SJI) has begun to explore these processes or the "dance steps", which include: the admissions or enrollment process, placement/assessment testing, advising, financial aid, and registration for classes. Each dance step is comprised of multiple parts, which can be overwhelming and confusing, particularly for individuals who have had limited access to formal education. As a result, the process is a long and arduous one defined by pre-tests, multiple forms and applications, meetings with college advisors, and a complex menu of courses.

The navigation role responds to this complexity by targeting assistance to helping participants through each of the dance steps and providing referrals and coordinating with case managers to ensure that clients are receiving needed support. Navigators fill an important gap and support people -- largely low-income and low-skill -- in achieving educational goals, understanding complex systems and processes associated with the community colleges and ultimately assisting people in reaching employment goals.

The purpose of this memo is to:

- Identify the responsibilities and challenges of the emerging navigator role
- Share examples of current navigation efforts
- Propose next steps and areas for additional research

Methodology
Developing an understanding of the navigator role was developed by conducting internet research to glean whether and how the navigator role has taken shape nationally and to identify any best practices or lessons learned, if available. This research was augmented by interviewing staff from BuRRST, TRAC Associates, Pacific Associates, the Seattle/King County Workforce Development Council (WDC), the Oregon WorkSource system, and members of the Peer Learning Group, convened by SJI in 2008, all of which are focusing on providing some level of navigation or coaching services to help clients attain higher levels of education and family supporting employment. The Peer Learning Group consists of several agencies that were invited at the request of the City of Seattle's Office of Economic Development to discuss both the opportunities and challenges of creating a more integrated workforce system in which there is stronger alignment between CBOs and the community college system, a primary vehicle for employment and training. Participating agencies include: SJI, Pioneer Human Services, YWCA, HopeLink, PortJobs, YouthCare, Seattle Goodwill, and the King County Worker Retraining Program. Community colleges also joined this group: Bellevue Community College, Cascadia Community College, Shoreline Community College, and Seattle Central Community College.

SJI also convened a separate workgroup focused specifically on navigation to explore this role in greater depth. Members of this workgroup included representatives from Pacific Associates, YouthCare, PortJobs, and Shoreline Community College. Both YouthCare and Pacific Associates

have a navigator staff role. The target population for YouthCare is homeless youth while Pacific Associates serves low-income, low-skilled adults with limited academic attainment. This workgroup has been convened to identify best practices and address both the challenges and system issues relating to access to community colleges. The group will also put forth the lessons learned from providing this relatively new support to clients.

Responsibilities and Challenges of the Navigator Role

Defining the Role

As a new concept, there is latitude in how the role of the navigator is defined and how organizations are tailoring the role to meet the specific needs of clients. Additionally, it is easy to confuse or morph this role with a case management or coaching function. However, based on the experiences of the navigation work group, one "school of thought" posits that navigation is distinct from case management and coaching because its primary function is to link clients to educational opportunities at local community colleges. The navigation workgroup, which met on January 30, 2009, outlined the following key responsibilities:

- *Connect to the Community College* - The main role of the navigator is to connect participants to education at the community college and mitigate each of the dance steps – enrollment/admissions, advising, financial aid, class registration, and career and education planning. This is a complicated, multi-step process, in which the navigator often acts as an advocate for the client. Essentially, the navigator acts as a liaison between the community college, community-based program, and the client.

- *Secure Funding for participants* – The financial aid process can be confusing given the number of funding options available. From completing an initial screening for potential funding sources to completing financial aid forms, navigators spend a great deal of time identifying the right mix of funding sources that can be woven together to support the client's education.

- *Connect with Employers* – Knowledge about the labor market and understanding where jobs are in demand is another critical element of the navigator role. A relationship with employers also allows navigators to help inform curriculum development for training programs.

- *Partnership with Case Managers* - The main role of the navigator is to assist clients with their education planning and ensure that training is successfully completed. There are many barriers and challenges that can arise during training that may need case management assistance. Typically, the role of the navigator is to connect the participant with case management, *not provide* case management. In the instance when case management and navigation roles are combined it appears that the challenges and barriers supersede education as a priority.

Intrinsic to this work is the ability to establish relationships with a variety of service providers and community college staff members. Based on the information gathered from interviews, it is critical for the navigator to fully understand the "dance steps" and build relationships with community college staff members such as college advisors, financial aid staff, and counselors. The navigator must also have in depth knowledge of the various college entry points and develop partnerships with key staff members in the basic education, workforce education, and professional/technical education departments. Building relationships throughout the college will allow the navigator to address any challenges clients may experience when accessing the college system. Furthermore, navigators may also need to interface with college instructors, to ensure that such issues as attendance, lack of turning in work or lack of participation can be addressed and redirected to the case manager.

In terms of the how the navigation role is administered, the navigator may be located on campus, at a one-stop center or at a local CBO. When located at the college campus, the navigator can become more integrated with college staff, which can enhance accountability with regard to clients receiving the services they need. When based on at a community organization, the navigator can serve a specific program or serve as an

honest broker to a variety of programs. As an honest broker, the navigator refers participants to the best education and training programs that are appropriate for meeting identified goals. Whether the navigator role is co-located in the community colleges or placed at an agency or CBO, the navigator typically refers clients to colleges based on the client's educational interests and the type of training available. Thus, the navigator must be familiar with a variety of education programs across multiple campuses.

In some cases, navigators also conduct outreach to potential participants, which is often done at the CBO or agency providing the client's case management and support services. Outreach may also take place on the college campus, likely the workforce education office. In some cases, the navigator maintains a relationship with clients beyond education completion and job placement and works with the client on a career plan. Local WorkSource offices are another venue for recruiting clients for education and training opportunities.

Identifying Challenges

While the navigator's main role is to assist participants with creating an educational plan and helping students persist with training to meet long term career goals, the role can become confused with case management when clients need support services to stay on their educational path. Both YouthCare and Pacific Associates, in association with Shoreline Community College (Shoreline) and the WDC, discussed this issue in depth. As a result, the navigator must be able to properly address issues that arise during training such as childcare, housing, and transportation. Usually the navigator works with case managers to stabilize the issues. Depending on the need, however, navigators may need to gap fill and directly address issues and eventually transition the intervention back to the case manager. All of the navigators interviewed noted that the blurred distinction between navigation services and case management is a challenge because clients don't necessarily see a difference between the two. As a "one-stop" point of contact that provides a buffer against many systems – workforce, housing, community college, mental health, corrections, etc – the navigator can easily be confused with a case manager and is viewed as a key resource for managing crises as they arise.

Another challenge identified by the navigators was the procedural differences that exist across campuses. Learning the nuances of the "dance steps" from one campus to the next and identifying the appropriate partners on each campus requires intensive due diligence on the part of the navigator. A primary example of this issue is the variances between the colleges in how funding sources and financial aid are selected for students – it is difficult to know where exactly to start when seeking funding. The navigators play a critical role in working with clients to leverage funding sources so that the financial aid is used to support college level and credit bearing courses versus being utilized and used up on developmental classes, which don't count toward a certificate or degree. The navigators for YouthCare and Pacific Associates work directly with clients on completing financial aid paperwork and attend meetings with the financial aid office to ensure that students are using the right resources at the right time on their educational path.

Examples of the Navigator Role

The term navigation and how the role is implemented varies across organizations. It is an evolving concept with people adapting the role to meet the needs of clients, which can add to the confusion between a navigator, case manager, and coach. SJI has examined three agencies that have created navigator positions – YouthCare, Pacific Associates/WDC/Shoreline (in Seattle) and the Oregon WorkSource.

Pacific Associates/WDC/Shoreline Navigator Programs:

In 2008, Pacific Associates/WDC/Shoreline implemented the navigator role and has three navigators working across King County that are focused on career pathways in two industries: healthcare and automotive. The navigators specialize in an industry to understand the full spectrum of educational and employment pathways within it. The navigators also build relationships with employers in the automotive and healthcare industries and have an understanding of employers needs.

The automotive navigator is located at Shoreline Community College and works with students to ensure they successfully enroll and complete training. Key responsibilities include: recruit participants; build relationships and integrate with community college staff, case managers, and employers; determine funding options for students; and assist with job placement. To date, 60-70 people have been served, with 41 enrollees. Program retention is approximately 90%.

The healthcare navigator is located at both TRAC Associates and Pacific Associates but travels to local hospitals to recruit potential participants for training and education. Focused on incumbent workers, this navigator works with local hospitals in Seattle to provide access to training resources to help these workers move up a career ladder and earn better wages.
Typically, the pathway in the healthcare field is to transition from Certified Nursing Assistant (CNA) or Medical Assistant (MA) to licensed practical nurse (LPN).

YouthCare

YouthCare has two navigators, funded through a grant from the Bill and Melinda Gates Foundation, that focus on linking youth to Opportunity Grant programs at local community colleges. These navigators are based at YouthCare's Orion Center, a multi-service facility open to youth ages 13 to 21, which includes case management, meals, showers, pre-employment training, etc. Homeless youth are the target population for YouthCare's navigation services, with the navigators doing direct outreach to the young people who receive services at the center. In most cases, the youth work with a case manager to address issues while the navigator focuses on the educational pathway of the student.

Because their clients are homeless youth, it is difficult for the navigators to procure relevant documentation to prove that the young people are Washington state residents, which leads to issues in admissions and securing funding. Thus, it is critical for the navigators to walk clients through each "dance step" and accompany them to initial meetings with advisors and financial aid, with the intent that their clients will eventually set up and attend these meetings on their own. The navigators at YouthCare act as neutral brokers and help clients identify the appropriate training that matches their interests. They do not affiliate with one specific college, but have noted which colleges are easier to access. As noted earlier, building relationships and finding allies within the college is a large part of the navigation role.

To help clients begin thinking about going to college and envisioning themselves as students, YouthCare also offers a three-day workshop, TACO (Talk About College Opportunities). This workshop introduces the college concept and the vocabulary used at the schools – financial aid versus a grant, admission, and a "pre-college" quarter (co-enrollment in a skill building class).

Seattle Jobs Initiative

SJI has begun to explore the navigation role in more depth and will be providing navigation services to PortJobs, Seattle Housing Authority, and potentially the Church Council of Greater Seattle. SJI is also providing consulting services to Seattle Goodwill and has helped the agency develop a navigator role and curriculum that is aimed at preparing Goodwill students for education and training at community colleges. While this work is in preliminary stages, SJI will share its findings and lessons learned with the Peer Learning Group and the collaborative.

Oregon-Disability Navigator

Oregon has created a navigator position to help people with disabilities or multiple barriers secure employment. The Disability Program Navigator Initiative is a federally funded program sponsored by the Department of Labor through a grant awarded to the Oregon Department of Community Colleges and Workforce Development. As such, the navigator position is focused on serving clients receiving services from the one-stop system or WorkSource Career Centers. The main role of the navigator is to coordinate and communicate with various case managers in the region to make the system more accessible to people who are harder to serve and who have difficulty accessing services. The navigator is the primary point of contact for clients, which streamlines their experience with multiple systems in Oregon. The navigator provides the client with resources and

support to meet the goals that are outlined in his/her education plan. As part this role, navigators provide a Career Mapping Workshop that focuses on skill identification, strength based workshops, and specific employment goals, accessible to anyone. The Career Mapping Workshop helps the participant to identify a career and education path and the resources that will help to reach those goals.

The navigator also coordinates the integrated service team, which works together to provide resources that assist the client in completing training. The integrated service team includes the following: the prison system, Temporary Assistance to Needy Families (TANF), and the community colleges. This effort eliminates duplication of services and stretches resources to help clients reach their training and employment goals. The benefit of this service is that it is client focused with the education and employment plan originating from the client.

As previously mentioned, the navigator role can be confused with coaching and case management. A discussion of and/or plan for continuing with education can be part of the services of the case manager or coach. Typically navigators do not take on case management duties but rather include the case managers in the communication loop. A good relationship with case managers ensures that clients are receiving the needed support services, allowing the navigators to focus on the education and training plan. As practiced by many, the roles are distinct, but in practice the lines are often blurred.

Alternative Approach to Navigation: Coaching

In lieu of the navigator role, some organizations are using a coaching model in which navigation is provided as part of a larger menu of services. As a result, navigating the community college system with and for clients is not a primary responsibility. While coaches play a similar role to navigators, more emphasis is placed on support services. According to the Commonwealth Corporation in Boston, "the Career Coach works at the intersection of the employer, education and participant perspectives to translate expectations and develop a roadmap for individuals." The coach helps to figure out what resources are needed and provides support that *guides* "individuals in identifying and overcoming barriers." BuRSST, which serves as an intermediary connecting the community and its resources to generate prosperity for low-income residents in **B**urien, **R**enton, **S**eaTac, **S**kyway, and **T**ukwila, uses a career coaching model.

This model empowers the individual to navigate systems such as education, community college and childcare. The career coach provides the knowledge of how to support the individual throughout their educational pathway. The main objectives of the career coaching program are to develop individualized plans, conduct assessments, build navigation skills, promote skill and educational development, offer one on one coaching and post employment services including retention and further education.

In addition, the career coaches are focused on assisting the participant to earn a living wage along the entire career path. The career coaching plan provides comprehensive career development activities to address challenges and barriers of participants. The coach supports the client by using his/her vision of success as they work toward goals.

Currently, BuRRST are three coaches in training. In 2009, BuRRST will launch the coaching role and test the curriculum developed for the training as well as the efficacy of the actual coaching role. Once finalized the training curriculum will be shared with the community (CBOs and state agencies). A key element of the coaching curriculum is shifting the culture of case management from a focus on job placement to building relationships and developing an entire career path with clients. This shift will help create a mindset of building relationships and creating a holistic approach to career and education planning.

PortJobs currently has a coaching position through Pacific Associates as part of the Center for Working Families. The family coach serves working families at the airport and assists with accessing services such as childcare, public benefits, tax preparation, transportation, and asset building. In providing these services, the Family Coach visits each of the Airport Jobs (a program of PortJobs) classes.

Next Steps and Areas for Further Exploration

Given the complexity of the numerous steps associated with accessing the community college and the barriers many low-income and low-skilled individuals face, the navigation role is an important complement to case management or coaching services. Based on the experiences of the Peer Learning Group in assisting clients with obtaining a certificate or degree at local community colleges, it has become clear that a new resource, one focused on navigating the complexities of postsecondary education, is needed. As a result, efforts have emerged – YouthCare, WDC/Pacific Associates/Shoreline, Seattle Goodwill and SJI – to provide navigation.

Using these experiences a guide, the following recommendations are put forth for consideration in formalizing the navigator role:

- **Develop a system-wide approach to the navigator role –** Identify the best practices and lessons learned from existing navigator positions and determine how this role can be implemented on a wider scale.

- **Clarify the distinctions between the coaching, navigation, college advising, and case management roles -** To alleviate duplication of services, developing a shared understanding and recognized definition of the navigator role is needed. As part of this effort, a strong communication plan is needed between all stakeholders to ensure that each agency is being responsive to client needs.

- **Coordinate the efforts of existing navigator positions** - Developing partnerships, providing referrals, sharing experiences, tools, and curricula can help streamline the ad hoc navigation services that are starting to emerge. Through coordinating these efforts, the navigator role can be formalized and executed using standard practices.

To develop a deeper understanding of the navigator role, additional information is needed in the following areas:

- **Target populations:** Who are the participants that the navigators are trying to serve? Is there overlap in who they serve?

- **Tools and Resources**: The navigator role is relatively new such that there is limited, if any, information related to best practices. What tools and resources are navigators using to shape their work? What kind of training has been developed to prepare people for the navigator role? Can these tools and resources be compiled as a guide for navigators?

- **Data Collection/Outcomes:** What are the outcomes for each navigator? What types of data are being collected? How is success measured? How are the results evaluated?

Conclusion

Although some overlap exists between case managers and coaches, the key distinction lies with the area of focus for the navigator, which is access to and persistence with postsecondary education and training. The navigator, through intensive relationship building, helps to ensure that clients are receiving the breadth of services needed to help keep them on track with their educational pathway and related employment goals. While the navigation role has been integrated with case management and coaching, it can become diluted in the midst of other functions associated with these roles. The following chart outlines the key distinctions between navigation, coaching and case management:

Navigation	Case Management	Coaching
Focused specifically on the educational pathway. The navigator works directly with	Emphasis is placed on stabilizing a client and barrier removal. Case management	Supports clients by identifying resources that will help them reach goals. Encompassed

the client on admissions, financial aid, course registration, advising, etc. The navigator also coordinates with case management to ensure that support services are provided and barriers are being addressed. Examples include: YouthCare, the WDC/Pacific Associates/Shoreline partnership, and SJI's pilot with Seattle Housing Authority and potentially the Church Council of Greater Seattle.	is generally "high touch" and encompasses a wide range of services that includes: conducting an assessment, providing support services, developing an employment plan, and conducting job preparation, job placement, and retention services. Examples include: Seattle Goodwill, TRAC Associates, Center for Career Alternatives, ACRS, YWCA, Neighborhood House, Pacific Associates, among others.	within coaching is a philosophy in which clients receive guidance and some support that helps them in developing self-advocacy skills. Examples include: BuRSST and PortJobs.

With the increasing emphasis on postsecondary education, services providers are stepping up efforts to link clients to the training and education opportunities available through local community colleges. Understanding the nuances of the community college system points to a need for expertise in this area. Formalizing the navigation role can fill this gap without diluting the services that clients are currently receiving. Although navigation efforts are in the development stages, they hold a great deal of promise for improving educational and employment outcomes for low-income/low-skill adults.

Youth Health Service Corps

Created by the Connecticut Area Health Education Center Program

About the Program

YHSC | About the program | Program Partners | Sample Module | Awards/Grants | In The News | Start a YHSC | Find a YHSC

Youth Health Service Corps Curriculum

The Youth Health Service Corps uses a nine-module curriculum to train students for the volunteer setting. Each module contains numerous hands-on activities designed to prepare students to interact with underserved populations in health care settings.

Module 1 Vulnerable Populations
Module 2 Ethical & Legal Issues
Module 3 Applied Health Service
Module 4 Cultural Competency
Module 5 Health Education & Disease Prevention
Module 6 Health & Career Exploration
Module 7 Observation & Data Collection
Module 8 Emergency Preparedness
Module 9 Peer Education & Leadership
CPR & AED Certification

Volunteer Service

Students perform 10-50 hours of volunteer service in health care agencies serving the underserved including community health centers, homeless shelters, long-term care facilities, physical therapy clinics and cancer centers.

Student Awards

A progressive award system encourages students to complete the program and to increase their number of community service hours.

Tier 1: Basic Recognition

Completion of the core curriculum (first three modules) and at least 10 hours of community service.

Tier 2: Special Recognition

Completion of three additional training modules and 25 hours of community service.

Tier 3: National Recognition

Completion of all 9 training modules and a grand total of at least 50 hours of community service.

Service Learning Projects

Students choose one of four service learning project tracks, based on their interest: Oral Health, Nutrition, Emergency Preparedness, Sickle Cell Disease. Service learning projects give students a unique perspective on the needs of their communities.

Evaluation

● Curriculum pre and post test evaluations

● Web-based Student Tracking Database

● Volunteer Placement Evaluation(student, parent, and volunteer site coordinator perspective)

Web-based Program Management System

Allows regional administrators to manage all aspects of the Y.H.S.C. program:

- Organization of Y.H.S.C. members (active, dormant, alumni)
- Tracking of volunteer projects and hours
- Email communications with Y.H.S.C. members
- Social networking site for Y.H.S.C. members
- Y.H.S.C. training videos and program materials
- Program assessment
- Tracking of Y.H.S.C. alumni into college and the workforce
- Reports

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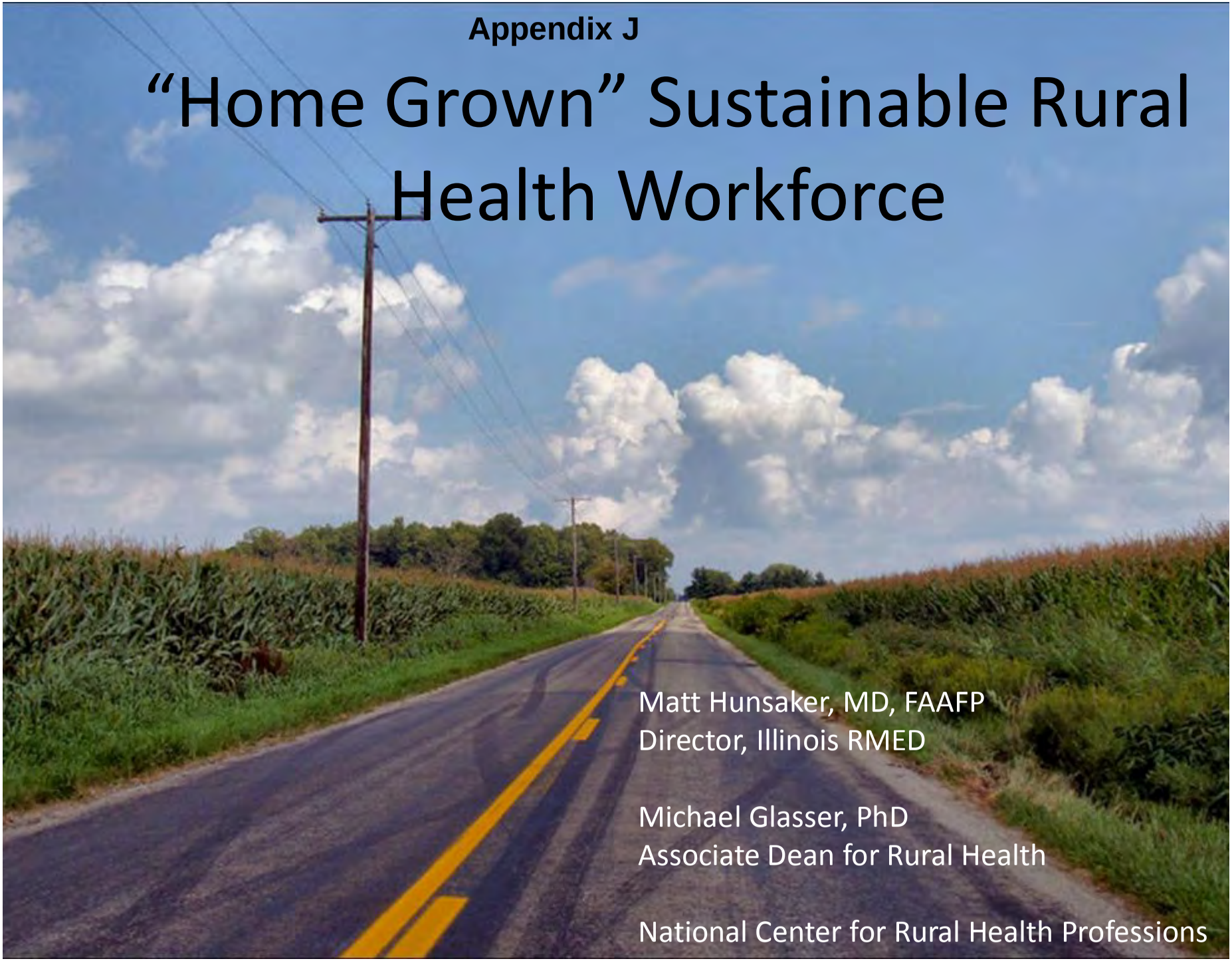
“Home Grown” Sustainable Rural Health Workforce

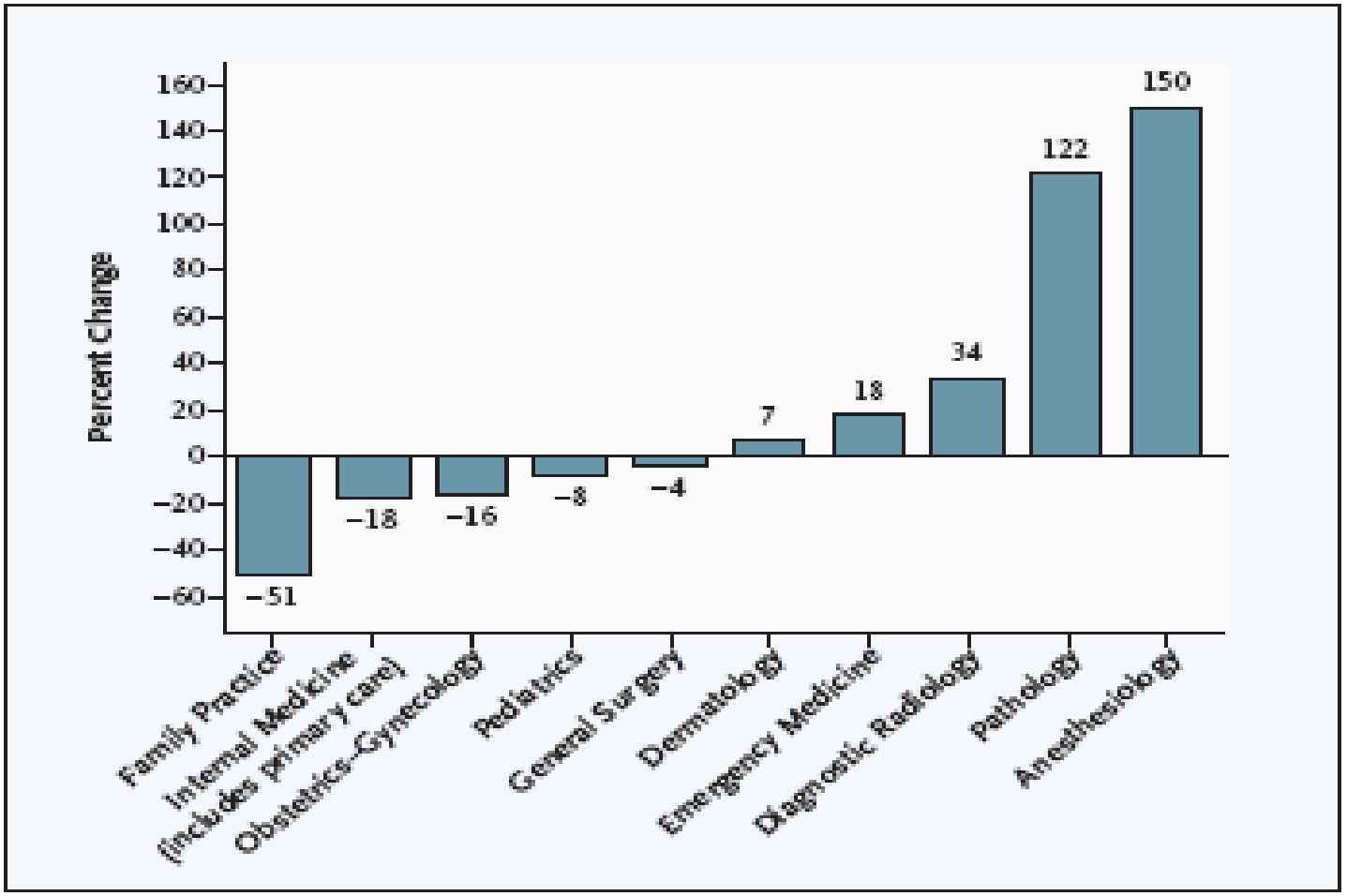


Matt Hunsaker, MD, FAAFP
Director, Illinois RMED

Michael Glasser, PhD
Associate Dean for Rural Health

National Center for Rural Health Professions

U.S. Medical Students Are Avoiding Primary Care Careers



Percent Change between 1998 and 2006 in the Percentage of U.S. Medical School Graduates Filling Residency Positions in Various Specialties.

Data are from the National Resident Matching Program.

Based on Data- What Works?

Factors affecting recruitment and retention of rural physicians in previous studies.

Recruitment

- **Rural upbringing** (Daniels et al., 2007; Hegney et al., 2002; Rabinowitz et al., 1999a; Tolhurst, 2006).
- **Rural residency experience** (Daniels et al., 2007; Pathman, Steiner, Jones, & Konrad, 1999).
- **Rural-focused medical school track** (Rabinowitz et al., 2005; Talley, 1990).
- **Community service orientation** (Daniels et al., 2007; Madison, 1994; Tolhurst, 2006)
- **Plans to practice family medicine upon medical school matriculation** (Madison, 1994; Tolhurst, 2006).
- **Loan repayment program participation** (Rabinowitz et al., 2001).

Retention

- **Reasonable workload and call schedule** (Cutchin, 1997a; Pathman et al., 2004; Humphreys et al., 2002).
- **Personality and practice compatibility** (Cutchin et al., 1994; Hart et al., 2002).
- **Financial sustainability of practice** (Pan, Dunkin, Muus, Harris, & Geller, 1995; Rabinowitz et al., 1999a).
- **Owning one's own practice** (Pathman et al., 2004)
- **Employment opportunities for spouse** (Han and Humphreys, 2006; Mitka, 2001).
- **Parenting a minor-aged child** (Pathman et al., 2004)
- **Sociocultural integration** (Cutchin, 1997a; Han & Humphreys, 2006; Hegney et al., 2002; Pan et al., 1995).

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ILLINOIS
RMED
The Rural Medical Education (RMED) Program of the University of Illinois College of Medicine seeks to admit and prepare medical students from the state of Illinois who will, upon completion of residency training, locate and practice in rural Illinois as primary care physicians.

Supplemental Curriculum

The RMED curriculum is a supplemental curriculum. Training for RMED is in addition to the regular medical school curriculum of the UICOM-Rockford.

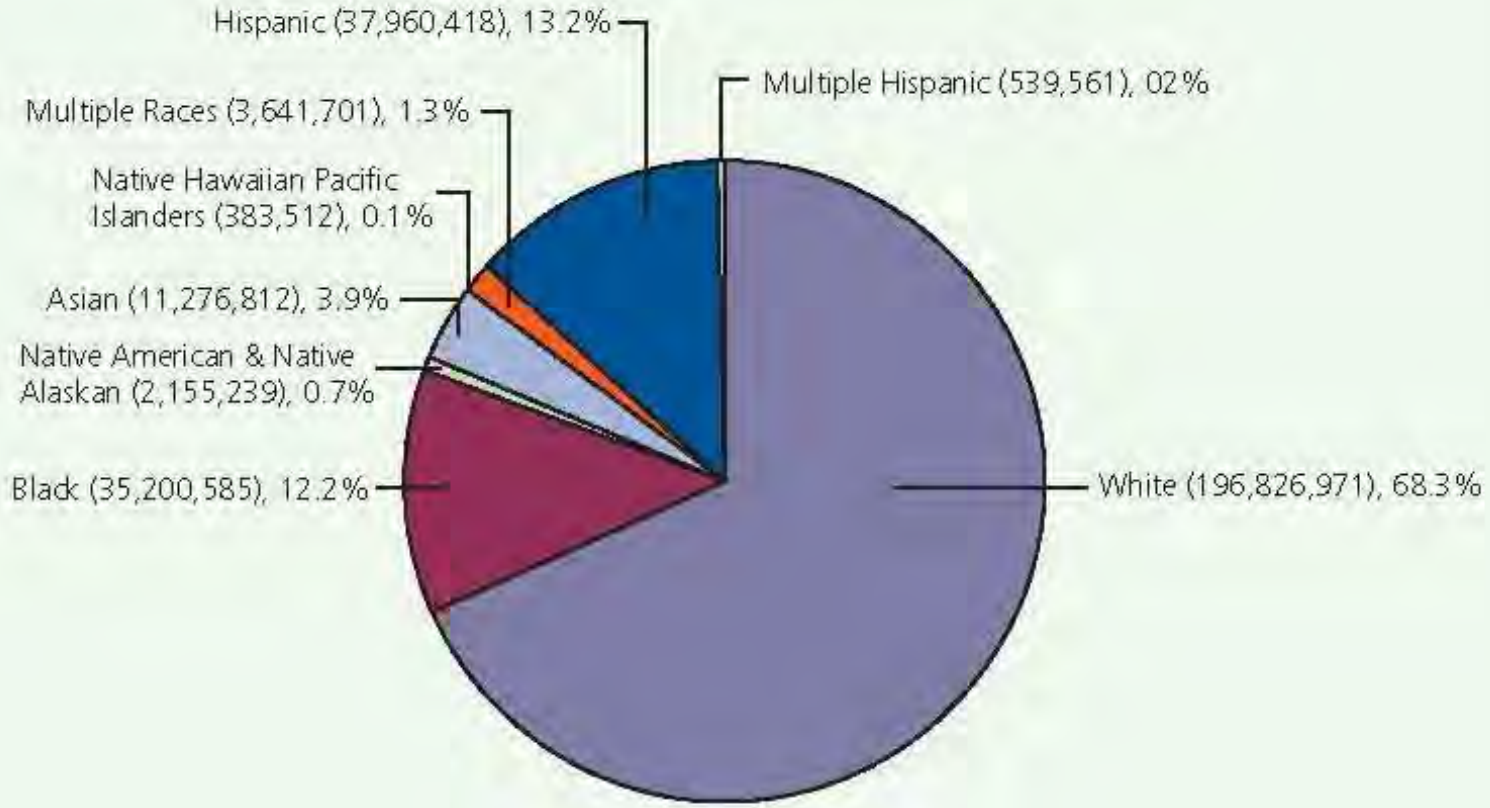
COPC Project Categories

- Health Education/Promotion
- Access and Healthcare Utilization
- Environment and Organization of the Community
- Illness and Disease in the Rural Communities

Building a Rural Cohort of Students

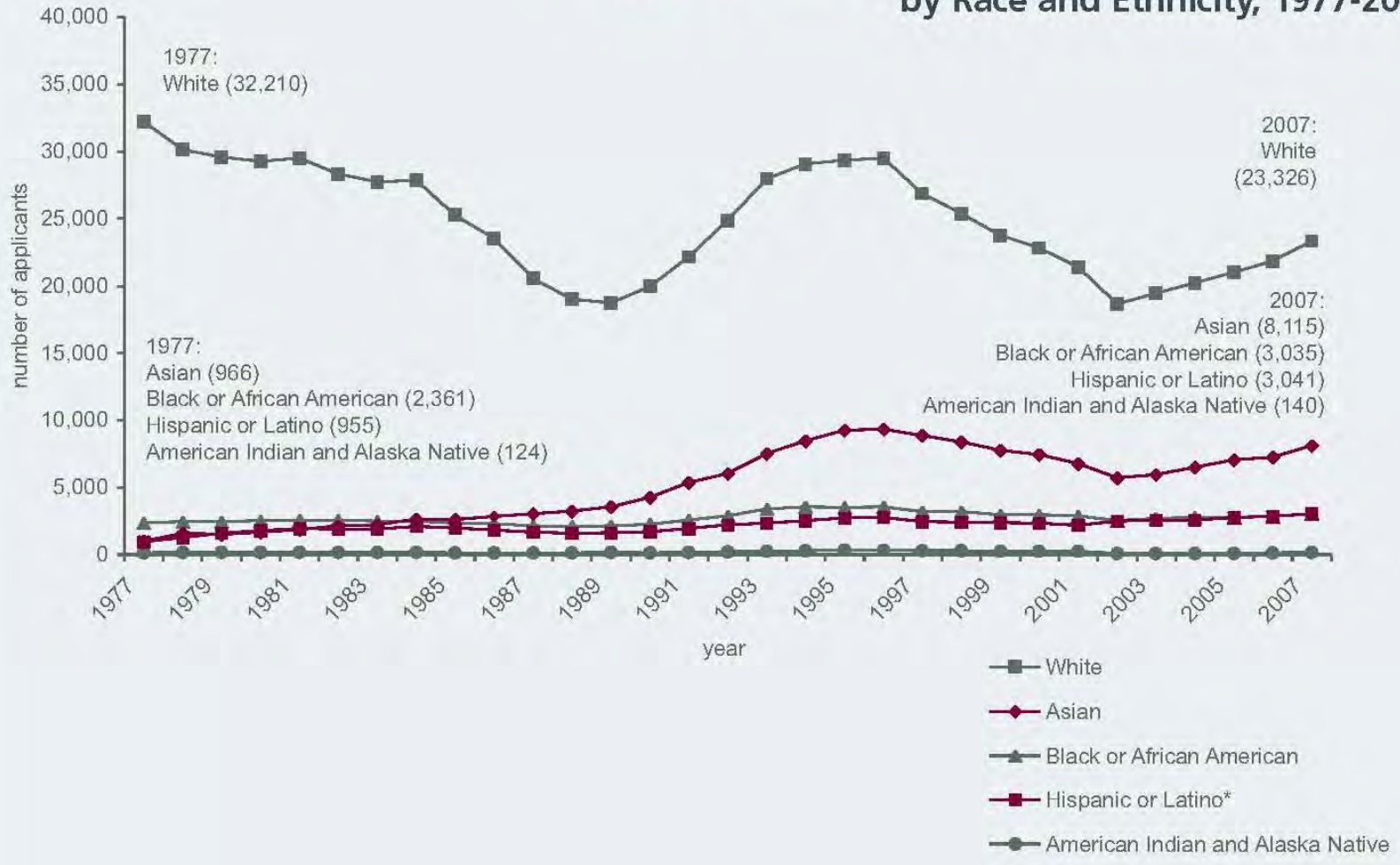

How Are We Doing With RMED?
Achievements After 16 Cycles
248 students (Classes of 1993-2013)
Matriculants from over 80% of Illinois' rural counties
188 graduates (139 in practice, 49 in residency training)
60 students in medical school
81% of graduates attend primary care residencies
75% of graduates in Illinois practicing
in towns less than 20,000 people

Estimated Population by Race/Ethnicity, 2002



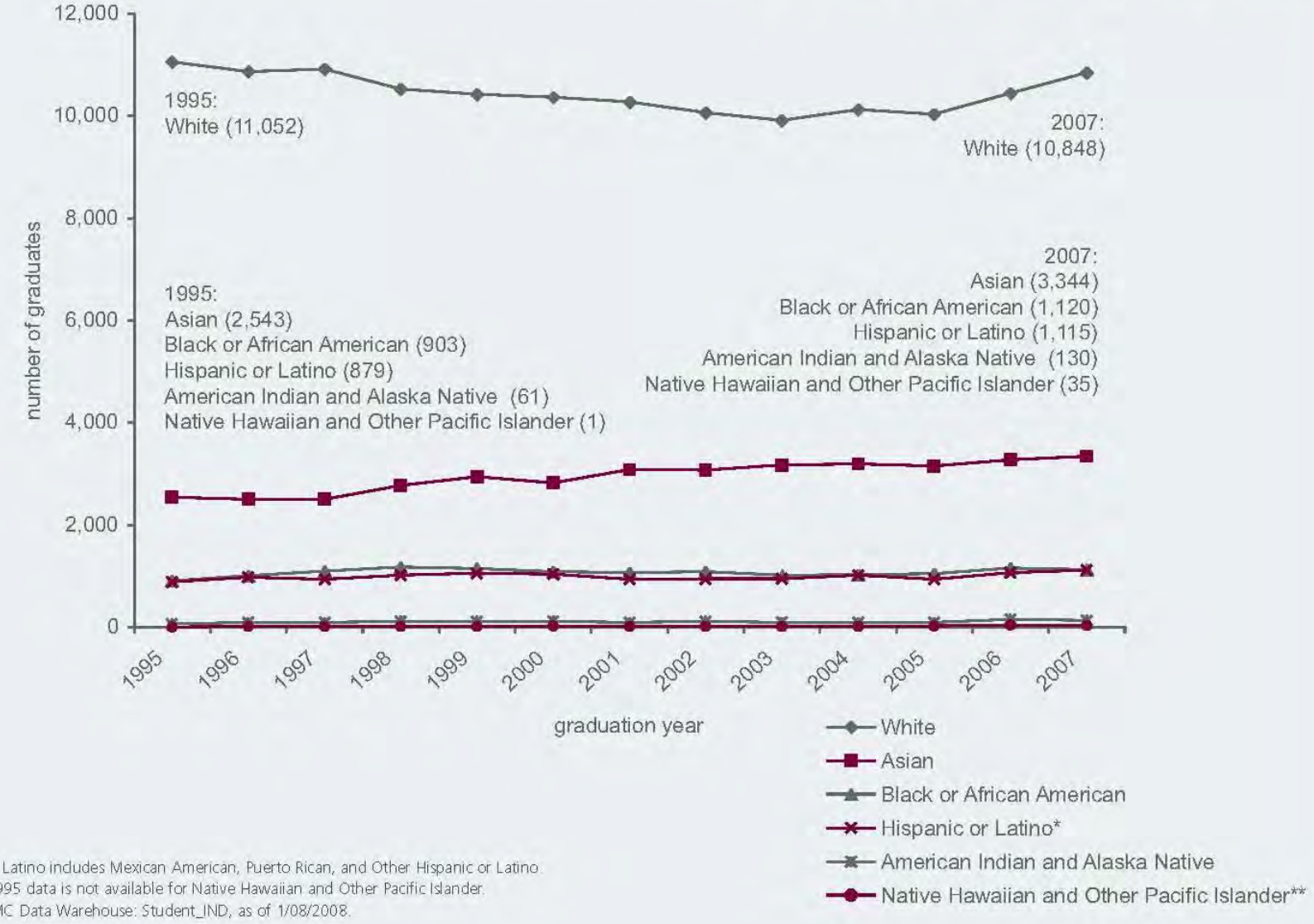
Data Source: Population Division, U.S. Census Bureau: Table 3: Annual Estimates of the Population by Sex, Race and Hispanic or Latino Origin for the United States: April 1, 2000 to July 1, 2005 (NCEST2005-03). Release Date: May 10, 2006.

Figure 5: Number of U.S. Medical School Applicants by Race and Ethnicity, 1977-2007



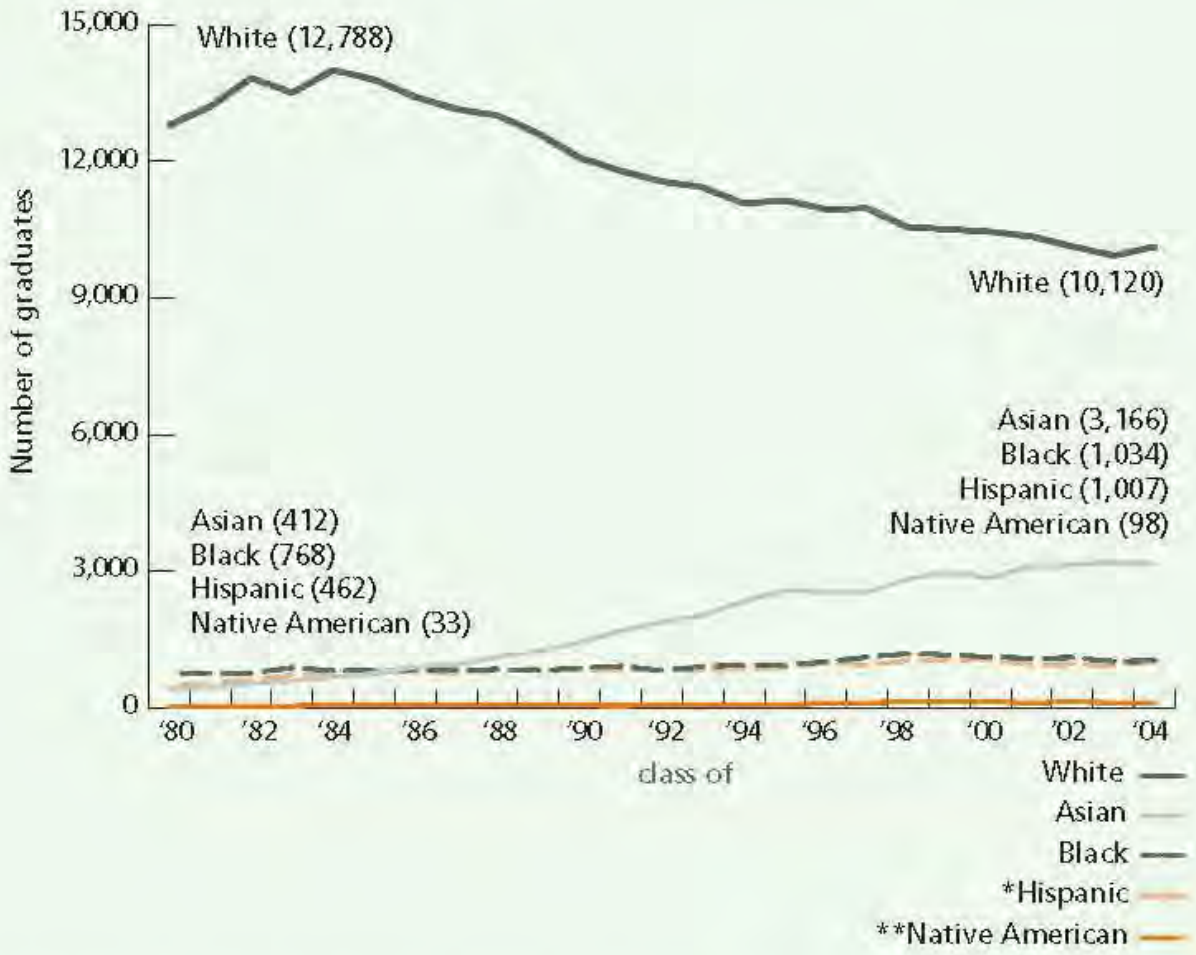
Note: White, Asian, Black, and Native American, are Non-Hispanic. Since 2002, individuals have the option of reporting both their race and ethnicity alone or in combination with some other race or ethnicity. In this figure numbers are reported for race alone.
*From 1974-2001, includes Mexican American, Puerto Rican, and Other Hispanic. Since 2002, includes Cuban, Mexican American, Puerto Rican, Other Hispanic, and Multiple Hispanic.
Source: AAMC Data Warehouse: Applicant Matriculant File, as of 12/11/2007.

Figure 15: Number of U.S. Medical School Graduates by Race and Ethnicity, 1995-2007



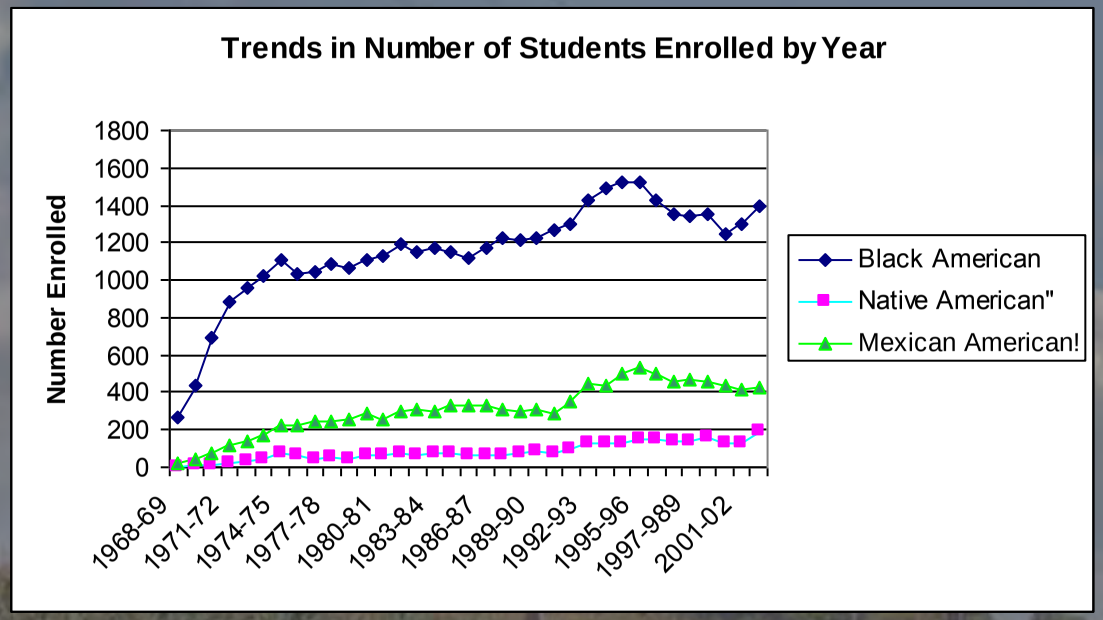
*Hispanic or Latino includes Mexican American, Puerto Rican, and Other Hispanic or Latino.
**Prior to 1995 data is not available for Native Hawaiian and Other Pacific Islander.
Source: AAMC Data Warehouse: Student_IND, as of 1/08/2008.

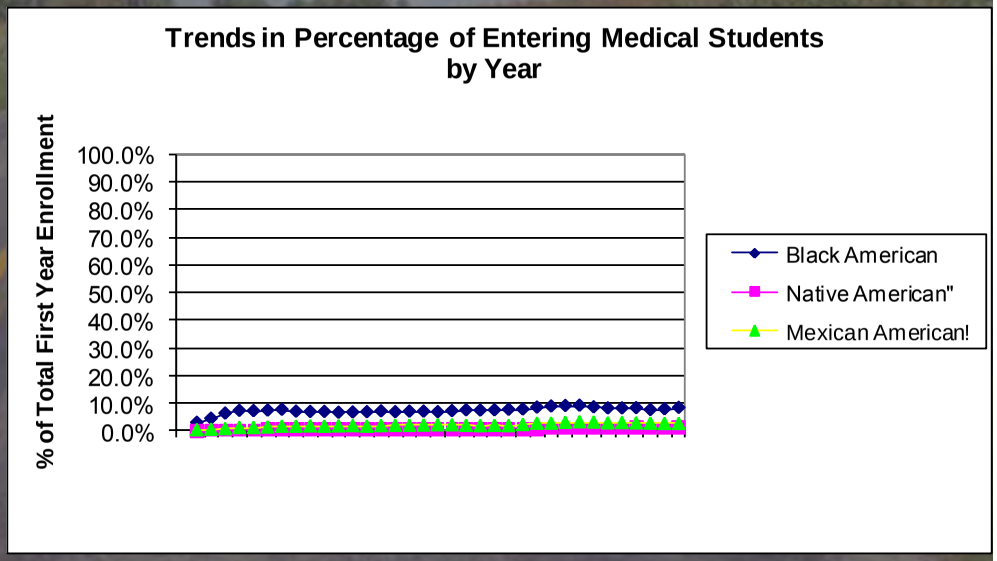
Medical School Graduates by Race and Ethnicity, 1980-2004

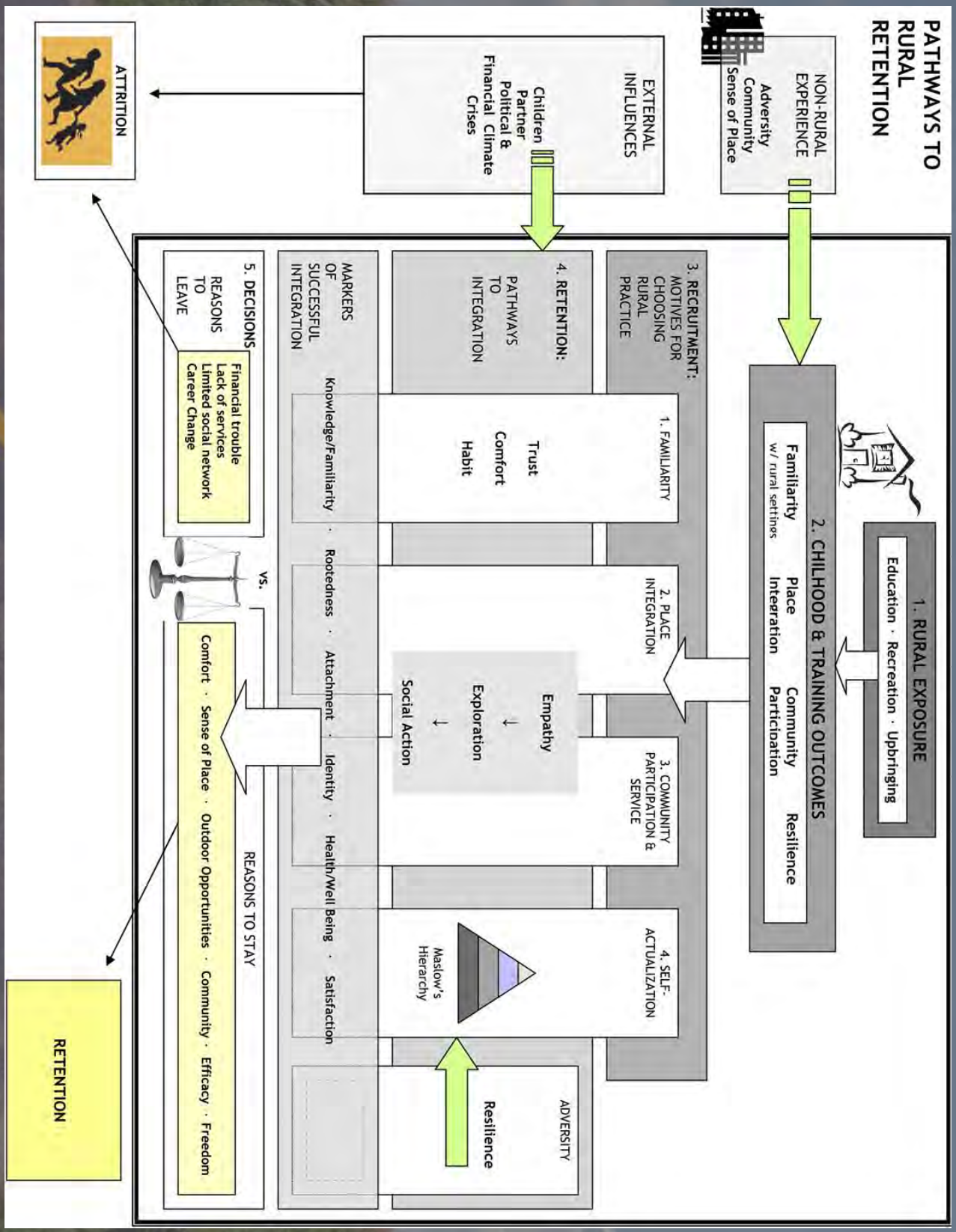


* Hispanic includes Mexican American, Puerto Rican, and Other Hispanic. ** From 1997 forward, includes Native American/Alaska Native and Native Hawaiian. Prior to 1997, includes only Native American and Alaska Native.
Data Source: AAMC Data Warehouse: Student_IND, as of 1/05/2005.

Trends in Enrollment (# and percentage) of entering US medical school classes, 1968-2003, (based on Table 5 - Handout)







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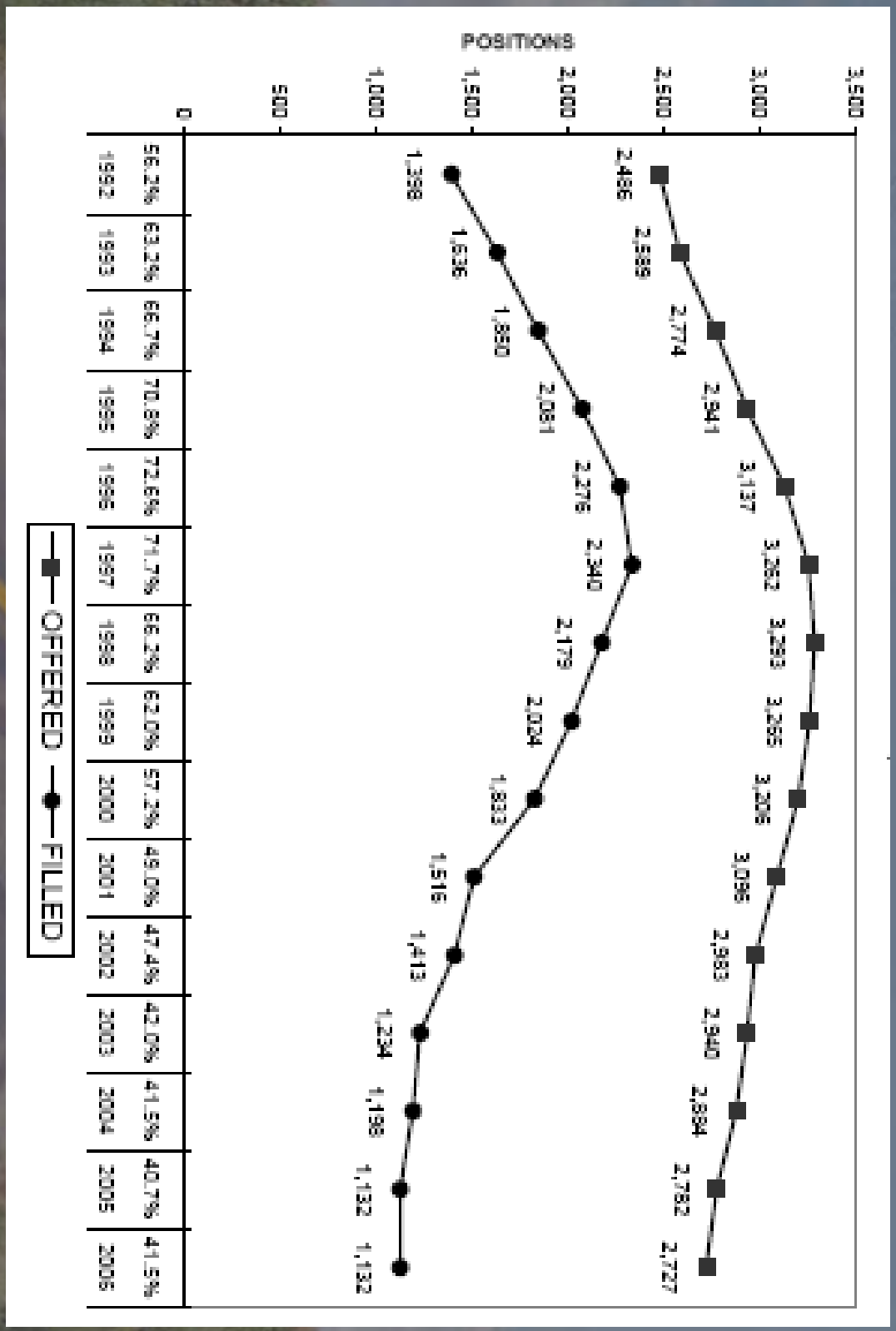
RMED Curriculum – M1/M2 Years

RMED Course	Curriculum Focus	Methods	Contact Hours
Foundations in Rural Family and Community Medicine I: RMED I #BMS 621 (M1 year)	Rural health issues, community resources, intro to COPC, rural leadership and negotiation skills.	RMED new student orientation, seminars, case-based small group discussions, field trips, optional rural health conferences, shadowing rural family physician for a day, selected readings and assignments.	~2 day orientation 7-9 monthly evening dinner seminars (3 hrs/month) 1-2 day field trips 1-3 day conferences informal feedback session
Foundations in Rural Family and Community Medicine II: RMED II #PRCL 665 (M2 Year)	Core concepts of family medicine, community resources (con't), team approaches to health care, GME, practice-based issues	Seminars, case-based small group discussions, rural health conferences, group presentation of annotated bibliography on a rural health topic, optional conferences and workshops, selected readings and assignments.	9 monthly evening dinner seminars (3hrs/month) 1-2 day field trip 1-3 day conferences Informal feedback session

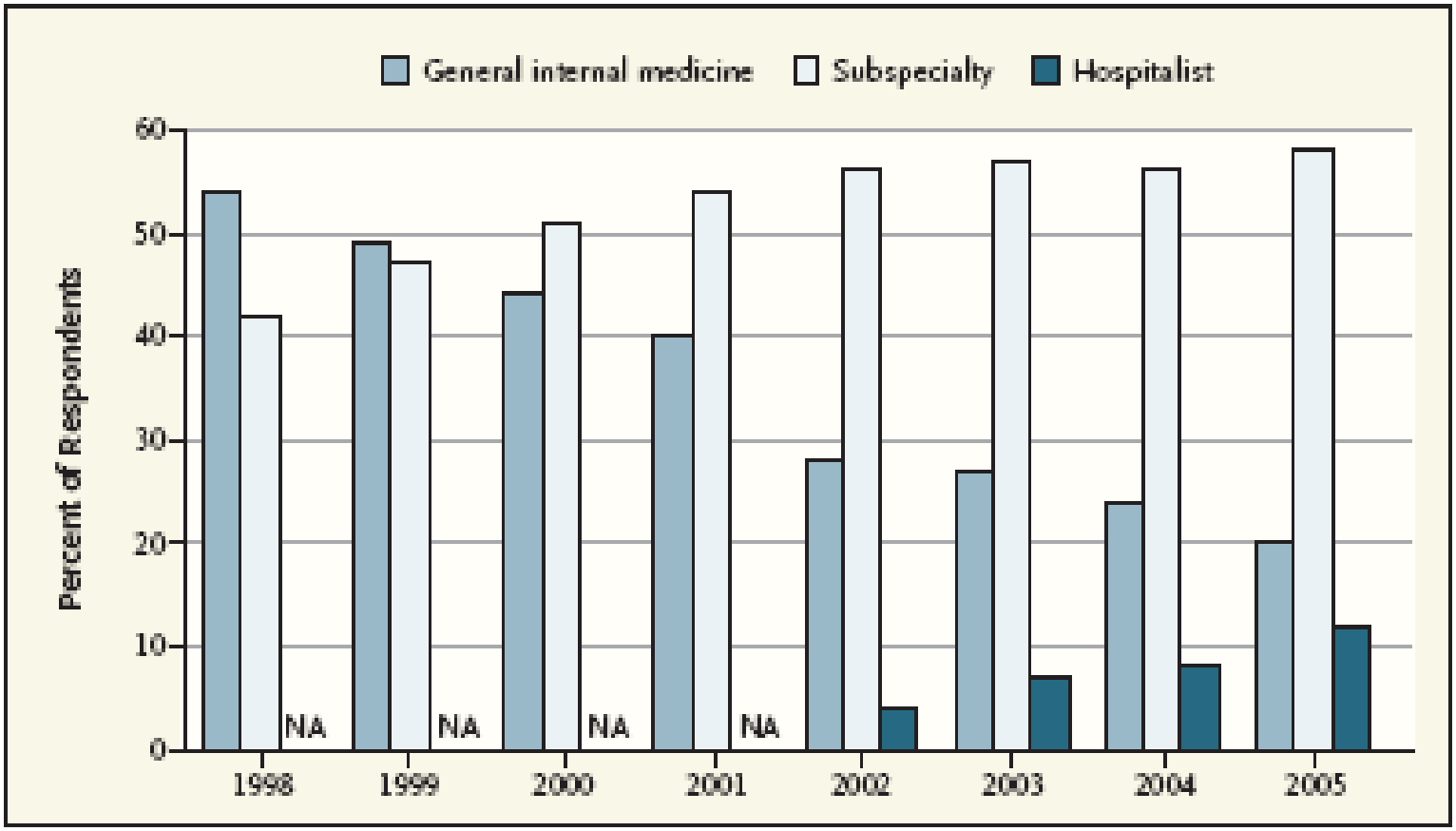
RMED Curriculum – M3/M4 Years

Interface Between Family Medicine and Community: RMED III #CLER 641 (M3 Year)	Concepts of community-based medicine and COPC, core concepts of family medicine vis-à-vis M3 curriculum and rural practice.	Seminars, small group discussions, ▪ community health survey,○ ▪ windshield analysis,○ design COPC project, selected readings.	9 monthly evening dinner seminars (3 hrs/month)
Rural Family Medicine Preceptorship: RMED IV #CLER 642 (M4 year)	Clinical skill development in rural settings, community structure study, implementation of COPC project in rural community.	Immersion experience. 60% clinical responsibilities; 40% community projects, which include collaboration with community individuals / organizations. Log clinical encounters into computer database; present COPC project in Poster Session; compile community notebook.	16-week preceptorship in rural Illinois community working with a rural family physician

U.S. Student Interest in Family Medicine



	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
OFFERED	2,486	2,589	2,774	2,941	3,137	3,262	3,293	3,295	3,206	3,096	2,983	2,940	2,884	2,782	2,727
FILLED	1,398	1,636	1,880	2,081	2,276	2,340	2,179	2,024	1,833	1,516	1,413	1,234	1,198	1,132	1,132
	56.2%	63.2%	66.7%	70.8%	72.6%	71.7%	66.2%	62.0%	57.2%	49.0%	47.4%	42.0%	41.5%	40.7%	41.5%



Proportions of Third-Year Internal Medical Residents Choosing Careers as Generalists, Subspecialists, and Hospitalists.

Where are the General Internists?

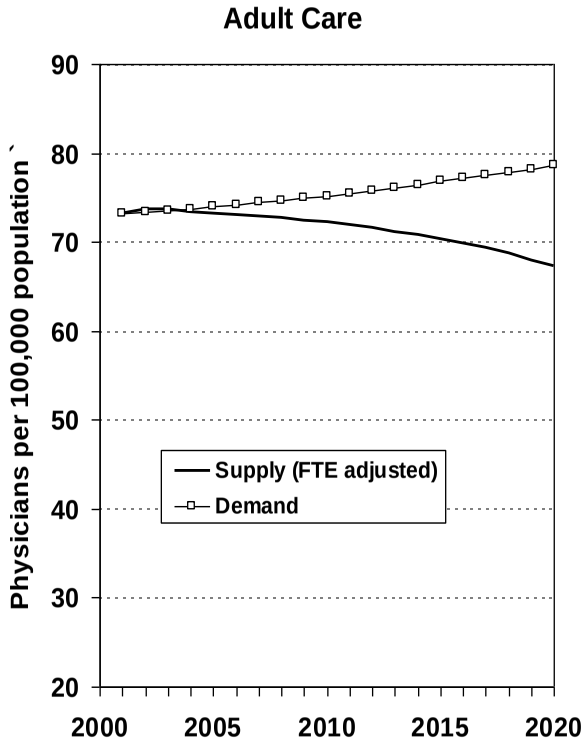


Figure 4. Supply and demand for child and adult care office visits.

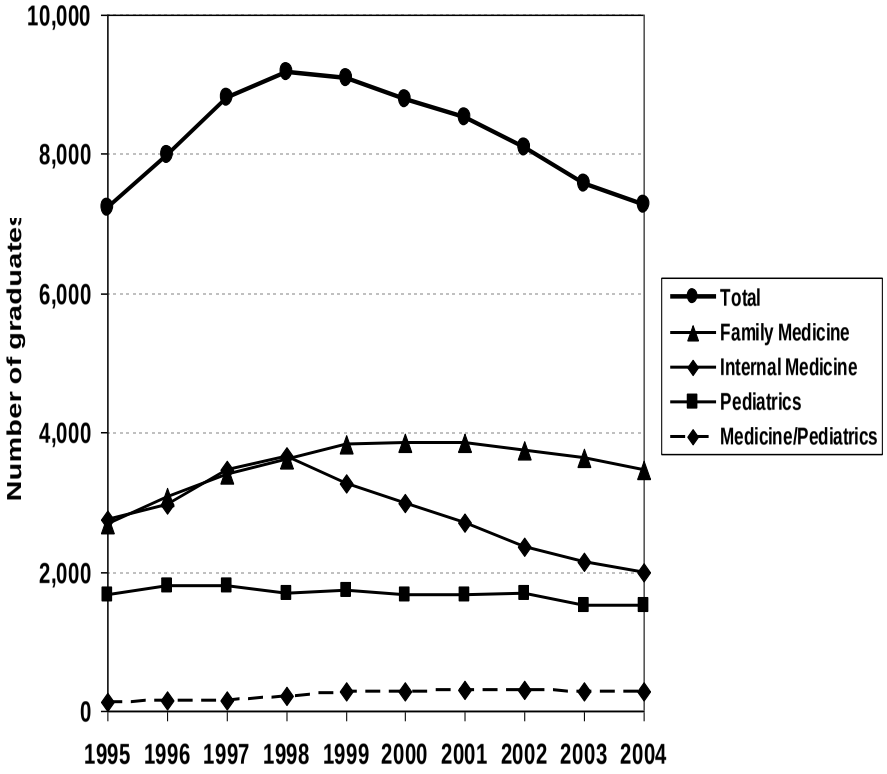


Figure 1. Generalist physician graduates 1995 to 2004. Figures include both Allopathic and Osteopathic physicians. Generalist graduates are calculated as residency graduates minus first year fellows and those changing specialty.

The Expanding "Gap" in Physicians Who Care for Adults

Specialty Access on the North Coast:

Mental, Dental and Medical Access

in Humboldt, Del Norte, Trinity and Mendocino Counties

A report conducted for the California Center for Rural Policy,

Completed by Heather Bonser-Bishop, MBA, July 7, 2010

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EXECUTIVE SUMMARY

This report was conducted during the 2nd Quarter of 2010 to determine access to primary care and specialty services for the general, low income and senior populations of the sub-county areas of Humboldt, Del Norte, Trinity and Mendocino County. Data generated as part of this study can be used to acquire new shortage area designations, to develop programs to meet identified need and to advocate for increased access, funding and workforce development programs. The report found that the North Coast has more primary care physicians and fewer specialists than California, as a whole, that physicians tend to reduce their FTE as they age, that dentists have virtually ceased providing general dentistry services to the low income as Medi-Cal reimbursement rates have changed and that Advanced Practice Clinicians work predominantly with primary care.

INTRODUCTION

Background and Purpose

The California Center for Rural Policy (CCRP) commissioned this report to assist in workforce development and retention activities. It piggybacks upon a Mendocino County study conducted in April, 2010 for the Alliance for Rural Community Health. The California Center for Rural Policy at Humboldt State University is a research center committed to informing policy, building community and promoting the health and well-being of rural people and environments.

Physicians in different areas of the state have varying practice patterns and some counties have better access to primary care than in other areas. In June, 2009, the California Health Care Foundation released Fewer and More Specialized: A New Assessment of Physician Supply in California by Kevin Grumbach, M.D., Arpita Chattopadhyay, Ph.D., and Andrew B. Bindman, M.D.[1]The influential report provided countywide figures using data from the California Medical Board, which counted 17% fewer physician Full Time Equivalency (FTE) than using American Medical Association (AMA) Physician Masterfile data. Local reviewers of that report believed that it overstated FTE. This study found that actual FTE are 88% of FTE reported in Fewer and More Specialized, which is 27% less than AMA data.

This project builds upon that report to provide detailed data at the sub-county level. It will prove useful for decisionmaking, physician recruitment and retention efforts, advocacy, workforce development projects and acquisition/ updating of shortage area designations. In addition to assessing access for the general population, this project's surveying queried about access for the low income and senior populations of the county as the low income are traditionally underserved and because seniors (those age 65 and older) require more health services than other age groups.

Process

Research primarily occurred during 2nd quarter of 2010. This report involved using a variety of online sources to identify physicians practicing in the region, surveying them by mail and phone and compiling the data in detailed spreadsheets. Data relating to individual physicians and practices are aggregated as to maintain confidentiality.

Contributors and Acknowledgements

Penny Figas of the Humboldt/Del Norte Medical Society provided invaluable information to guide this report, as she has collects FTE, practice site and specialty information from physicians and Advanced Practice Clinicians (APCs). The staff at most area hospitals and community health centers provided a great deal of insight and information about the providers in their area. Special thanks also go to:

- Angela Cohen of North Coast Emergency Physicians in Eureka
- Donna Eddings of Open Door Community Health Center in Arcata
- Cathy Frey of the Alliance for Rural Community Health in Ukiah.

1 www.chcf.org/topics/view.cfm?itemID=133962

- Willard Foote of Eureka Internal Medicine in Eureka
- Carolyn Lane at Redwood Memorial Hospital in Fortuna
- Debbie Lee of Redwood Family Practice and in Eureka
- Ellie Popovich of Sutter Coast Hospital in Crescent City

DEMOGRAPHICS

Numbers of people

The following chart shows the estimated number of residents in area counties using data from the state[2]. Population estimates do not include the homeless, seasonal residents, tourists or an estimate of migrant and seasonal farm workers and family members.

	Civilian Population	Medi-Cal Enrollees	MCL enrollee as % of Civ. Pop.	Low Income Pop. (under 200%)	Low Income as % of Civ. Pop.	Age 65+	65+ as % of Civ. Pop.
Del Norte	24,115	7,868	33%	10,731	44%	3,202	13%
Humboldt	133,266	24,980	19%	52,893	43%	14,000	11%
Trinity	14,844	2,764	19%	5,704	43%	2,164	15%
Mendocino	91,794	20,794	23%	33,316	39%	10,589	12%
Total	264,019	56,406	21%	102,644	39%	29,955	11%

The Low Income

The low income, for HPSA purposes, are considered as those between 0 and 200% of the Federal Poverty Level. Discerning utilization of/access to physician services by the low income is difficult since practices tend to know the number of patients paying with Medi-Cal but rarely track the income levels of patients. While many private practices offer a cash discount for payment in full at time of service or discounts at the physician's discretion, they do not use a Sliding Fee Scale. Not all low income can afford to take advantage of cash discounts.

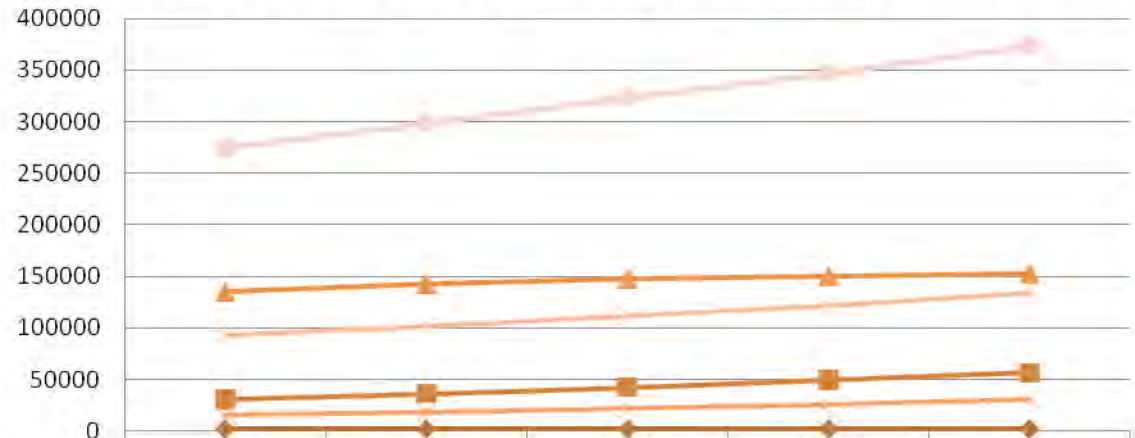
Population trends

The State of California projects that the North Coast's population will continue to increase and become older and more diverse.[3] The percent of non-White residents will increase significantly, indicating a need for practices to recruit multi-cultural physicians. The following tables and charts provide more details.

2 Demographic data compiled from 2007 Claritas information and assembled by the California Office of Statewide Health Planning and Development. The "Dashboard" is available for downloading at http://gis.ca.gov/catalog/BrowseRecord.epl?id=30287)

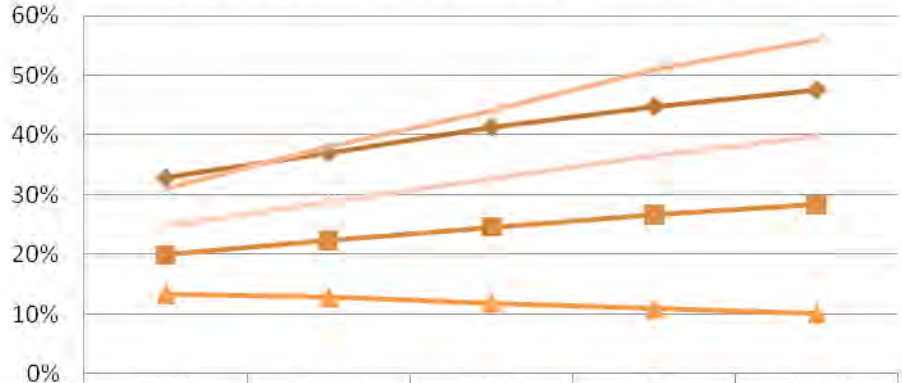
3 www.dof.ca.gov/research/demographic/reports/projections/p-3

Increasing North Coast Population

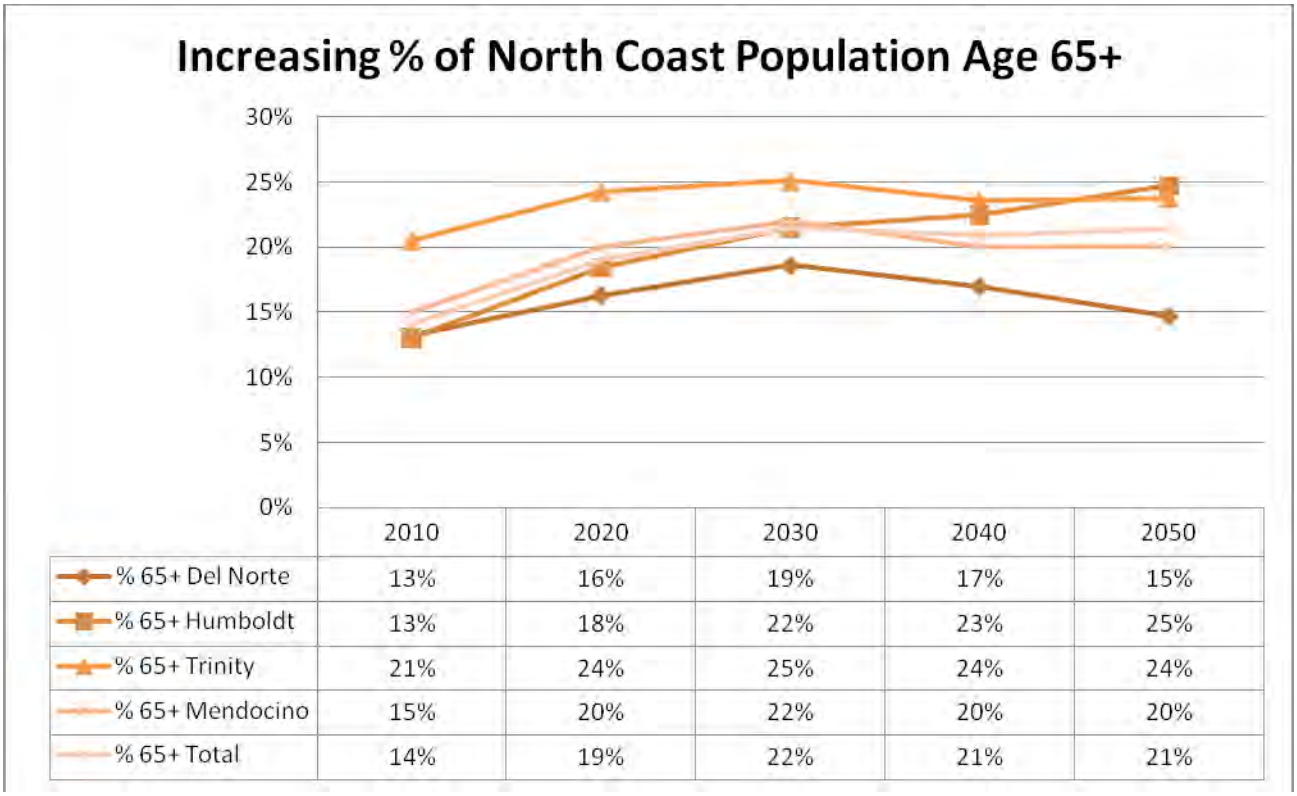


	2010	2020	2030	2040	2050
Year	2010	2020	2030	2040	2050
Del Norte	30,983	36,077	42,420	49,029	56,218
Humboldt	134,785	142,167	147,217	150,121	152,333
Trinity	15,172	18,236	22,136	26,030	30,209
Mendocino	93,166	102,017	111,151	121,780	134,358
Total	274,106	298,497	322,924	346,960	373,118

Increasing % of Area Non-White Population



	2010	2020	2030	2040	2050
% Non-White Del Norte	33%	37%	41%	45%	48%
% Non-White Humboldt	20%	22%	25%	27%	28%
% Non-White Trinity	13%	13%	12%	11%	10%
% Non-White Mendocino	31%	38%	44%	51%	56%
% Non-White Total	25%	29%	33%	37%	40%



	2010	2020	2030	2040	2050
% 65+ Del Norte	13%	16%	19%	17%	15%
% 65+ Humboldt	13%	18%	22%	23%	25%
% 65+ Trinity	21%	24%	25%	24%	24%
% 65+ Mendocino	15%	20%	22%	20%	20%
% 65+ Total	14%	19%	22%	21%	21%

DESCRIPTION OF DATA USED AND ASSUMPTIONS

This report is as accurate as possible, given access to data and the comfort of physician practices with communicating sensitive information. Survey results were acquired using online sources, public databases, surveys, phone interviews and the process of deduction. Numbers might differ from other sources because of rounding and data used.

Survey Process

Area group practices, Rural Health Clinics and Community Health Centers provided details about the practice hours of physicians and Advanced Practice Clinicians (APCs) working at their sites. Letters with surveys (see Appendix A) were snail-mailed to Mendocino practices. Non-responding physicians received follow-up phone calls. Humboldt, Del Norte and Trinity county practices received phone calls either directly or indirectly through hospital contacts. Some providers were even messaged on Facebook, although that tactic had limited success. On calls, the interviewer generally spoke with an office manager and asked about the physician's:

a) Estimated hours/week

b) Estimated percent of patients using Medi-Cal to pay for services

c) Estimated percent, if any, of patients paying using a sliding fee scale

d) Estimated percent of patients older than age 65 and

e) The names and hours of any Advanced Practice Clinicians

Survey respondents indicated some physicians would leave or arrive by October but all presented information is as of July 1st, 2010

Names List

A list of physician names was compiled using the phone book, online lists of providers with privileges at area hospitals, community health center staff rosters, the state licensing database, www.appointmentnet.com, the Humboldt/Del Norte Medical Society, the Humboldt/Del Norte Dental Society and the North Coast Association of Advanced Practice

Clinicians. That list was winnowed down from over 1,000 names and reviewed to eliminate duplications and FTEs in excess of 1 per person.

If a hospital or clinic had not heard of the provider, if a working phone number for them could not be found and if they graduated from medical school prior to 1970 a provider was determined to have an inactive practice. Names were eliminated if the provider was found to:

- be retired
- be deceased
- have a license in voluntary service
- work solely with an incarcerated population
- have moved
- have a delinquent/surrendered/inactive/revoked/canceled license
- be disabled, per their license
- have a license listing zero hours of patient care
- not have an active practice in the area
- infrequently practice in the area (if they functioned as a fill-in)

Specialties

The State licensing database lists each physician's self-reported specialty. Physicians also had the opportunity verify their specialty on the Mendocino survey form. Complementary and Alternative Medicine providers include those physicians with practices dedicated to medical marijuana. Some physicians indicated they are hospitalists or urgent care specialists, which are not specialties listed in Fewer and More Specialized: A New Assessment of Physician Supply in California. The survey process found that North Coast physicians have less specialization than do physicians across California. This may be because rural physicians need to be more "generalist" because referrals to specialists are not as easy to obtain as in urbanized areas.

Hours Assumptions

When a provider, their staff or their employer did not provide an average hours/week at a site, amounts listed with the State licensing agency were used and documented at the higher end of the range provided. For example, if a physician stated they work 0-9 hours per week, their time was listed at 9 hours. FTE was determined by dividing hours/week by 40 hours. No provider is listed as more than 1 FTE. Fort Bragg, Mendocino and Weaverville primary care physicians not responding to the survey were recorded using 2009 data from a Health Professional Shortage Area survey conducted by Bill Deane of HFS. Telehealth service time is counted in the community in which the physician is located, not for the area in which the patient is located.

Low Income and 65+FTE

A provider's full-time-equivalency (FTE) spent treating the low income population was estimated using Medi-Cal claims (utilization) data purchased from the State. In addition, practices were asked to estimate the percentage of their patients using Medi-Cal to pay for services. If the physician did not supply data, alternate sources were used. This was combined with physician-office-reported data about whether they offered a Sliding Fee Scale (automatic discount for the low income) and how often patients used it to pay for services.

Using 2009 Medi-Cal claims data purchased from the State, 5,000 Medi-Cal primary care claims are considered as one FTE for private practice physicians (as is allowed using shortage designation guidelines). Since specialty services are billed to Medi-Cal differently than primary care services, 1,000 specialty claims are considered as 1 FTE here.

Community health centers report their patient payer mix and demographics annually to the State.[4] That information was retrieved and applied to all physicians practicing at the clinic site. Hospitals report outpatient payer mixes to the State[5] and, similarly, that information was applied to all physicians practicing at the hospital if data were unavailable from other sources. A hospital's percentage of care paid for with Medicare substituted for the percentage of patients that are age 65 and older. Hospital information included 4 quarters worth of data ending with Q3 of 2009 and using patient net revenue for inpatient services (anesthesiology, surgery, etc.) and outpatient revenue mix information for primary care and other outpatient services.

A physician's FTE with the population age 65+ was estimated by asking practices the percentage of their patients using Medicare to pay for services. If an answer was unknown reasonable estimates for the specialty were used based on the average response from responding physicians with that specialty.

SURVEY RESULTS

Appendices A through C present survey results from Fewer and More Specialized in comparison with the survey results from this project. Data are compared at the FTE and FTE-per-100,000 population level, which is the standard presentation method and allows for comparisons between communities of varying sizes. In the interest of presentation, some specialties are combined with data presented in aggregate.

- All specialties relating to Oncology are combined
- Family and General Practices are combined
- Cardiology and Pulmonology are combined
- Hepatology is included with Nephrology as it is not listed as a separate specialty in Fewer and More Specialized
- Neurology and neurosurgery are combined, as are Aesthetics, Facial Plastic Surgery, Plastic Surgery and Cosmetic Surgery.
- Physicians with medical marijuana practices are included with Complimentary and Alternative Medicine
- The Hospitalist specialty is combined with the Critical Care specialty for presentation in the charts in the appendices as both specialties relate to in-hospital care. The North Coast has a relatively large number of physicians self-identifying as hospitalists, a specialty not listed in Fewer and More Specialized.
- Sports medicine is combined with Orthopedic and Spine Surgeries.
- Vascular and Thoracic surgeries are now combined.
- Urgent Care is separated for Humboldt County but combined with Emergency Services in other counties. This is a function of how data were logged.

Access to Care for the General population:

Appendices A-D compare data from Fewer and More Specialized with the results of the survey conducted as part of this project. Findings are:

- With the exception of Trinity County, which has 2.5 more physicians than the 7 listed in Fewer and More

4 www.alirts.oshpd.ca.gov

5 www.oshpd.ca.gov/ihpc, Utilization Data/Outpatient Visits/Total Outpatient Visits. Clicking the red arrow will show a page showing the hospitals' outpatient payer mix. The outpatient payer mix was similar enough to the inpatient mix to make it useful for all specialties.

Specialized, that report overstated the North Coast's FTE by 12% overall and a per-county range from 7% to 31%.

- The North Coast has a higher concentration of primary care specialists than the rest of the state, and correspondingly fewer specialists, especially in Del Norte County. These primary care providers (internal medicine, family/general practice, pediatrics, OB/GYN, geriatrics) often have sub-specialties in addition to general practice.
- Del Norte County has a higher rate of allergist/immunologists because one physician has a part-time specialty in that discipline. Similarly, Del Norte has a higher rate of colorectal surgeons because a one physician has this as a percentage of his general surgery practice.
- Humboldt has a higher percentage of Complementary and Alternative Medicine (CAM) practitioners because CAM includes medical marijuana prescribers, which are attracted to Humboldt's "215-friendly" area, because licensing data (used to determine state numbers) often list a CAM provider as having some other discipline and because the offices of most of Humboldt's CAM physicians refused to participate in the survey, so "best guess" FTE estimates had to be made instead. This is the only discipline that consistently refused to participate in the survey.
- The North Coast significantly fewer cardiologists/pulmonologists, dermatologists, pediatricians, OB/GYNs and endocrinologists than the rest of the state.
- Because some counties have relatively small population numbers, a change of .1 FTE can have a large impact. If a specialist can be available one half day/week (.1 FTE) via telemedicine or by having a specialty clinic it could bring an area's access to a level enjoyed by the average California resident. The North Coast region has a large area with pockets of low population density which increases the difficulty of situating service delivery.

This report only assesses how the North Coast counties fare in comparison to California as a whole, instead of national benchmark specialist ratios. Those benchmarks exist but are not considered here.

Utilization of Care for the Low Income Population

Appendices E and F present data relating to access to physician services, by specialty, for the low income (under 200% Federal Poverty level). The data indicate that the low income have access to primary care services almost equal to that of California's general population, but less than that of the North Coast's general population. However, specialty care is not provided to the low income on the North Coast at the same rate as it is across the rest of the state. This is a function of insufficient numbers of specialists overall and challenging economic times that are compounded lowering Medi-Cal reimbursement rates, leading to fewer numbers of practices offering a Sliding Fee Scale (an automatic, significant discount for services for the low income, which is different than a cash discount).

Utilization of Physician Services by the Senior Population

Appendices F-G provide data relating to Utilization to Care for the Senior Population. Logically, seniors use medical services at a much higher rate than do general California residents. Percentages shown compare how area seniors use specialty services to how North Coast residents of all ages do, in the absence of data about how California seniors use specialty services.

Seniors have a high level of need for health care services and tend to require primary care services (OB/GYN, geriatrics, family/general practice, pediatrics, internal medicine) at a rate about four times that of a teenager. The table below shows the average number of primary care visits/year for people in the US, by age and gender. Since seniors have such a high need for services, areas with a high percentage of seniors (like the North Coast, when compared to the State of California) have more need for services than others.

Primary Care visits/year[1]						
	Age 0-4	Age 5-17	Age 18-44	Age 45-64	Age 65-74	Age 75+
Female	4.046	2.256	5.007	5.48	6.71	8.16
Male	5.164	2.499	2.867	4.41	6.052	8.056

Physician Age: Nearing Retirement[6]

By reviewing the physician's year of graduation from medical school[7] and by assuming (as the State does) that the physician is 30 years old when the license is granted, it was found that over a third (39%) of the region's physicians are age 60 and older. Another third (32%) are in their 50s. Physicians tend to reduce their average FTE as they age.

Primary and Specialty Care combined										
Est. Age	# providers					Average FTE				
	DN	Humboldt	Trinity	Mendo	Total	DN	Humboldt	Trinity	Mendo	Total
70+	10%	10%	0%	15%	12%	0.30	0.64		0.70	0.65
60-70	10%	25%	64%	30%	27%	0.83	0.72	0.94	0.80	0.77
50-60	45%	33%	27%	29%	32%	0.69	0.78	0.87	0.85	0.79
40-50	19%	23%	9%	20%	22%	0.83	0.79	0.80	0.82	0.80
30-40	16%	8%	0%	7%	8%	0.98	0.88		0.95	0.92
Total						0.74	0.76	0.91	0.81	0.78

Older specialists work slightly more FTE than do primary care practitioners, which is mitigated by overall averages. The following charts provide more details.

Primary Care Only								
Est. Age	# providers				Average FTE			
	DN	Humboldt	Trinity	Total	DN	Humboldt	Trinity	Total
70+	6%	11%	0%	10%	0.10	0.55		0.52
60-70	6%	30%	75%	28%	0.	0.72	1.00	0.75
50-60	39%	28%	25%	29%	0.70	0.74	1.00	0.74
40-50	22%	23%	0%	22%	0.	0.80		0.80
30-40	28%	9%	0%	11%	0.98	0.87		0.91
Total					0.78	0.74	1.00	0.75

Specialty Care Only								
Est. Age	# providers				Average FTE			
	DN	Humboldt	Trinity	Total	DN	Humboldt	Trinity	Total
70+	15%	8%	0%	8%	0.40	0.75		0.71
60-70	15%	25%	57%	26%	0.80	0.71	0.90	0.73
50-60	54%	36%	29%	37%	0.67	0.79	0.80	0.78
40-50	15%	23%	14%	22%	0.90	0.78	0.80	0.78
30-40	0%	8%	0%	7%		0.90		0.90
Total					0.7	0.8	0.9	0.77

Less than half of physicians on the North Coast have a primary care practice. The region's younger physicians are more involved in primary care than older ones, perhaps because of the influence of community health centers in hiring recent graduates.

6 Please note that a handful of physicians are counted twice as they provide both primary and specialty care.

7 From http://licenselookup.mbc.ca.gov/licenselookup/search.php

Est. Age	% in discipline	
	Primary Care	Specialty Care
70+	46%	54%
60-70	43%	57%
50-60	36%	64%
40-50	41%	59%
30-40	54%	46%
Total for Region	41%	59%
California	25%	75%

Advanced Practice Clinicians

Because Advanced Practice Clinicians (APCs), also known as physician extenders, play such an important role in health care, Humboldt, Del Norte and Trinity County APCs were surveyed along with physicians. Mendocino APCs were not surveyed because it was not part of that project's scope. APCs include Certified Nurse Midwives, Nurse Practitioners and Physician Assistants. Survey results are shown below.

	Humboldt, Del Norte and Trinity		
	Primary Care	Specialty Care	FTE
Physicians	41%	59%	377
Advanced Practice Clinicians	77%	23%	86
APCs per Physician	0.43	0.09	

APCs serve predominantly in primary care and knowing the ratio of APCs per physician is currently valuable, as the federal Health Resources and Services Administration will conduct a Negotiated Rulemaking process during 2010/2011 to change the methodology for deeming shortage areas (Health Professional Shortage Areas, Medically Underserved Areas and Medically Underserved Populations). Those designations are important for qualifying Rural Health Clinics and Federally Qualified Health Centers for enhanced reimbursement for serving the low income. In 1998 and 2008, when the shortage area methodology was last revisited, the proposed formulas included APC hours, which were unknown because California does not track the practice locations and hours of its APCs and the licenses of many APCs list a home address instead of a practice site.

Dentists

In addition to surveying medical practitioners, dentists on the North Coast were queried as to the time they spend treating the general and low income populations. The FTE of dentists serving the low income population, while never sufficient, has dropped dramatically as California has changed its reimbursement policies over the last few years. Nationwide, there are about 1,500 general population members to each dentist FTE. On the North Coast, that rate is doubled for the general population and quadrupled for the Medi-Cal population. FTE are adjusted for productivity and age, per Health Professional Shortage Area (HPSA) guidelines.

General dentistry	Del Norte	Humboldt	Trinity	Total
Adjusted FTE	7.2	41.5	1.8	10.5
Population to dentist ratio	3,349	3,211	8,247	3,410
Adjusted Low Income FTE	1.3	5.2	0.5	3.3
Low Income Population to dentist ratio	6,052	4,804	6,009	5,792

The dentist FTE information compiled was sufficient to apply for updated Dental Health Professional Shortage Area Designations (HPSA) for the general or low income populations of all parts of Humboldt, Del Norte and Trinity counties except the Willow Creek area. The primary value of a Dental HPSAs is eligibility for National or State Health Service Corp Loan Repayment program participation or Scholarships.

SHORTAGE AREA DESIGNATIONS

MSSAs

MSSAs are Medical Service Study Areas and are formed of one or more census tracts. They represent Rational Service Areas as determined during a joint community/state process, which last occurred in 2003 using 2000 US Census data. Boundaries are expected to be updated again in 2011. MSSA information is presented by the State in the "MSSA Dashboard,"[8] which provides population counts and basic income, access, age and ethnicity information. MSSA-level data are used in this report as they represent Rational Service Areas as determined by the community.

New Mental, Dental and Primary Care Health Professional Shortage Area (HPSA) designations and new Medically Underserved Area (MUA) or Medically Underserved Population (MUP) designations are granted at the MSSA level. In the early 1990s individual census tracts could become MUAs or MUPs but that is no longer the case.

The North Coast's MSSAs are:

County	MSSA	Communities	Population Center	Civilian Pop	Low Income Pop
DN	19	Crescent City/Gasquet/Klamath/Smith River	Crescent City	24,115	10,731
Humboldt	38	Hoopa/Willow Creek	Willow Creek	5,810	3,272
	39	Arcata/Eureka	Eureka	65,692	29,464
	40	Bluelake/McKinleyville/Orick/Trinidad	McKinleyville	20,879	7,183
	42	Ferndale/Fortuna/Rio Dell/Scotia	Fortuna	24,583	9,905
	44	Redway	Garberville	7,151	3,069
	Humboldt Total			124,115	52,893
Trinity	223	Junction City/Salyer	Junction City	2,092	837
	224	Douglas City/Lewiston/Trinity Center/ Weaverville	Weaverville	7,462	2,747
	225	Forest Glen/Hayfork/Hyampom/Peanut	Hayfork	2,899	1,641
	226	Kettenpom/Mad River/Ruth/Xenia	Mad River	846 :0	479 :0
	Trinity Total			13,299	5,704
Mendocino	87.1	Boonville/Navarro/Philo/Yorkville	Boonville	3,299	1,433
	87.2	Elk/Little River/Mendocino	Mendocino	7,474	1,996
	88	Anchor Bay/Gualala/Manchester/Point Arena	Point Arena	4,126	1,426
	89	Fort Bragg/Westport	Fort Bragg	11,667	4,651
	90	Laytonville/Leggett/Piercy	Laytonville	3,972	1,844
	91	Brooktrails/Pine Mountain/Willits	Willits	13,453	5,051
	92	Covelo/Dos Rios	Covelo	2,503	1,244
	93.1	Ukiah	Ukiah	25,700	10,727
	93.2	Redwood Valley	Redwood Valley	6,005	1,859
	93.3	Potter Valley	Potter Valley	1,895	654
	93.4	Talmage	Talmage	4,003	1,308
	93.5	Hopland	Hopland	2,383	1,123
	Mendocino Total			86,480	33,316

HPSAs

Health Professional Shortage Area (HPSA) designations and scores can provide a shorthand measure for the level of need

for additional primary care services in a Rational Service Area. California has a community-led process to designating areas as HPSAs, where an organization identifies and surveys primary care physicians, dentists or mental health providers (depending on the type of designation sought), analyzes the data and assembles an application package for the State, which then reviews and prepares the data for federal approval. The smallest geographic unit for a HPSA is the Medical Service Study Area (MSSA). The State of California divides its 58 counties into 541 sub-county MSSAs, which usually incorporate one or more CTs and are considered Rational Service Areas. Almost half of all Californians live in a MSSA that is federally recognized as a primary care shortage area for the low income or general populations.

The chart below shows the HPSA status of all North Coast MSSAs. HPSAs need to be renewed every 4 years. Scores relate to an area's ability to recruit National (and State) Health Service Corps (NHSC) providers: in 2010 a score of 17 qualifies an area for NHSC Scholars. Lower scores qualify areas for Loan Repayment providers.

County	MSSA	Population Center	Current Primary Care HPSA Status	Current Dental HPSA Status	Current Mental HPSA status
Del Norte	19	Crescent City	Geographic HPSA, score of 11, due for renewal in 2014	Geographic HPSA, score of 8, due 2010	Countywide geographic HPSA, score of 9, due for renewal in 2014
	38	Willow Creek	Low Income HPSA, score of 17, due 2011	Geographic HPSA, score of 10, due 2010	Countywide geographic HPSA, score of 16, due 2011
	39	Eureka	Low Income HPSA, score of 11, due 2012	Low Income HPSA, score of 6, due 2010	
	40	McKinleyville	Low Income HPSA, score of 13, due 2012	Low Income HPSA, score of 21, due 2012	
	42	Fortuna	Low Income HPSA, score of 8, due 2012	Low Income HPSA, score of 15, due 2010	
	44	Garberville	Low Income HPSA, score of 10, due 2011	Low Income HPSA, score of 10, due 2009	
Trinity	223	Junction City	Geographic HPSA, score of 11, due for renewal in 2013	Geographic HPSA, score of 9, due 2011	Countywide Geographic HPSA, score of 10, due 2012
	224	Weaverville		not designated	
	225	Hayfork	Geographic HPSA, score of 20, due 2010	not designated	
	226	Mad River	Geographic HPSA, score of 10, due 2014	Geographic HPSA, score of 10, due 2011	Countywide, Geographic, score of 16, due 2011
	87.1	Boonville	Low Income HPSA, score of 5, due 2010	Geographic, score of 10, due in 2010	none
	87.2	Mendocino	Geographic, score of 13, due in 2013	none	none
	88	Point Arena	Geographic, score of 11, due in 2011	none	none
	89	Fort Bragg	Geographic, score of 13, due in 2013	none	none
	90	Laytonville	Geographic, score of 13, due in2010	Low Income app pending in DC.	none
	91	Willits	none	none	none
	92	Covelo	none	none	none
	93.1	Ukiah	none	none	none
	93.2	Redwood Valley	none	none	none
	93.3	Potter Valley	Geographic, score of 7, due in 2013	none	none
	93.4	Talmage	none	none	none
	93.5	Hopland	none	none	none

MUAs and MUPs

Medically Underserved Areas (MUAs) or Medically Underserved Populations (MUPs) provide a relative indicator of a community's need for more primary care physicians. Federally Qualified Health Center sites must be located in or serve a MUA or MUP. Practices must be located in a MUA or HPSA to qualify for certification as a Rural Health Clinic by the federal Centers for Medicare and Medicaid Services. All MSSAs in Mendocino County were designated as a MUP in 1992. Del Norte County is a MUA. Various CTs in Humboldt and Trinity Counties have MUA or MUP designations. The chart below provides more details:

Pop. Center	MSSA	current status
Junction City	223	MUA since ‘07
Weaverville	224	MUA since ‘07
Hayfork	225	MUA since ‘06
Mad River	226	MUA since ‘01
Willow Creek	38	One of two CTs is MUA since ‘01
Eureka	39	only some are designated
McKinleyville	40	does not qualify for updated
Fortuna	42	Ferndale is MUA since ‘93
Garberville	44	MUA since ‘94
Crescent City	19	MUA since ‘91

Under existing regulations, MUAs and MUPs do not expire, which is fortunate because current data indicate that not all areas qualify anymore for an updated MUA or MUP designation. Unfortunately, non-MUA or MUP areas still do not qualify for that designation for standalone MSSAs, even with updated survey results.

Population-To-Physician Ratios

The following chart shows the population-to-provider ratios for the sub-county areas of the North Coast for primary care and dental services. The national population-to-primary-care-physician average is around 1,500:1, as is the national population-to-dentist ratio. These population estimates do not include tourists, the homeless or migrant farm workers, although including those populations is allowable with shortage designation applications. The FTE counts, per HPSA guidelines, do not include *locum tenens* and National Health Service Corps providers. When applying for HPSAs, MSSAs may be combined under certain situations. All areas except Fort Bragg, Willits and Ukiah demonstrate population-to-provider ratios that are less than 1,500:1 but this mainly is because the population estimates used on this chart do not include the significant tourist numbers that impact the healthcare systems in those communities. In Willow Creek/Hoopa and Covelo also have “lower” ratios because of the presence of tribal clinics (K’Ima:w Medical Center and, which are not traditionally utilized by the general population. Arcata’s tribal clinic (United Indian Health Services) does not have as much impact on its area’s ratio because the area has more population and more providers.

Co.	MSSA	Population Center	Primary Care FTE serving general population	Primary Care FTE serving Low Income Population	Population-to-Primary-Care Provider ratio for the General pop	Population-to-Primary-Care Provider ratio for the Low Income pop
DN	19	Crescent City	13.4	3.7	1,800	2,900
	38	Willow Creek	4.3	2.1	1,351	1,558
	39	Eureka	42.5	11.3	1,546	2,607
	40	McKinleyville	5.5	1.9	3,796	3,781
	42	Fortuna	12.8	4.1	1,921	2,416
	44	Garberville	2.2	0.9	3,250	3,410
	223	Junction City	-	-	2,092:0	,837:0
	224	Weaverville	2.8	0.8	2,665	3,434
	225	Hayfork	0.3	0.1	9,663	16,410
	226	Mad River	-	-	,846:0	,479:0
	87.1	Boonville	1.2	0.7	2,749	2,077
	87.2	Mendocino	1.2	0.0	6,126	665,333
	88	Point Arena	1.5	0.5	2,807	2,971
	89	Fort Bragg	14.4	4.0	809	1,163
	90	Laytonville	1.4	0.8	2,837	2,334
	91	Willits	10.1	2.5	1,332	2,020
	92	Covelo	2.1	0.9	1,192	1,367
	93.1	Ukiah	22.1	6.8	1,162	1,580
	93.2	Redwood Valley	2.2	0.1	2,730	20,656
	93.3	Potter Valley	-	-	1,895:0	0,654:0
	93.4	Talmage	-	-	4,003:0	1,308:0
	93.5	Hopland	-	-	2,383:0	1,123:0

Population-To-Dentist Ratios

Fewer areas on the North Coast have dental access than primary care access. Dentists were surveyed to determine their age and number of support staff. The resulting information was fed into a formula mandated for the Dental HPSA process that considers dentist age and FTE of RDHs and RDAs to determine adjusted dentist FTEs which were used to create population-to-dentist ratios. Like with primary care HPSAs, MSSAs can be combined for Dental HPSAs. Again, in Willow Creek/Hoopa the presence of the tribal clinic impacts the population-to-dentist ratios.

County	MSSA	Population Center	Dentist FTE for General population	Dentist FTE for Low Income population	Population-to-Dentist ratio for the General population	Population-to-Dentist ratio for the Low Income population
Del Norte	19	Crescent City	2.9	0.5	8,316	21,462
	38	Willow Creek	4.2	2.5	1,383	1,309
	39	Eureka	30.6	3.8	2,147	7,754
	40	McKinleyville	4.6	0.1	4,539	71,830
	42	Fortuna	5.9	0	4,167	9,905:0
	44	Garberville	1.7	0	4,206	3,069:0
Trinity	223	Junction City	0	0	2,092:0	847:0
	224	Weaverville	2.9	0.5	2,573	5,494
	225	Hayfork	0	0	2,866:0	1,641:0
	226	Mad River	0	0	,846:0	479:0

Shortage Area Possibilities

The results of this survey process indicate that many of the North Coast's MSSAs can gain or maintain HPSAs.

Co.		Population Center	Possibility for updated Primary Care HPSA	Possibility for updated Dental HPSA	Possibility for updated Mental HPSA
DN	19	Crescent City	does not qualify	qualifies as Geographic or Low Income	May be renewed for general population
	38	Willow Creek	does not qualify	does not qualify	May qualify with further studying of Core Mental Health Professionals.
	39	Eureka	does not qualify	qualifies as low income	
	40	McKinleyville	qualifies as Geographic or Low Income		
	42	Fortuna	does not qualify		
	44	Garberville	qualifies as Geographic or Low Income		
	223	Junction City	qualifies as Geographic or Low Income	qualifies as Geographic or Low Income	May be renewed for general population
	224	Weaverville	qualifies as Low Income	qualifies as low income	
	225	Hayfork	qualifies as Geographic or Low Income		
	226	Mad River	qualifies as Geographic or Low Income		

The potential for a new Dental HPSA was not assessed for Mendocino County (following chart).

Co.	MSSA	Population Center	Possibility for updated Primary Care HPSA	Possibility for updated Mental HPSA
	87.1	Boonville	does not qualify	Qualifies for Geographic designation
	87.2	Mendocino	qualifies as Geographic or Low Income	Does not qualify
	88	Point Arena	does not qualify	Qualifies for Geographic designation
	89	Fort Bragg	does not qualify	Does not qualify
	90	Laytonville	does not qualify	Qualifies for Geographic or Low Income designation
	91	Willits	does not qualify	May qualify only upon surveying of Core Mental Health Professionals
	92	Covelo	does not qualify	Qualifies for Low Income designation
	93.1	Ukiah	does not qualify	Does not qualify
	93.2	Redwood Valley	Qualifies as Low Income	May qualify only upon surveying of Core Mental Health Professionals
	93.3	Potter Valley	qualifies as Geographic or Low Income	Qualifies for Geographic or Low Income designation
	93.4	Talmage	qualifies as Geographic or Low Income	May qualify only upon surveying of Core Mental Health Professionals
	93.5	Hopland	qualifies as Geographic or Low Income	May qualify only upon surveying of Core Mental Health Professionals

RECOMMENDATIONS AND CONCLUSIONS

Practical Applications

Aside from using the information contained in this report to appropriately target gaps in service for improvement and to support existing, successful efforts, the data collected as part of this study should be used to help maintain the North Coast's shortage area designations. Specifically:

- Applications should be submitted for any area that, as a result of this survey, qualifies for an updated Health Professional Shortage Area or Medically Underserved Area/Population designation so that at least 4 more years of designations are secured, which can assist with provider recruitment/retention and qualification for enhanced reimbursement.

- Survey data for primary care physicians and Advanced Practice Clinicians should be used to assess the impact of any proposed changes to the shortage designation process that may be proposed through the negotiated rulemaking process that will occur in 2010 and 2011. Knowing impact will provide an opportunity for the North Coast healthcare community to provide input into that public process to mitigate negative impacts.

Research Recommendations

- Telemedicine has the potential to increase access to care for certain specialties and could be studied to determine the extent to which it is currently being used and the FTE of physicians providing services, regardless of their location. It might also be valuable to discern the percentage of the recipients of telemedicine services that do not reside in the target area. This could help with business planning of telemedicine expansion opportunities. Open Door Health Center's Telemedicine and Visiting Specialist Center was cited by a number of specialty practices as the site where their physicians deliver services to the Medi-Cal population.

- This report focuses on certain types of licensed medical and dental providers but North Coast healthcare organizations also experience challenges recruiting and retaining other disciplines. This could be combined with sometimes-existing, local research about the availability of the following types of providers:

    - Physical therapists
    - Pharmacists, pharmacies and pharmacy technicians
    - Optometrists
    - Chiropractors

- Podiatrists and
- Core mental health professionals (LCSW, MFT, MFCC, Psychiatric Nurse Specialist)

Conclusion

The North Coast is a special place. Its geographic isolation from the population centers of Sacramento, Portland and San Francisco have caused it to develop its own health care infrastructure and to make do without easy access to specialists, who tend to be based in urbanized areas. The relative abundance of primary care providers is a result of years of effort to provide appropriate health care services to the area. These efforts should not be reduced because of success, for many in the current physician supply are facing retirement. The region's activities with healthcare planning, shortage area designations and provider training should be maintained so the North Coast stays as healthy as possible.

The Author

Heather Bonser-Bishop, MBA conducted the surveying and report. She has done physician surveying in 40 of California's 58 counties and is involved with 1/3 of the shortage designations in California and Oregon. She also helps communities increase access to health and human services through needs assessment, planning and grantwriting activities. Heather can be reached at heather@bonserbishop.com or (707) 834-0428. This report and supporting documents are archived at www.bonserbishop.com/northcoast.pdf and www.bonserbishop.com/northcoast.xls.

Appendix A: Physician FTE by Specialty From Original and 2010 Studies

	FTE per "Fewer And More Specialized"(FAMS)					2010 Local Survey FTE			
	CA	DN	Hum	Trin.	Mendo	DN	Hum	Trin	Mendo
Population	38.2M	30,297	133,266	14,844	91,794	30,297	133,266	14,844	91,794
Total	**65,061**	**34**	**243**	**7**	**146**	**23.6**	**207.2**	**9.5**	**136.4**
All Primary Care	**16,383**	**13**	**92**	**5**	**61**	**15.0**	**78.1**	**3.6**	**56.2**
All Non-Primary Care	**48,678**	**21**	**151**	**2**	**85**	**8.6**	**129.2**	**5.9**	**80.1**
Allergy and Immunology	445	1	1	-	-	0.5	0.8	-	1.0
Anesthesiology	3,554	-	15	-	4	-	17.9	-	6.5
CAM	38	-	-	-	1	-	2.2	-	0.3
Cardiology and Pulmonology	2,359	-	4	-	3	0.1	3.9	1.0	2.6
Colorectal Surgery	82	-	-	-	-	0.2	0.2	-	-
Critical Care/Hospitalist	184	-	-	-	-	-	3.1	-	5.9
Dermatology	1,217	-	5	-	1	-	2.0	-	1.2
Emergency services	2,676	1	22	1	15	1.8	12.8	3.9	13.8
Endocrinology	389	-	-	-	1	-	-	-	1.0
Family/General Practice	7,422	7	49	4	32	10.1	43.8	3.6	23.1
Gastroenterology	115	-	3	-	2	-	2.8	-	2.0
General Surgery	1,475	2	8	1	5	0.8	9.7	1.0	-
Geriatrics	425	1	-	-	1	0.1	2.3	-	0.8
Hematology	80	-	-	-	-	-	0.9	-	0.5
Infectious Disease	-	-	3	-	-	-	1.8	-	-
Internal Medicine	363	3	23	1	12	1.6	14.4	-	17.4
Nephrology	616	-	4	-	1	-	1.7	-	1.2
Neurology/Neurosurgery	1,369	-	6	-	-	-	5.0	-	0.5
OB/GYN	3,071	1	9	-	6	1.0	10.1	-	6.3
Occupational Medicine	430	-	3	-	-	-	3.1	-	1.1
Oncology	1,268	-	5	-	3	-	3.9	-	1.9
Ophthalmology	1,641	2	7	-	3	1.2	4.8	-	3.8
Other/Unknown Medicine	16,303	3	20	-	18	-	1.2	-	-
Otolaryngology	786	1	2	-	-	-	1.1	-	2.6
Pain Medicine	405	-	2	-	-	-	1.6	-	-
Pathology	985	-	2	-	2	0.4	3.8	-	1.5
Pediatrics	5,102	1	11	-	10	2.2	7.5	-	8.6
Physical/Rehab Medicine	683	1	-	-	-	-	0.8	-	-
Aesthetics & Plastic Surg.	1,017	-	3	-	-	-	3.3	-	-
Psychiatry	4,029	5	15	-	9	-	9.4	-	5.3
Public/Preventive Health	91	-	-	-	-	0.5	2.1	-	-
Radiology	2,222	1	9	-	7	0.8	9.3	-	7.0
Rheumatology	377	-	2	-	-	-	1.5	-	0.0
Sleep Medicine	96	-	-	-	-	-	0.4	-	0.1
Sports Med, Ortho/Spine Surg.	2,142	3	4	-	8	1.0	7.0	-	10.4
Urgent Care	-	-	-	-	-	-	3.0	-	-
Urology	848	1	3	-	1	1.0	2.6	-	2.0
Vascular/Thoracic Surg.	756	-	3	-	1	-	1.0	-	8.0

Appendix B: FTE by Specialty From Original and 2010 Studies, per 100,000

	FAMS	From 2010 Local Survey			
	Per 100,000				
	CA	DN	Humboldt	Trinity	Mendo
Population	38,246,598	30,297	133,266	14,844	91,794
Total	**170.1**	**77.8**	**155.5**	**63.9**	**148.5**
All Primary Care	**42.8**	**49.5**	**58.6**	**24.3**	**61.2**
All Non-Primary Care	**127.3**	**28.2**	**96.9**	**39.6**	**87.3**
Allergy and Immunology	1.16	1.7	0.6	-	1.1
Anesthesiology	9.29	-	13.5	-	7.1
CAM	0.10	-	1.7	-	0.3
Cardiology and Pulmonology	6.17	0.3	2.9	6.7	2.8
Colorectal Surgery	0.21	0.7	0.2	-	-
Critical Care/Hospitalist	0.48	-	2.3	-	6.4
Dermatology	3.18	-	1.5	-	1.3
Emergency services	7.00	5.9	9.6	26.2	15.1
Endocrinology	1.02	-	-	-	1.1
Family/General Practice	19.41	33.4	32.9	24.3	25.2
Gastroenterology	0.30	-	2.1	-	2.2
General Surgery	3.86	2.6	7.3	6.7	-
Geriatrics	1.11	0.3	1.7	-	0.9
Hematology	0.21	-	0.6	-	0.5
Infectious Disease	-	-	1.4	-	-
Internal Medicine	0.95	5.4	10.8	-	19.0
Nephrology	1.61	-	1.3	-	1.3
Neurology/Neurosurgery	3.58	-	3.8	-	0.6
OB/GYN	8.03	3.3	7.6	-	6.9
Occupational Medicine	1.12	-	2.3	-	1.2
Oncology	3.32	-	2.9	-	2.0
Ophthalmology	4.29	4.0	3.6	-	4.1
Other/Unknown Medicine	42.63	-	0.9	-	-
Otolaryngology	2.06	-	0.8	-	2.9
Pain Medicine	1.06	-	1.2	-	-
Pathology	2.58	1.3	2.9	-	1.6
Pediatrics	13.34	7.1	5.6	-	9.3
Physical and Rehab Medicine	1.79	-	0.6	-	-
Aesthetics & Plastic Surgery	2.66	-	2.4	-	-
Psychiatry	10.53	-	7.1	-	5.8
Public/Preventive Health	0.24	1.7	1.6	-	-
Radiology	5.81	2.5	7.0	-	7.6
Rheumatology	0.99	-	1.1	-	0.0
Sleep Medicine	0.25	-	0.3	-	0.2
Sports Med; Orthopedic and Spine Surgery	5.60	3.3	5.3	-	11.3
Urgent Care	-	-	2.2	-	-
Urology	2.22	3.3	2.0	-	2.2
Vascular and Thoracic Surgery	1.98	-	0.8	-	8.7

Appendix C: Difference Between Original and 2010 Surveys, by Specialty

	Difference between Local and Original studies (under 100% means original overstated)			
	DN	Humboldt	Trinity	Mendo
Total	**69%**	**85%**	**135%**	**93%**
All Primary Care	**115%**	**85%**	**72%**	**92%**
All Non-Primary Care	**41%**	**86%**	**294%**	**94%**
Allergy and Immunology	50%	80%		
Anesthesiology		120%		162%
CAM				29%
Cardiology and Pulmonology		97%		86%
Colorectal Surgery				
Critical Care/Hospitalist				
Dermatology		40%		120%
Emergency services	180%	58%	388%	92%
Endocrinology				98%
Family/General Practice	145%	89%	90%	72%
Gastroenterology		93%		100%
General Surgery	40%	121%	100%	
Geriatrics	10%			80%
Hematology				
Infectious Disease		60%		
Internal Medicine	54%	63%		145%
Nephrology		43%		119%
Neurology/Neurosurgery		83%		
OB/GYN	100%	112%		105%
Occupational Medicine		102%		
Oncology		78%		62%
Ophthalmology	60%	68%		125%
Other/Unknown Medicine		6%		
Otolaryngology		55%		
Pain Medicine		80%		
Pathology		190%		74%
Pediatrics	216%	68%		86%
Physical and Rehab Medicine				
Aesthetics & Plastic Surgery		108%		
Psychiatry		63%		59%
Public/Preventive Health				
Radiology	75%	103%		100%
Rheumatology		75%		
Sleep Medicine				
Sports Medicine; Orthopedic and Spine Surgery	33%	175%		130%
Urgent Care				
Urology	100%	87%		200%
Vascular and Thoracic Surgery		33%		798%

Appendix D: The North Coast Compared With California

	Difference between North Coast and California (under 100% means less access)			
	DN	Humboldt	Trinity	Mendo
Total	**46%**	**91%**	**38%**	**87%**
All Primary Care	**116%**	**137%**	**57%**	**143%**
All Non-Primary Care	**22%**	**76%**	**31%**	**69%**
Allergy and Immunology	142%	52%	0%	94%
Anesthesiology	0%	145%	0%	76%
CAM	0%	1690%	0%	318%
Cardiology and Pulmonology	5%	47%	109%	46%
Colorectal Surgery	308%	70%	0%	0%
Critical Care/Hospitalist	0%	484%	0%	1341%
Dermatology	0%	47%	0%	41%
Emergency services	85%	137%	374%	215%
Endocrinology	0%	0%	0%	105%
Family/General Practice	172%	170%	125%	130%
Gastroenterology	0%	699%	0%	721%
general surgery	68%	188%	175%	0%
Geriatrics	30%	152%	0%	78%
Hematology	0%	305%	0%	260%
Internal Medicine	565%	1142%	0%	1999%
Nephrology	0%	79%	0%	80%
Neurology/Neurosurgery	0%	105%	0%	16%
OB/GYN	41%	94%	0%	85%
Occupational Medicine	0%	204%	0%	105%
Oncology	0%	88%	0%	61%
Ophthalmology	92%	83%	0%	95%
Other/Unknown Medicine	0%	2%	0%	0%
Otolaryngology	0%	40%	0%	139%
Pain Medicine	0%	113%	0%	0%
Pathology	51%	111%	0%	63%
Pediatrics	53%	42%	0%	70%
Physical and Rehab Medicine	0%	34%	0%	0%
Aesthetics & Plastic Surgery	0%	92%	0%	0%
Psychiatry	0%	67%	0%	55%
Public/Preventive Health	694%	662%	0%	0%
Radiology	43%	120%	0%	131%
Rheumatology	0%	114%	0%	4%
Sleep Medicine	0%	120%	0%	61%
Sports Medicine; Orthopedic and Spine Surgery	59%	94%	0%	202%
Urology	149%	88%	0%	98%
Vascular and Thoracic Surgery	0%	38%	0%	440%

Appendix E: FTE for the Low Income, by Specialty

	FTE					FTE per 100,000				
	Genl Pop	Low Income Population				Genl Pop	Low Income Population			
	CA	**DN**	**Humb**	**Mendo**	**Trin**	**CA**	**DN**	**Humb**	**Mendo**	**Trinity**
Total	65,061	7	50	41	4	170	62	95	124	72
All Primary Care	16,383	5	24	15	1	43	43	45	46	23
All Non-Primary Care	48,678	2	26	26	3	127	19	49	79	49
Administration	-	0.2	1.8	-	-	-	1.9	3.4	-	-
Allergy and Immunology	445	-	0.2	0.5	-	1.2	-	0.3	1.5	-
Anesthesiology	3,554	-	3.3	1.4	-	9.3	-	6.2	4.3	-
CAM	38	-	-	-	-	0.1	-	-	-	-
Cardiology and Pulm.	2,359	-	0.7	0.1	0.9	6.2	-	1.3	0.2	15.0
Colorectal Surgery	82	0.1	0.0	-	-	0.2	0.6	0.1	-	-
Critical Care/ Hospitalist	184	-	0.5	1.5	-	0.5	-	0.9	4.5	-
Dermatology	1,217	-	0.3	0.2	-	3.2	-	0.6	0.5	-
Emergency services	2,676	0.5	2.7	3.7	1.5	7.0	5.1	5.1	11.1	25.9
Endocrinology	389	-	-	0.2	-	1.0	-	-	0.5	-
Family/General Practice	7,422	3.3	13.4	6.0	1.3	19.4	30.9	25.3	18.0	22.9
Gastroenterology	115	-	0.4	0.7	-	0.3	-	0.8	2.2	-
General Surgery	1,475	0.3	1.7	-	0.5	3.9	2.4	3.1	-	7.9
Geriatrics	425	0.0	0.1	0.3	-	1.1	0.0	0.2	0.8	-
Hematology	80	-	0.1	0.1	-	0.2	-	0.2	0.2	-
Infectious Disease	-	-	0.2	-	-	-	-	0.3	-	-
Internal Medicine	363	0.1	1.9	3.6	-	0.9	0.7	3.6	10.9	-
Nephrology	616	-	0.2	0.5	-	1.6	-	0.4	1.4	-
Neurology/ Neurosurgery	1,369	-	0.7	0.1	-	3.6	-	1.4	0.4	-
OB/GYN	3,071	0.3	5.2	0.9	-	8.0	2.8	9.8	2.8	-
Occupational Medicine	430	-	0.2	0.1	-	1.1	-	0.4	0.4	-
Oncology	1,268	-	0.5	0.5	-	3.3	-	0.9	1.4	-
Ophthalmology	1,641	0.2	0.4	1.0	-	4.3	1.7	0.8	3.0	-
Other/Unknown Medicine	16,303	-	0.3	-	-	42.6	-	0.5	-	-
Otolaryngology	786	-	0.2	0.6	-	2.1	-	0.3	1.8	-
Pain Medicine	405	-	0.1	-	-	1.1	-	0.3	-	-
Pathology	985	0.1	0.8	0.4	-	2.6	0.9	1.4	1.2	-
Pediatrics	5,102	0.9	3.3	4.4	-	13.3	8.6	6.3	13.3	-
	CA	**DN**	**Humb**	**Mendo**	**Trin**	**CA**	**DN**	**Humb**	**Mendo**	**Trinity**
Physical & Rehab. Med.	683	-	0.2	-	-	1.8	-	0.3	-	-
Plastic Surgery/ Aesthetics	1,017	-	0.1	-	-	2.7	-	0.1	-	-
Psychiatry	4,029	-	5.7	2.9	-	10.5	-	10.8	8.6	-
Public/ Preventive Health	91	-	0.7	-	-	0.2	-	1.4	-	-
Radiology	2,222	0.2	1.5	5.4	-	5.8	1.7	2.8	16.1	-
Rheumatology	377	-	0.2	0.0	-	1.0	-	0.3	0.0	-
Sleep Medicine	96	-	0.1	0.0	-	0.3	-	0.1	0.1	-

Sports Med, Ortho/Spine Surg.	2,142	0.2	0.9	3.8	-	5.6	2.2	1.7	11.4	-
Urgent Care	-	-	0.7	-	-	-	-	1.2	-	-
Urology	848	0.3	1.0	0.4	-	2.2	2.5	1.9	1.1	-
Vascular/ Thoracic Surg.	756	-	0.0	2.2	-	2.0	-	0.0	6.5	-

Appendix F: Low Income FTE compared with State FTE per 100,000

Difference of Low Income Population from CA Genl Pop				
	DN	**Humboldt**	**Mendo**	**Trinity**
Total	37%	56%	73%	42%
All Primary Care	101%	105%	107%	53%
All Non-Primary Care	15%	39%	62%	38%
Allergy and Immunology	0%	27%	129%	0%
Anesthesiology	0%	67%	47%	0%
CAM	0%	0%	0%	0%
Cardiology and Pulmonology	0%	21%	4%	243%
Colorectal Surgery	276%	40%	0%	0%
Critical Care/Hospitalist	0%	189%	942%	0%
Dermatology	0%	18%	16%	0%
Emergency services	73%	73%	158%	370%
Endocrinology	0%	0%	50%	0%
Family/General Practice	159%	131%	93%	118%
Gastroenterology	0%	281%	729%	0%
General Surgery	62%	81%	0%	205%
Geriatrics	2%	14%	70%	0%
Hematology	0%	80%	115%	0%
Internal Medicine	77%	375%	1145%	0%
Nephrology	0%	24%	86%	0%
Neurology/Neurosurgery	0%	39%	12%	0%
OB/GYN	35%	122%	34%	0%
Occupational Medicine	0%	38%	32%	0%
Oncology	0%	26%	43%	0%
Ophthalmology	39%	19%	71%	0%
Other/Unknown Medicine	0%	1%	0%	0%
Otolaryngology	0%	14%	86%	0%
Pain Medicine	0%	25%	0%	0%
Pathology	35%	55%	45%	0%
Pediatrics	64%	47%	100%	0%
Physical & Rehabilitation Medicine	0%	17%	0%	0%
Plastic Surgery and Aesthetics	0%	5%	0%	0%
Psychiatry	0%	103%	81%	0%
Public Health/Preventive Medicine	0%	569%	0%	0%
Radiology	29%	48%	278%	0%
Rheumatology	0%	32%	3%	0%
Sleep Medicine	0%	54%	48%	0%
Sports Medicine; Orthopedic and Spine Surgery	40%	30%	204%	0%
Urology	113%	84%	47%	0%
Vascular and Thoracic Surgery	0%	1%	331%	0%

Appendix G: FTE for the Age 65+ Population, by Specialty

	Age 65+							
	FTE per 100,000				Age 65+ has utilization this % of the general population			
	DN	Humboldt	Trinity	Mendo	DN	Humboldt	Trinity	Mendo
Population	3,202	14,000	2,164	10,589			15%	12%
Total	**248**	**525**	**88**	**479**	**1,052%**	**254%**	**926%**	**352%**
All Primary Care	**131.7**	**170.9**	**33.7**	**134.1**	**878%**	**219%**	**936%**	**239%**
All Non-Primary Care	**116**	**355**	**54**	**345**	**1,357%**	**275%**	**920%**	**431%**
Allergy and Immunology	2.0	1.7	-	3.6	118%	289%		329%
Anesthesiology	-	57.0	-	21.1		424%		298%
CAM	-	5.6	-	1.2		331%		389%
Cardiology and Pulmonology	1.6	18.4	9.2	13.0	473%	633%	137%	464%
Colorectal Surgery	3.7	0.6	-	-	568%	428%		
Critical Care/Hospitalist	-	12.5	-	23.0		536%		357%
Dermatology	-	5.0	-	5.3		330%		405%
Emergency services	20.0	28.9	35.9	56.2	337%	302%	137%	373%
Endocrinology	-	-	-	4.6				433%
Family/General Practice	63.6	89.8	33.7	55.4	190%	273%	139%	220%
Gastroenterology	-	9.7	-	6.6		462%		305%
General Surgery	15.0	30.4	9.0	-	568%	419%	134%	
Geriatrics	2.8	14.7	-	1.9	851%	870%		217%
Hematology	-	3.4	-	2.8		537%		520%
Infectious Disease	-	6.2	-	-		462%		
Internal Medicine	40.6	56.1	-	65.6	757%	518%		346%
Nephrology	-	7.8	-	5.7		614%		437%
Neurology/Neurosurgery	-	12.9	-	2.5		345%		442%
OB/GYN	11.1	9.2	-	11.1	337%	121%		162%
Occupational Medicine	-	8.7	-	9.8		381%		835%
Oncology	-	11.6	-	22.6		395%		1120%
Ophthalmology	22.5	28.8	-	34.5	568%	807%		844%
Other/Unknown Medicine	-	2.7	-	-		301%		
Otolaryngology	-	3.5	-	9.3		428%		326%
Pain Medicine	-	4.3	-	-		355%		
Pathology	5.4	9.0	-	5.1	406%	316%		316%
Pediatrics	13.7	1.1	-	-	192%	20%		0%
Physical/Rehab Medicine	-	1.9	-	-		309%		
Aesthetics & Plastic Surgery	-	10.2	-	-		419%		
Psychiatry	-	8.4	-	6.7		119%		116%
Public/Preventive Health	4.7	2.4	-	-	284%	155%		
Radiology	10.0	18.2	-	25.4	406%	261%		334%
Rheumatology	-	5.4	-	0.2		479%		433%
Sleep Medicine	-	0.9	-	0.8		303%		557%
Sports Med; Ortho/Spine Surg.	12.5	15.8	-	34.5	378%	302%		304%
Urgent Care	-	6.4	-	-		286%		
Urology	18.7	10.4	-	13.7	568%	533%		628%
Vascular/Thoracic Surgery	-	5.7	-	37.0		762%		426%

(Footnotes)

1 Federal Register, February 29, 2008

Appendix L

Health Information Technology Leaders

HDNIPA working with CHA-IT

- Public Health
- St. Joseph and Redwood Memorial Hospitals
- Mad River Community Hospital
- North Coast Clinics Network
- Open Door Community Health Center
- Humboldt Del Norte Independent Practice Association
- PCP Practice Manager
- Specialty Practice manager

CHA and Partners Including Patients

- CHA
- St. Joseph and Redwood Memorial Hospitals
- Mad River Community Hospital
- Open Door Community Health Center
- Humboldt County - Health and Environment
- Patient Representatives
- Others

Stakeholders: County, Hospitals, Physician, and Public Leaders

- Leaders capable of committing their organizations

Appendix M

Work-to-Date on Health Information Exchange Functionality

Support meaningful use. HITECH requires physicians receiving incentives (payments) to adopt EHRs to demonstrate specific capacities using their system. Many of those examples of "meaningful use" require at least a basic HIE.

- Generate and transmit prescriptions electronically
- Incorporate clinical lab-test results into EHR as structured data
- Capability to exchange key clinical information across the community electronically
- Capability to submit electronic data to immunization registries
- Capability to provide electronic syndromic surveillance data to public health agencies
- Capability to provide electronic summary for care transitions.
- Report ambulatory quality measures to CMS or the State

Provide community wide disease registries.

Provide information for care managers. Important care coordination is provided by care managers, often nurses who work with but are not staff to physicians or other professionals treating a patient. Secure access to patient data through the HIE is important to successful care coordination.

Provide a Record Locator System, which holds information authorized by the patient about where authorized information can be found, but not the actual information the records may contain. Such a system is a natural capacity of an operating HIE used with a Master Patient Index.

When patient data is stored in a community warehouse for permitted uses (care management, or referral to a specialist) provide patients with the ability to add data to complete the record and control access to all data.

Provide electronic referral from PCPs to specialists and service providers. Provide electronic transitions of care (at discharge) from institutions to patient's care provider.

Occupations of Opportunity

DIVERSIFIED HEALTH CARE

KEY OCCUPATIONS IN DIVERSIFIED HEALTH CARE

Diversified Health Care includes a wide range of health care options and support sectors. While traditional hospital-centered and physician office-based health care sectors have grown, there is also an expanding diversity of alternative healthcare businesses, outpatient care centers and home and residential healthcare services.

Strong Career Potential *Figures calculated between 1990 - 2004; firms through 2003.*

- JOB GROWTH: 45% (from 7119 to 10286 jobs)
- FIRM GROWTH: 34% (from 909 to 1383 firms)
- WAGE GROWTH: 26% (from $26,874 to $33,863)

Employment Opportunities by Wage Level

Diversified Health Care offers ample employment opportunities at the lower, mid, and higher wage levels. With large and growing occupations in all of the wage levels, many jobs in Diversified Health Care allow for strong career potential.

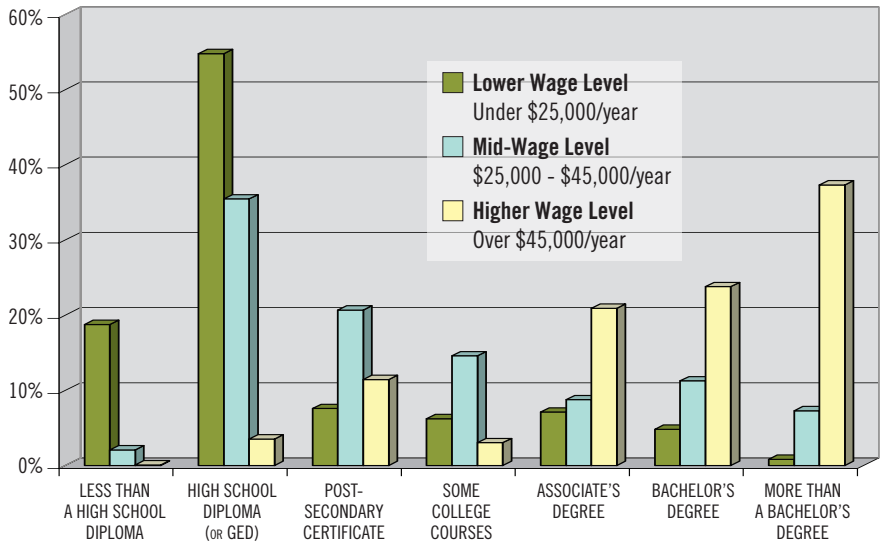
28% of Jobs are in the Low Wage Level, including receptionists & information clerks, home health aides

39% of Jobs are in the Mid Wage Level, including pharmacy technicians, dental assistants, first-line supervisors, emergency medical techs & paramedics

33% of Jobs are in the Higher Wage Level, including physicians assistants, physical therapists, radiology technologists, business operations specialists, registered nurses, first-line supervisors

DIVERSIFIED HEALTH CARE

Percentage of Jobs Available for Individuals with Varying Levels of Education



Past & Future Drivers of Growth

Growing, aging population

Limited migration for outside health care

Long-term restructuring to health care alternatives

Administrative complexity

Integrated system

Outward-focused telemedicine

Niche centers of specialization/excellence

Mix of accessible, high-quality, affordable care

Baby boomer retirees with new health "lifestyle" demands

OCCUPATIONS OF OPPORTUNITY WITHIN DIVERSIFIED HEALTH CARE

Occupations of Opportunity On the Redwood Coast

JOB ZONE 5
OCCUPATIONS NEEDING EXTENSIVE PREPARATION

Physician	$57.38
Physician Assistants	$38.12
Medical and Health Services Managers	$36.98
Physical Therapist	$35.52

JOB ZONE 4
OCCUPATIONS NEEDING CONSIDERABLE PREPARATION

Medical and Clinical Lab Technologists	$36.70
Accountants and Auditors	$22.20
Business Operations Specialists, all Other	$19.47

JOB ZONE 3
OCCUPATIONS NEEDING MEDIUM PREPARATION

General/Operations Managers	$34.14
Registered Nurses	$31.67
Radiologic Technicians	$27.75
Radiologic Technologists	$27.75
Respiratory Therapists	$27.52
Licensed Vocational Nurse	$20.92
Surgical Technologists	$20.79
Dental Hygienist	$20.09
First Line Managers of Admin Support Workers	$18.95
Executive Secretaries and Administrative Assistants	$17.87
Computer Support Specialists*	$16.53
Bookkeeping/Accounting/Auditing Clerks	$15.68
Maintenance and Repair Workers, General	$14.94
Bill and Account Collectors	$14.47
Interviewers, Except Eligibility and Loan*	$13.82
Medical Assistants	$13.72
Social/Human Service Assistants	$13.00
Emergency Medical Technicians	$12.65

JOB ZONE 2
OCCUPATIONS NEEDING SOME PREPARATION

Pharmacy Technicians	$17.06
Medical and Clinical Lab Technicians	$16.46
Billing and Posting Clerks	$14.99
Customer Service Representatives	$14.11
Secretaries, Except Legal, Medical, and Executive	$13.98
Dental Assistant	$13.78
Medical Records/Health Info Technicians	$13.40
Medical Secretaries	$12.64
Cooks, Institution and Cafeteria	$12.06
First Line Supervisors/Managers of Food Prep Workers	$11.59
Receptionists	$11.40
Office Clerks	$11.38
Personal and Home Care Aides	$10.38
Nursing Aides	$10.37
Switchboard Operators, including Answering Services	$9.83
Child Care Workers	$9.29
Home Health Aides	$9.25

JOB ZONE 1
OCCUPATIONS NEEDING LITTLE OR NO PREPARATION

Janitors and Cleaners	$11.14
Stock Clerks and Order Fillers	$9.85
Maids/Housekeepers	$8.91

Salaries are listed as mean hourly wages.

The Redwood Coast Occupations of Opportunity posters are based on information from the Northern California Labor Market Information Division, CareerOneStop, O*NET and the Occupations of Opportunity reports. The O*NET system serves as the nation's primary source of occupational information, providing comprehensive information on key attributes and characteristics of workers and occupations. The O*NET database houses this data and O*NET OnLine provides easy access to that information. Learn more about O*NET: http://online.onetcenter.org. O*NET OnLine was developed for the U.S. Department of Labor.

FOUNDATIONAL SKILLS FOR ALL OCCUPATIONS OF OPPORTUNITY
- Active Listening
- Reading Comprehension
- Speaking
- Active Learning
- Critical Thinking
- Mathematics
- Writing

GATEWAYS SKILLS FOR DIVERSIFIED HEALTHCARE (BY WAGE LEVEL)
Every occupation requires a core set of basic skills. While higher level occupations may additionally require more technical and/or advanced skills, a core group of foundational skills are needed for occupations across all wage levels.

HIGHER WAGE
- Problem Sensitivity
- Deductive Reasoning
- Information Ordering
- Near Vision
- Oral Comprehension
- Category Flexibility
- Inductive Reasoning
- Oral Expression
- Written Comprehension

MID WAGE
- Near Vision
- Oral Comprehension
- Oral Expression
- Problem Sensitivity
- Information Ordering
- Speech Clarity
- Speech Recognition
- Deductive Reasoning
- Written Comprehension
- Written Expression
- Control Precision
- Selective Attention
- Timing Sharing

LOWER WAGE
- Information Ordering
- Oral Expression
- Problem Sensitivity
- Near Vision
- Oral Comprehension
- Speech Recognition
- Speech Clarity
- Static Strength
- Inductive Reasoning
- Written Comprehension

the job market

409 K STREET · EUREKA, CA 95501
707.441.JOBS (5627)

EXPANDING OPPORTUNITY · GROWING QUALITY · IMPROVING COMPETITIVENESS · CAREER POTENTIAL

Targets of Opportunity

FASTFACTS

The Redwood Coast's Targets of Opportunity are the region's most promising areas for economic and workforce development. **Targets of Opportunity** industries are sources of sustained economic growth within Del Norte, Humboldt, Trinity, Siskiyou, and Mendocino Counties. Target industries are export-oriented, population driven, and offer career potential for residents in all Redwood Coast counties. Target industries demonstrate a combination of:

- Improving competitiveness (growing specialization compared to all of California)
- Expanding opportunity (job and/or firm growth)
- Growing quality (higher and increasing wages)
- Career potential (growing jobs at lower, mid, and higher wage levels)

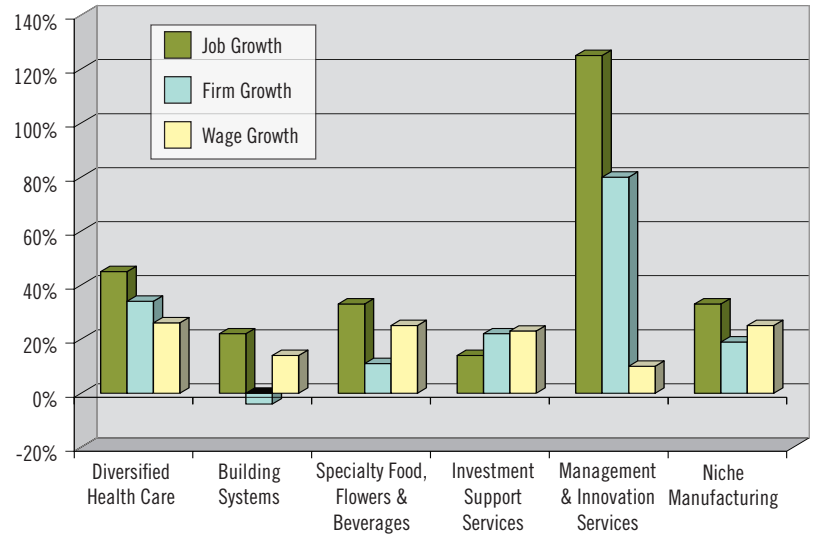
There are **Six Target Industries:**

- **Diversified Health Care**
- **Building and Systems Construction and Maintenance**
- **Specialty Agriculture, Food and Beverages**
- **Investment Support Services**
- **Management and Innovation Services**
- **Niche Manufacturing**

These Six Target Industries are growing faster than the rest of the region's economy. Over the last decade and a half they have proven to be a long-term sources of economic growth.

- Management and Innovation Services (80% firm growth)
- Diversified Health Care (34% firm growth)
- Investment Support Services (22% firm growth)
- Building and Systems Construction and Maintenance (22% employment growth)
- Niche Manufacturing (19% firm growth)
- Specialty Agriculture, Food and Beverages (11% firm growth)

Regional Growth Rates Within the Six Targets of Opportunity



More Jobs, New Businesses, Higher Wages

Currently, the **Six Target Industires** contribute 39% of the jobs (versus 30% in 1990) and 53% of the wages in the region's private sector.

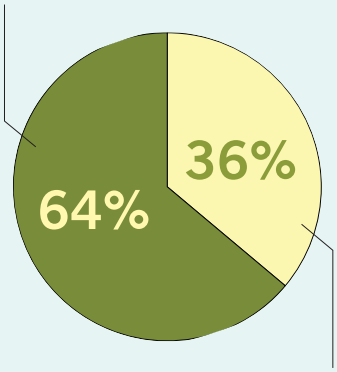
Regional Job Growth: 4%
Targets Job Growth: 37%

Regional Firm Growth: 1.5%
Targets Firm Growth: 23%

Regional Wage Growth: 6%
Targets Wage Growth: 10-26%

Distribution of Job Growth from Redwood Coast Top 50 Growing Occupations

Growth in Occupations of Opportunity



Growth in Other Occupations

Occupations of Opportunity

FASTFACTS

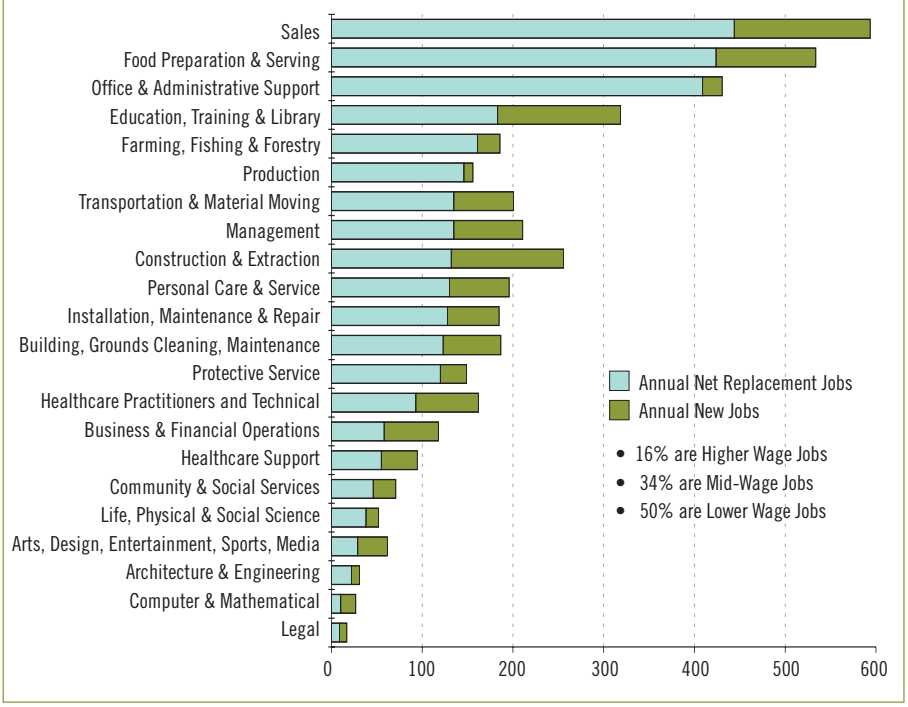
TWO KINDS OF PROJECTED GROWTH:
NEW AND REPLACEMENT JOBS

The Redwood Coast is projected to have 3,646 job openings every year from 2004 - 2014.

NEW JOBS: There are an estimated 1146 new job openings on the Redwood Coast each year. New jobs are vacancies attributable to new start-up businesses and existing businesses in which growth has required new workers.

REPLACEMENT JOBS: Replacement jobs account for 2500 job openings on the Redwood Coast each year. Replacement jobs are vacancies expected as employees leave occupations.

REDWOOD COAST ANNUAL JOB OPENING PROJECTIONS
New Jobs and Net Replacement Jobs, 2004 - 2014



What Will We Do With This Information?

- Prioritize investment to high-performing target industries.
- Foster collaboration, innovation, and entrepreneurship within and among the target industries.
- Support industries through marketing and branding assistance to increase regional exports.
- Resolve transportation and broadband issues that impede regional competitiveness.
- Initiate an electronic search tool of workforce skills that will allow career progressions and cross-industry job transfers for dislocated workers.

What Will YOU Do With This Information?

Projected Job Opportunities

The **Occupations of Opportunity** report has identified the strongest growth in jobs within our regional economy between now and 2014. In the Top 50 Growing Jobs, 28 occupations (56%) are in the **Targets of Opportunity** industries.

Diversified Health Care

Higher Wage:	33%
Mid Wage:	39%
Lower Wage:	28%

Systems Construction, Building & Maintenance

Higher Wage:	31%
Mid Wage:	49%
Lower Wage:	20%

Specialty Agriculture, Food & Beverage

Higher Wage:	6%
Mid Wage:	30%
Lower Wage:	64%

Investment Support Services

Higher Wage:	38%
Mid Wage:	40%
Lower Wage:	22%

Management & Innovations Services

Higher Wage:	83%
Mid Wage:	17%
Lower Wage:	<1%

Niche Manufacturing

Higher Wage:	20%
Mid Wage:	50%
Lower Wage:	30%