



The University of Vermont
COLLEGE OF MEDICINE

2016 Strategic Plan Update

Adapting To Our Changing Environment: New Initiatives for the College of Medicine

January 2016

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DEAN'S INTRODUCTION

We have an excellent College of Medicine, due to the intelligence, creativity and industry of our faculty, staff and students, and our robust culture of responsibility, productivity and collaboration. However, our environment is changing and we will have to adapt to these changes to fulfill our primary missions of Doctoral Education and Research.

Nationally, support for research has changed dramatically, and continues to do so. Over the last decade, funding from the National Institutes of Health has decreased significantly against inflation. While we have been remarkably successful at garnering this funding, our dependence upon it has now left us vulnerable. Congress has indicated that future increases will be tied to large multidisciplinary programs and translational results. At the same time, funding from federal agencies such as PCORI for health care delivery research has grown steadily and we will need to seek funding in this new area. In addition, we have underperformed at attracting research support from corporations, foundations and individual philanthropists, and will need to redouble our efforts in those sectors.

Regionally, the Western Connecticut Health Network (Danbury) and the University of Vermont Health Network have grown markedly, offering a potential solution to the historic restriction of our clinical teaching and research by the limited patient base available in Burlington. Locally, the institution of

Incentive Based Budgeting by UVM allocates all University income and expense to the Colleges. This produces a more negative budget for the College of Medicine, but also more opportunities to benefit from revenue generated from new academic activities such as non-doctoral education.

Like all other medical colleges today, our College must adapt to these changes and remain nimble as our environment continues to evolve. Fortunately, we have a balanced budget today and careful planning has ensured we have the resources for needed investments. If we act now, we can master our changing environment and build a bright future for the College. If we do not we will be at its mercy.

The ideas outlined in this plan are designed to harness the intelligence, creativity and industry of our people to seize the opportunities and attack the challenges in our new environment. With our strong track record of cooperation and collaboration in creating new research and educational programs, we are well-positioned to maximize many of the strategic initiatives proposed here.

PROCESS

In the spring of 2015, over 200 faculty and staff of the College responded to a call for volunteers to participate in updating the Strategic Plan in several key areas. From that group, over 60 people were selected to serve on four committees, two focused on research and two on education. Those committees were charged in May 2015 to assess and make recommendations on research direction (Research A), research support (Research B), developing non-doctoral courses and programs using existing faculty expertise (Education A), and leveraging the newly expanded University of Vermont Health Network for academics (Education B). The detailed sets of suggestions for targeted discussions given each committee were:

Research Committee A: Creating a Vision for our Future Research

- I. Strengths & Collaborations, in particular the relationship between Centers & Departments
- II. Health Care Delivery Research, examples of topics:
 - A. CTR/CTSA
 - B. PCORI/CMMI
- III. Clinical Research, in particular network research within the UVM Health Network and Western Connecticut Health Network
 - A. Single IRB
 - B. Clinical Trials infrastructure
- IV. Core Facilities and how we evaluate them, determine new ones, etc.
- V. PhD Education, how it is organized, focused, and resourced

Research Committee B: Connecting the Vision to the Finances to make it Possible

- I. Enhancing current sources
 - A. Grantsmanship
 - B. Mentorship by individual & groups
- II. Diversifying Sources of Funding
 - A. Corporations & Foundations
 - B. Tech Transfer, SPARK & SBIR
 - C. Upstream Funding
- III. Align current commitments & resources
 - A. Cores & Departmental Shared Resources
 - B. Current Departmental Commitments

Education Committee A: Developing Non-doctoral Courses and Programs

- I. Masters, Online & Post Bac programs
- II. Support for developing new courses / programs
 - A. Teaching Academy
 - B. Continuing & Distance Education
 - C. Navigation of Approval Process

Education Committee B: Expanding Education across our Health Networks

- I. Medical Students
- II. Residents & Fellows
- III. New types of Students

Each committee (membership in the Appendix) interviewed many stakeholders across the College and met multiple times during summer 2015. These efforts culminated in a day-long retreat in late August with 100 faculty in attendance where each committee presented key strategies for discussion and feedback. An Executive Committee was formed (membership from each of the four original committees) to draft an integrated report. That report was reviewed by the College of Medicine's Advisory Committee (Chairs, Center Directors, Deans), was circulated to the faculty for review and comments, and reviewed at a College Faculty Meeting in January 2016.

RECOMMENDATIONS

The **Research Initiatives** have two principle thrusts. One thrust is to improve the success of our research efforts being, externally funded, published, and widely recognized. This thrust includes support for individual faculty members developing their research careers, for programmatic work of groups of faculty working together through interdisciplinary, team science, and other large grant opportunities, and for the Institutional Infrastructure which supports all types of research. The other is to improve the

funding of our research engine by diversifying its sources of support directly by obtaining support from Corporations and Foundations and Individual philanthropy, and indirectly by applying margins from the development of new non-doctoral educational programs.

The **Education Initiatives** also have two thrusts. One is to develop educational programs in the space between the baccalaureate degree and the doctoral degree which the College has the capacity to teach at a level of excellence, which will attract high quality students from across the nation and globe and which will enhance the reputation of the College. These programs are being developed to answer the repeated calls of the leadership of the University to increase graduate education and to turn a margin to support the primary missions of the College: doctoral education and research. The other is to fully utilize the UVM Health Network to solve the limitations imposed upon clinical teaching of our College by the size of the patient population in Burlington. In addition to simply increasing the clinical teaching base, the initiatives look to developing educational programs which will be uniquely adapted to the dispersed rural population the UVM Health Network serves and thereby produce programs which will differentiate our College from others and attract more and better students.

In addition, several broad themes emerged from the process of developing these initiatives: faculty mentoring, the development of incentives, alignment of Departmental investments with the College of Medicine initiatives, and the building of teams. These critically important areas cut across all of our missions, and therefore will be addressed as stand-alone strategies as well as within a specific initiative.

NEXT STEPS

The many recommendation initiatives will be prioritized and evaluated for feasibility and impact on revenue and expenses. An Action Plan will be developed for both short- and long-term implementations, which will be integrated with the College's overall Strategic and Operational Plans. Finally, this work will integrate with the planning processes for the UVM Medical Center, the UVM Health Network, and the UVM College of Medicine-affiliated clerkship training sites. There will be many opportunities for faculty, staff, and students to be involved in all phases of this process.

The initiatives below are organized in four major themes: Funding, The Faculty, Programmatic Research, and Institutional Infrastructure.

I. Funding

Goal

Increase the funds available to our investigators by diversifying the sources of direct research support

Strategies

1. Develop a support structure for seeking support from corporations and foundations to include an advisory board of alumni and others who are networked with such organizations and a staff experienced with obtaining philanthropy, grants and contracts with corporations and foundations.
2. Clarify and enhance mechanisms to facilitate commercial, foundation and industry relationships, including the use of master agreements and “Distinguished Research Center” status between the institution and the sponsor that facilitates/speeds the contracting process.

II. The Faculty

Goal

Maintain a strong faculty mentoring and infrastructure support to foster research excellence and success.

Strategies

1. Formalize a College-wide research mentoring program with standards for the various features such as specific area-based mentoring, budget administration, personnel administration, etc. Provide training and hands-on support in grant writing, editing, choosing of funding mechanisms, designing studies, navigating the grant submission process, managing grants, and obtaining informatics and statistical support. Educate faculty about existing UVM and College resources that could enhance research extramural support. Education could take the form of a “modular training program of research resources” at the individual department level. A list of possible modules is in the Appendix.

2. Develop a searchable database of investigators and their research (e.g. Harvard catalyst) coupled with the development of an “innovation center” to connect investigators.
3. Create a new “smart form” or Standard Operating Procedure (SOP) to accompany or replace SPA’s new proposal questionnaire to simplify the application process.
4. Create a new *Research Navigator* position at the College level. Functions to include: mentoring faculty, facilitating the identification of the most appropriate research funding, identifying shortcomings and potential, providing annual updates to department chairs who are required to disseminate that information to their faculty; drawing on past success stories at UVM; and using UVM research opportunity search engines (SPIN/GENIUS).
5. Develop a college-wide communications calendar for seminars and research education/skills events.
6. Establish a recognition program to acknowledge and reward grant awards and similar accomplishments.
7. Review existing Bridge and Internal Grant Programs to assess effectiveness and to discuss priorities for use of these limited central funds. This review would contemplate the balance between supporting and retaining successful investigators and incentivizing new sources of research support.

III. Programmatic Research

Goal

Have strong cross disciplinary programmatic research in key areas, exhibiting collaboration and integration among basic scientists, translational researchers, and clinicians.

A. Strategies: Programmatic Research: General

1. Explore options to encourage Investigators to serve as PI or Co-PI for large center/program, collaborative projects, and/or training grants. Suggestions include:
 - a. Support a percentage of the principal investigator’s FTE while writing the grant.

- b. Provide a bonus in the form of salary or laboratory support for successfully garnering such a grant.
 - c. Provide internal College grant support for pilot funds to support collaborative team building.
 - d. Develop a “SWAT” team for large grants that would include grant writing support, administrative support and support for the PI writing the grant. Having a SWAT team assigned to a PI would be a competitive process.
 - e. Target support and leadership/PI development for larger programs and training grant submissions. Encourage multi-PI and PI/Co-I grants.
2. Focus College research priorities based on: quality of programs, importance of the research area to improving health, and demonstrated fiscal stability. Review and reassess periodically, based on strategic plans, accomplishments, and fiscal performance. Develop a plan to sundown underperforming centers.
3. Oversight and support for centers. Some guiding principles and recommendations:
- a. Consider increased status and empowerment for Centers/Institutes, such as direct funding from Dean’s Office as a partial FTARRS model, shared support for hires, shared benefit from recruited faculty success, and shared liability from recruited faculty failure.
 - b. Coordinate and unify research administration for Centers.
 - c. Develop a process for College center review, similar to core review, which includes quantifiable metrics (income/expenses, productivity including publications, grant proposals, new grants, etc.) The centers on the list created above should undergo review. The University’s existing Administrative Unit Review program could help provide benchmarks for College center review. Both internal and external advisory group review (different from scientific advice) for College centers is a best practice and should be adopted. Review would include both short term (investment) and long term (sustainability) perspectives.
 - d. Align department spending on Centers with identified research goals.
 - e. Ensure the College consistently has the maximum number of funded COBREs.
 - f. Review the CCTS curriculum to assess its value, which unit “owns” it, and how it links to education.

4. Create a physical and cultural environment (“Innovation Center”) to encourage cross-fertilization of ideas and collaborative team science.
 - a. Create designated space for free-thinking and cross-departmental interaction, shared coffee room, virtual interest groups, multidisciplinary seminar series, etc.
 - b. Issue Calls for Proposals for new Team Science awards that require collaboration.
5. Develop a formal process for establishing collaborations with regional research institutions, companies or non-profit organizations that are interested in improving health, including in our region.
6. Explore the benefits and risks of integrating basic science and clinical departments and centers, as was done with Anatomy and Neurology.
7. Emphasize “high-value” science, an idea that incorporates the costs of research. On the clinical side the UVM Medical Center has a national reputation for controlling costs of medical care. Research in the College should be held to the same standard.
8. Continue to hire new faculty strategically, with a focus to maximize the College collective expertise, add to areas of current strength. Hires in new areas must be strategic for new programs envisioned via strategic planning.
9. Develop Chair and Faculty incentives to reward Team Science (via rewards for strategic hiring)
10. Review and make recommendations regarding informatics infrastructure, including from the perspective of promoting Team Science.
11. The College’s clinical research should be relevant to UVM Medical Center and Health Network Service Lines whenever possible.
12. Open a dialogue with the main campus to identify teams across the University, not only within the College.

B. Strategies: Health Services Research: General

1. Recruit leadership in this area; two possible models for evaluation:
 - a. Establish an *ad hoc* committee including broad stakeholder representation (e.g., College of Nursing and Health Sciences) to recommend a health services research infrastructure, including funding model, that can form the basis for leadership recruitment.
 - b. Recruit leadership whose first job will be to lead such an effort.
2. Expand and leverage regional resources, e.g., the data analytic capacities and capabilities of the Jeffords Institute for Quality.
3. Make certain we are aware of, and when possible, be in alignment with the UVM Medical Center and Health Network priorities.

IV. Institutional Infrastructure

Goal

Have an infrastructure to facilitate and support basic, translational, clinical, and health services research.

Strategies

1. General
 - a. The Senior Associate Dean (SAD) for Research, in collaboration with the Dean's Research Advisory Council, should oversee Cores.
 - b. Recommend adopting/endorsing the Research Core Facilities in the College of Medicine: Report of the Review Committee June, 2014 with a few modifications:
 - Restrict the subsidized use of dedicated core facilities that are part of a program grant or COBRE to only those that are included in the grant. If a dedicated core provides service that is beneficial to other investigators and has capacity to service these investigators, then the Dean's Research Advisory Council should recommend whether the Core deserves additional central financial support. Importantly, such dedicated cores should not compete with existing cores.
 - Investigators and PIs should discuss proposed use of existing cores with core directors prior to submission of grants that require substantial use of core facilities.

- The target ratio for financial subsidy of cores was set at 20% of the total annual expenditure for individual cores. The committee felt this was arbitrary and recommends that the criteria for financial support be reviewed more comprehensively.
 - Additional and specific recommendations to the Core Report referenced above were submitted by the Core Directors in a report titled: Principles for College of Medicine Research Cores (Appendix). Our Committee endorsed these recommendations.
 - Provide infrastructure support and oversight for large equipment, including true “core” equipment, plus equipment housed in departments that is used by numerous investigators within the College, e.g., centrifuges, autoclaves, etc. There is a need to inventory and assess this equipment for duplication and maintenance
2. Clinical research: we need to improve processes and policies around the considerable amount of clinical research conducted by College investigators.
 - a. Establish easily understood clinical trials infrastructure first at the College/UVM Medical Center, then extending to the UVM Health Network and our branch campus as appropriate.
 3. Bioinformatics: there is a rapidly growing need for expertise and infrastructure, which we largely lack. Initial recommendations include the following:
 - a. Perform a comprehensive review and make recommendations regarding informatics infrastructure.
 - b. Basic science bioinformatics:
 - Establish major program-based needs and recruitments
 - Establish a financial model for equipment and software upgrades that includes central support and an on-going business model
 - Assess possible outsourcing
 - Collaborate with Engineering/Complex Systems, the Vermont Advanced Computing Center, and local computing resources
 - Evaluate and potentially enhance Biostatistics support
 - c. Clinical bioinformatics:
 - Enhance capacity for data gathering and storage, data base management, and assurance of privacy and confidentiality issues.

- Recruit or develop faculty/staff with expertise in the use of data from clinical and administrative information systems, imaging systems, consumer health systems, and public health systems.
- Recruit or develop expertise to facilitate incorporation of “omics” data (genomics, transcriptomics, proteomics, metabolomics, etc.) in major College programs, to enhance translational research.
- Establish an Integrated core facility based on this area or enhance capacity within the CCTS or its replacement structure.
- Review and potentially enhance resources to support clinical decision analysis, economic analysis, Good Clinical Practice, Quality Control.
- Enhance training for PRISM Cohorting tool that is about to launch.

4. Graduate Students

- Determine the value of the teaching contribution of graduate students; gather data and develop metrics to determine the number of contact hours of graduate students (working as teaching assistants) with students in courses. There should be the equivalent of teaching effort reporting.
- Understand the value of the research contribution of graduate students; gather data and develop metrics to determine the number of hours that graduate students spend doing research or supporting faculty research efforts. This should be the equivalent of research effort reporting.
- Determine the core number of student positions that should be supported by the College of Medicine as a base upon which a flexible number of additional student positions might be supported through extramural funding.
- Consider an initiative whereby PhD and postdoctoral trainees are required to participate in Team Science (e.g., one paper of a thesis includes collaboration across two+ types of science).
- Graduate (Ph.D.) student stipends should be competitive.
- Develop and market (including social media) alternative PhD tracks that could be funded by local organization or donors; a list is in the Appendix.
- Develop a faculty research database that would include training grant opportunities and individuals to lead the development and applications for training grants, and direction of the new training programs.
- Establish a single College graduate program that offers Masters level training paid by tuition with competition for teaching assistantships. Possible features include:

- Preferential admission to PhD training extended to those who have a Master's degree, with preference given to those who have been highly successful in our master's program.
 - Limit the number of students offered PhD training but not to the numbers of students who seek master's level training.
 - Develop new training opportunities such as: a combined bachelor and master degree, master degrees with or without research requirements that can be completed in one year, "post Bac" master degree on line and in the summer, biosafety master degree, or a biology and tech transfer master degree. For example, the Department of Pharmacology has a one year "Accelerated Masters" program, which is fed by their undergraduate Minor program.
- i. Create a central web-based location for researchers, students, fellows and scholars to access grant and fellowship opportunities. Ensure that information on funding opportunities is updated as new information becomes available from funding agencies.
 - j. Create and maintain a database for training grant applications which includes all of the data needed for the boiler plate accompanying such applications.

Background

The initiatives below are organized in the following major themes: New Program Recommendations, New Program Infrastructural Needs, and Expansion of Education across the UVM Health Network. All of these initiatives have the potential to generate new revenue and position the UVM College of Medicine as a national or international leader in educational innovation and scholarship.

I. New Programs: Specific Recommendations

Goal

To provide recommendations for specific new educational programs.

Strategies

The Committee recommends the summer Pre-College Health and Medicine Academy as a top priority that should be implemented in 2016. This has potential to be a national program.

The following list of non-credits ideas, summer programs, graduate certificates and masters should also be further studied (market need) with assistance from UVM Continuing and Distance Education.

1. Summer Programs (Includes both Credit and Non-Credit): (Timeline - 6 months and on)
 - a. Pre-Medical Preparation (MCAT, Clinical Simulation and Clinical Experiences). Summer-long, 6 to 8 weeks for undergraduate students. Target audiences would likely be post-baccalaureate pre-meds here as well as undergraduate students at UVM, regionally, and nationally.
 - b. Pre-College Health and Medicine Academy (Health and medicine career exploration, tours of College/UVM Medical Center facilities, shadowing experience, hands-on bioscience demonstrations). Two weeks on campus in July for high school students (juniors/seniors) with CDE organizing availability of housing for non-commuters. Target audience includes in-state and out of state high school students interested in health and medicine. Earn 3 college credits; target enrollment of 70 students.

2. Non-Credit Portfolio: (Timeline - 6 months and on)
 - a. Align with our commitment to the community with a non-credit consumer/patient health education certificate. The rationale advanced by the committee is that chronic conditions (one or more) drive up health care costs. The goal is ensuring patients are partners in their health. The College should explore whether BCBSVT might offer reduction in insurance premium cost for patients (or subsidize) as an incentive.
 - b. Non-credit health courses (or certificate) for UVM, health care organizations (including insurers), government, other organizations or businesses (as part of employees' job).
 - c. Some Summer Courses and Programs (see above).

3. Undergraduate and Graduate Programs: (Estimated 1 year timeline)
 - a. Behavior Change Health Studies Minor – in process. This minor is estimated to enroll up to 700 undergraduate students within the next few years. Consider Non-credit “how to” for other schools; online, and/or summer institute.
 - b. Master's Degrees:
 - Biotechnology (Graduate Certificate and Master's Degree)- Program would add new tuition-paying students to enroll in existing graduate level CMB courses and would fit with local, regional, and national training needs identified by CDE market research.
 - Physician Assistant program – Master's Degree granted. Curriculum would fit well with Master of Medical Science program, and local and national needs.
 - Genetic Counseling (Degree or Certificate of Graduate Study)
 - Medical Sonography – Associate Degree (2-year program); Bachelor's Degree; Certificate of Graduate Study. This would fit local and national needs and our expertise. (CDE recommends additional market research to prioritize.)

4. Candidate Programs in need of Additional Study/Vetting/Market Research (6 months to determine best options)
 - a. Global Health – Graduate Certificate or Degree Program; Non-credit options
 - b. Other potential Non-doctoral Graduate Programs:
 - Forensic Science
 - Bioinformatics – What would make UVM's program unique? Link to strategies described in Research section IV.3.

- c. Other additions to Non-Credit portfolio, such as courses/certificates for high school science teachers.
- d. Clinical skills and simulation: Courses and Certificates.

II. New Programs: Infrastructure to Promote and Sustain Educational Innovation

Goal

To provide necessary support for new program course and program development, approval and rapid implementation.

Strategies

1. Develop infrastructure support and core resources in the College of Medicine
 - a. To support development of non-doctoral education that can rapidly respond to educational needs, gaps, and innovations, both local and national (or international).
 - b. Include assistance in navigating the College and University approval processes and tracking of proposals; and facilitating ongoing faculty and Department collaborations and any related administrative, approval or accreditation requirements, with UVM Continuing and Distance Education (CDE).
2. Develop a new “Curriculum Liaison” position to track all existing new programs, and their stages of approval, provide troubleshooting, and facilitate programs’ success through the UVM approval process. Consider using the CDE experts residing at the College of Medicine.
3. Maintain an ongoing “real time” inventory and metrics (enrollment, trends, revenue, etc.) related to College of Medicine courses, non-credit, undergraduate majors and minors, and graduate programs (certificates and degrees). This will be facilitated by the recently-developed College of Medicine course prefix.
4. Ensure efficient review and approval processes. As quickly as possible, develop a College of Medicine Education Committee for all non-doctoral education that would encompass non-credit, undergraduate and graduate credit. This committee would review new proposals (after the Chair, but before the Dean’s Office).

5. Create a culture of educational innovation. Strategies should be linked to existing College structures and processes, to ensure maximal use of existing resources and efficiency. The Teaching Academy should develop mechanisms including: an “idea committee,” a SPARK program for Educational Initiatives, forums for faculty collaboration, and a “new idea” session added as part of our two annual College educational retreats. In addition, UVM Continuing and Distance Education suggested an ongoing process for evaluating new ideas, and programs that were more fully developed.

6. Develop incentives for faculty. There is a critical need to develop new and creative (not necessarily expensive) incentives for faculty to develop new concepts. Suggestions include:
 - a. Educate faculty in the current flow and distribution of revenue in the College of Medicine, emphasizing the critical role of department chairs in generating revenue, budget administration, setting salaries, and implementing incentives in their departments.
 - b. Direct departments to create rewards for faculty to create and participate in new revenue-generating courses and educational programs. Incentives could include in-kind (e.g., preferred assignment of department duties, space allocation), increases in variable salary component, direct bonuses and/or unrestricted grants). Salary adjustments and bonuses should only be applied after the base salary obligations are met for involved faculty. The importance of these incentives being timely was emphasized, and being careful to have incentives specific to clinical and non-clinical faculty.
 - c. Royalties (like textbook authors) and/or patents for new curriculum, or versions of curriculum.
 - d. Look to other institutions (e.g. Stanford) for ideas for additional incentives.
 - e. Recognition and advancement were also cited as important.
 - f. Funds should be allocated to the Teaching Academy to sponsor grants to cover a portion of faculty salary to create and champion high-priority programs and courses for the College (similar to incentive grants offered to faculty at Stanford, Harvard, Boston University, Brown, and NYU).
 - g. Making it easy for faculty to develop new courses and programs: professional development for new teaching methods (online); education as a business, need for market assessment and course/program marketing, and ongoing partnership with UVM Continuing and Distance Education; non-traditional benefits of students in courses (e.g. sources of research assistants); using environments such as the Simulation Center or Larner Classroom creates opportunities for new and novel courses.

III. Expanding Education across our Health Networks

Goal

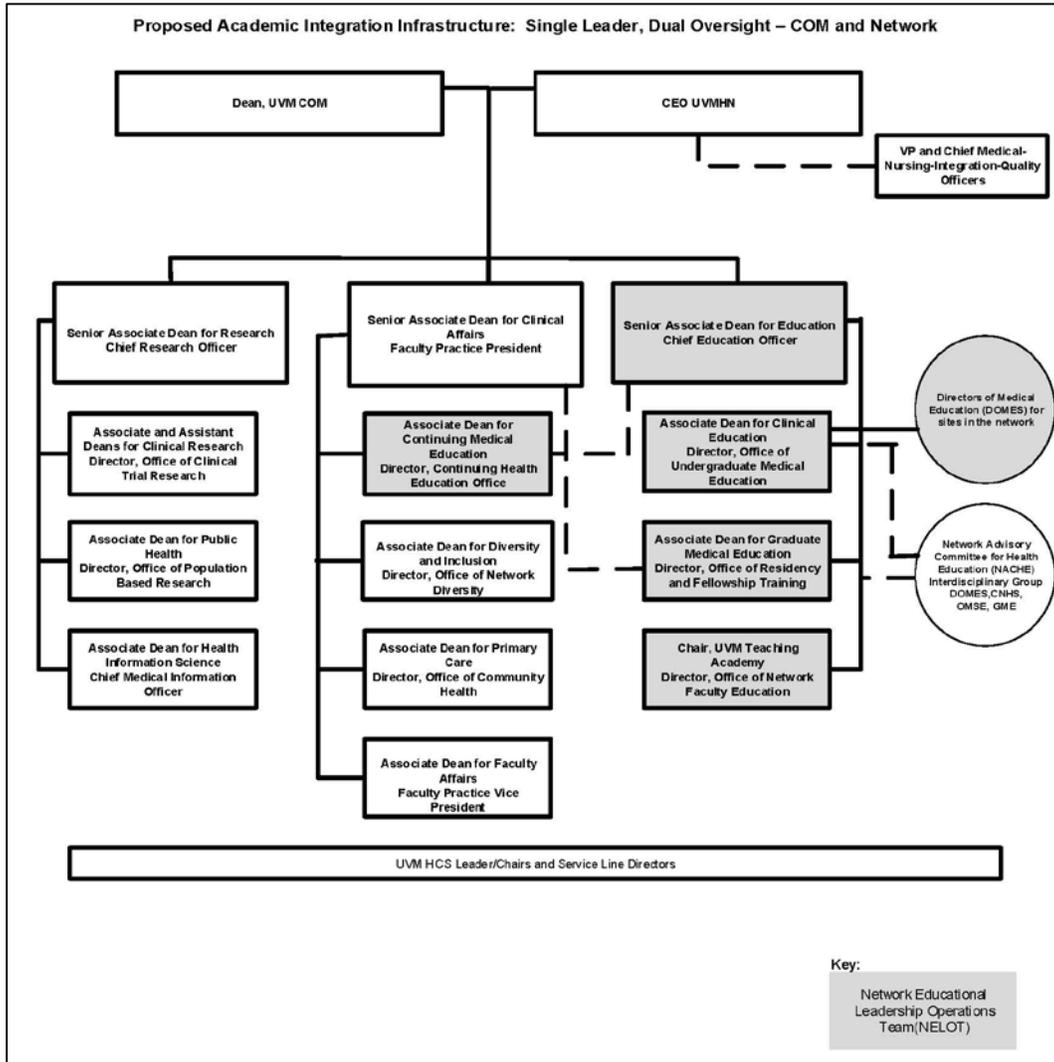
To use the expanded UVM Health Network to deliver existing curricula for medical students and residents and to develop new for current and new types of learners

Strategies

1. Infrastructure.
 - a. The College should adopt the Academic Infrastructure: Single Leader, Dual Oversight – UVM College of Medicine and UVM Health Network (see attached figure). This will streamline management of the clinical education of medical students, residents, and fellows across the UVM Health Network.
 - b. A Director of Medical Education (DOME) for UVM College of Medicine should be appointed at our UVM Health Network Affiliate Sites. Each DOME would be responsible for the management of clinical teaching activities at that site and would interact with local faculty and hospital leadership, UVM College of Medicine, and the UVM Health Network as described below in matters of curriculum implementation and educational oversight.
 - c. UVM College of Medicine form two oversight committees to develop and operationalize network integration of academics:
 - Network Educational Leadership Operations Team (NELOT): to coordinate operations of medical education for the College, UVM Medical Center, and UVM Health Network (medical students, residents, fellows). At a minimum, NELOT would include the Senior Associate Dean for Medical Education, the Education Director for Foundations, the Associate Dean for Clinical Education, the Associate Dean for Graduate Medical Education, the Associate Dean for Continuing Medical Education, the Director of the UVM College of Medicine Teaching Academy, and the affiliate DOME (site Directors of Medical Education).
 - Network Advisory Committee for Health Education (NACHE): an interprofessional group charged with strategic planning for regional health education within the UVM Health Network be formed. The NACHE is envisioned to include an interdisciplinary group of high level stakeholders in health education that includes representatives from affiliate sites (DOMEs or affiliate site equivalent), UVM Office of Medical Student Education, UVM College of Nursing and Health Sciences, Graduate Medical Education, and potentially others with clinical educational needs currently utilizing UVM Health Network resources. Its composition

and structure would allow it to advise the medical education leadership team particularly on matters of maximizing interprofessional education and prioritizing various clinical education programs when resources are limited.

Dual Oversight for the Academic Mission of the UVM Health Network



**The Dean retains hiring and firing responsibilities for these positions and oversight of their UVM Medical Center activities.*

2. Benefits: Faculty Recruitment, Benefits, Appointment Options
 - a. UVM College of Medicine should adopt the UVM Health Network Employed and UVM Health Network Non-Employed appointment strategy as per UVM Health Network Clinical and Physician Integration Academic Workgroup.

- b. Appointments in Clinical Practice Physician (CPP) Pathway versus traditional Tenure/Scholar tracks should be jointly approved by Department Chair and Dean as per Faculty Handbook (i.e. five year terms).
 - c. Appointments for non-UVM Medical Center Network Physicians will be initiated by Regional Physician Leader (TBD, as per UVM Health Network PO Governance Workgroup) and/or Faculty Leader (i.e. Director of Medical Education-DOME) based at UVM Health Network Affiliate Site.
 - d. Benefits will be stratified according to appointment as a CPP Faculty Member versus a traditional Tenure/Scholar track at both UVM Medical Center and all UVM Health Network Affiliate Hospitals.
 - e. Benefits that accrue to faculty on the Volunteer Pathway are in-kind (i.e., library services, faculty development activities.) As per current UVM College of Medicine policy, there will be no payments for Volunteer Pathway (i.e., Clinical Assistant Professor) at the UVM Medical Center or Health Network Affiliate Sites.
3. Integration of Undergraduate Medical Education – Creating an Inventory
- a. A formal assessment of new educator capacity in the UVM Health Network is needed. Formally assess the fraction of presently underutilized committed teachers across the Network; volunteer (opt in) and full time. This along with the clinical volume will help define the additional teaching capacity across the network.
 - b. UVM College of Medicine should evaluate the extent and need for faculty development in through the Teaching Academy (TA) in concert with the Senior Associate Dean for Medical Education and informed by LCME and ACGME accreditation requirements. The TA would establish minimum teaching credentials for all teaching faculty and create regional workshops and digital modules for skill development. It is expected that additional mentoring and faculty development needs would be identified by the Regional Physician Leaders, UVM Health Network Affiliate Site Director of Medical Education (DOME), and/or specific medical school departments.
 - c. UVM College of Medicine should systematically assess ways to achieve UME educational goals and competencies using the entire network capacity. (For example, replicate current methods in the wider network v. specific redesign to reflect the wider network resource). This will include NACHE review of competing educational needs and annual prioritization of medical student

rotations at specific sites. A formal policy regarding learners from non-UVM professional schools will be developed and implemented throughout the network.

- d. UVM College of Medicine should examine gradual ways to phase-in development of regional UME, as well as innovative approaches for medical education:
 - Incorporate Doctoring in Vermont across the Network.
 - Co-develop UME elective or selective experiences in concert with focused regional residency development; for example emergency medicine, family medicine, psychiatry, OB Gyn.
- e. UVM College of Medicine should explore modification of clinical educational and curricular structure to align more appropriately with UVM Health Network resources and evolving medical student educational needs
 - Develop one or more Longitudinally Integrated Clerkships
 - Develop a Rural Primary Care Track
- f. UVM College of Medicine should create mechanisms to more fully engage full time faculty through activation, mentoring and teaching (faculty development), or curriculum modification.

4. Integration of Graduate Medical Education

- a. Create one GMEC for the network. This committee should review the totality of the network opportunity and look for synergy. It should also review the federal and state funding mechanisms for “new teaching hospitals”, “rural tracks”, etc. to be sure we do not lose potential funding for network residencies by conflicting or ill-timed individual residency developments.
- b. A systematic assessment of opportunities for expansion or enhancement of UVM Medical Center residency and fellowship programs needs to be performed (incremental costs should largely be trainee salary and benefits).
- c. UVM College of Medicine and the UVM Health Network support development of new residency and fellowship training programs in alignment with strategic local, regional and national workforce needs, network patient population, and faculty resources.
- d. UVM College of Medicine support faculty development in teaching and assessment skills throughout the UVM Health Network using the Teaching Academy or similar resources. It is anticipated that faculty at network affiliate sites who “opt-in” will participate in the entire spectrum of UME, GME and CME programs and will require support in faculty development, accordingly.

APPENDICES

COMMITTEE MEMBERSHIP

*Steering Committee Member

RESEARCH A

Name	Department	Role
Ira Bernstein, MD	OBGYN	Chair
Elizabeth Bonney, MD	OBGYN	Faculty
Mary Cushman, MD	Medicine	Faculty
Gregory Holmes, MD	Neurological Sciences	Chair
Charles Irvin, PhD	Medicine	Dean
Beth Kirkpatrick, MD	Medicine	Faculty
Lyndelle LeBruin	Pathology	Staff
*Debra Leonard, MD, PhD	Pathology	Chair
Kim Luebbers, MSHS, RN, BSN	Dean's Office	Staff
*Mark Nelson, PhD	Pharmacology	Chair
Gary Stein, PhD	Biochemistry	Chair
*Claire Verschraegen, MD	Medicine	Faculty
Mort Wasserman, MD	Pediatrics	Faculty
Richard Watts, PhD	Radiology	Faculty
*Russell Tracy, PhD	Dean's Office	Dean

RESEARCH B

Robert Althoff, MD, PhD	Psychiatry	Faculty
Jonathan Boyson, PhD	Surgery	Faculty
*Marilyn Cipolla, PhD	Neurological Sciences	Faculty
Eric Gagnon	Medicine	Staff
Richard Galbraith, MD, PhD	Medicine/VP Research	Faculty/Chair
Rodger Kessler, PhD	Family Medicine	Faculty
Donald Mathews, MD	Anesthesiology	Faculty
Kevin McAteer	UVM Foundation	Staff
Polly Parsons, MD	Medicine	Chair
*Robert Pierattini, MD	Psychiatry	Chair
Douglas Taatjes, PhD	Pathology	Faculty
*David Warshaw, PhD	Physiology	Chair
Daniel Weiss, MD, PhD	Medicine	Faculty
*Brian Cote, MBA	Dean's Office	Dean

EDUCATION A

Name	Department	Role
Christopher Berger, PhD	Physiology	Faculty
Eileen CichoskiKelly, PhD	Family Medicine	Faculty
*Kristen DeStigter, MD	Radiology	Chair
Claudia Gwilliam	Biochemistry	Staff
James Hudziak, MD	Psychiatry	Faculty
Ted James, MD	Surgery	Faculty
Douglas Johnson, PhD	MMG	Faculty
Karen Lounsbury, PhD	Pharmacology	Faculty
*Claude Nichols, MD	Ortho/Rehab	Chair
Paula Tracy, PhD	Biochemistry	Faculty
Margaret Vizzard, PhD	Neurological Sciences	Faculty
*Tamara Williams, PhD	Pathology	Faculty
*Jan Carney, MD	Dean's Office	Dean

EDUCATION B

*David Adams, MD	Anesthesiology	Chair
Harry Dauerman, MD	Medicine	Faculty
Melissa Davidson, MD	Anesthesiology	Faculty
Elise Everett, MD	OBGYN	Faculty
Lewis First, MD	Pediatrics	Chair
Candace Fraser, MD	Family Medicine	Faculty
Timothy Fries, MD	Neurological Sciences	Faculty
Mark Fung, MD	Pathology	Faculty
Janusz Kikut, MD	Radiology	Faculty
Mark Levine, MD	Medicine	Faculty
Jesse Moore, MD	Surgery	Faculty
Mitchell Norotsky, MD	Surgery	Chair
*Thomas Peterson, MD	Family Medicine	Chair
Renee Stapleton, MD, PhD	Medicine	Faculty
*Claude Deschamps, MD	Dean's Office	Dean
*William Jeffries, PhD	Dean's Office	Dean

RESEARCH APPENDICES

1. Possible Workshops for a Mentoring Program

2. Principles for College of Medicine Research Cores

3. List of possible alternative PhD tracks

1. Possible Workshops for a Mentoring Program:

- a. New FTARRS Budget Allocation
- b. Core resources and core review
- c. UVMMG Research and Education Committee Research Awards program
- d. Office of Technology Commercialization
- e. UVM College of Medicine Bridge and Internal Grant Program
- f. UVM COBREs
- g. REACH, FISAR, SPARK, etc.
- h. Opportunities with high success rates (e.g. IDeA grants, mentored awards, RFAs), rather than just the conventional individual R01-type grants
- i. Philanthropy

2. Principles for College of Medicine Research Cores

- a. A College of Medicine Research Core is defined as a shared resource laboratory subsidized by the College of Medicine Dean's office that offers trained personnel and expertise in the use of specialized instrumentation or specialized techniques that supports the research needs of multiple investigators. Such cores are approved and supported, at least in part, by the Dean's Office.
- b. Cores play significant roles in attracting and retaining strong, competent faculty, graduate students, and post-doctoral trainees. The increasing array of sophisticated cores and their respective capabilities not only enhance the productivity of our researchers, but also enhance their competitiveness for extramural funding by demonstrating that our research environment is sophisticated and supportive. In addition, Cores aid the College by taking advantage of economies of scale, allowing the most efficient use of resources.

- c. The Dean's Office may choose to utilize specific cores to entice outstanding faculty to the University of Vermont by providing a specified number of core services at no charge. These no charge services should be mutually agreed upon by the Senior Associate Dean of Research and the Core Director(s) and should be accounted for by the Core as income.
- d. College of Medicine Core Directors should report to the Senior Associate Dean for Research who will consult with the Senior Associate Dean for Finance as needed. All income/expense activities should be routed through the Dean's office to ensure consistency and comparability.
- e. The role of the Dean's Research Advisory Committee should be expanded to provide overall guidance and recommendations concerning the College of Medicine research cores. The Dean's Research Advisory Committee should seek regular input from Core directors to guide their decisions.
- f. The Core Directors should meet as a group periodically to share best practices and problem solve as a group. In addition, the Core Directors should meet with the Senior Associate Dean of Research on an annual basis to discuss Core issues.
- g. The SADR shall work with core directors to promote the availability of services to investigators within the College, within UVM, and external to UVM in research institutions and businesses, when applicable.
- h. Purchase of new equipment should include a detailed plan for maintenance and replacement of said equipment. An estimate of usage and resulting revenue should be provided.
- i. Cores will be evaluated on a regular basis by the College of Medicine to ascertain whether (i) the level of College subsidy is appropriate, (ii) the Core is still serving the needs of the College, and (iii) there is an unmet need by College investigators that requires development of a new Core. Some of the factors that would be used in this decision-making process are:
 - o The amount of support being applied to the Core.
 - o The distribution and numbers of users and departments that use the Core.
 - o Does the core participate in meaningful academic activity that substantially benefits the College and the University
 - o Extramural research funding linked to the Core.
 - o Number and quality of publications linked to the Core.
 - o Possible available alternatives to Core services.
 - o Projection of upcoming needs and utilization, including the development of new services.

- Does the Core present convincing evidence of an adequate and supporting environment for research grant applications?
 - Value of educational services provided by the Core (e.g., seminars, courses, meeting with research groups, etc.)
 - Does the Core provide value-added expert knowledge and consultation above and beyond the same services provided from external vendors?
 - Do Core services provide significant support for research that assists investigators and UVM by licensure of intellectual property and resulting funds flow?
- j. Core facilities should strive to maximize operational and fiscal efficiency and to minimize the subsidy provided by the College. This might include, examination of the possibility of leasing, rather than purchasing, new equipment, avoiding duplication of services, avoiding the offering of services that are available extramurally at lower costs unless there are compelling reasons (e.g., quality), instigation of charges for training and/or consulting efforts that exceed defined initial gratis training or consultation thresholds. Core rates/charges will be evaluated on an annual basis by the Associate Deans of Research and Finance in consultation with the Core Directors. The evaluation will include the long-term research goals of the College, the factors listed in #8, as well as per diem charges at similarly-sized institutions in the region.

3. List of possible alternative PhD tracks:

- a. Science and the law – funded by local law firm
- b. Science and biotechnology – local biotech company or special interest group , i.e. Vermont Bioscience Alliance
- c. Science and Public interest – funded by VPIRG or similar group
- d. Clinical and Translational Science – funded by Private Health concerns within our community
- e. Health Service Research – QA/QI – funded by the Jeffords Institute or similar programs
- f. Teaching - sponsored by Teaching Academy
 - Science Education
 - Science Communication
- g. Offer Graduate Training in future areas of excellence including
 - Big Data
 - Health Services, including QA/QI research

- Bioinformatics
 - Team Science Administration
- h. Explore and enhance existing cross college Graduate Training
- i. School of Engineering
- j. Grossman School of Business
- k. College of Nursing and Allied Health Sciences

EDUCATION APPENDICES

1. **Questions to Ask for Proposed New Programs (per UVM Continuing and Distance Education)**
2. **SWOT ANALYSIS – Non-Doctoral Educational Initiatives**
3. **Potential Academic Appointment Range of UVM Health Network Employed Physicians in the Network**
4. **Incentives to Join the UVM College of Medicine Physician Faculty: Stratification by Pathway**
5. **Integration of Undergraduate Medical Education**
6. **Background on the Status of Graduate Medical Education**

1. **Questions to Ask for Proposed New Programs (per UVM Continuing and Distance Education)**

- Fit with the Mission, Brand, and Strengths of the College of Medicine?
- Alignment with Existing College of Medicine Programs?
Are there “Faculty Champions” for the program? Can the program be put on by current faculty members? Can current lectures or courses be incorporated into the new program? Is there existing administrative support for the program?
- Market Attractiveness?
What economic trends are influencing demand for programming nationally and regionally? What is the size of the corresponding occupational field and its growth projection? What are key educational requirements to enter the field and/or continue in the field?
- Competitive Intensity?
Who are existing providers offering similar programs in the marketplace? What are enrollment and degree conferral trends at other institutions? Are there opportunities to differentiate?
- Resource Requirements & Financial Factors?
How many enrollments will this drive? What human, operations, and infrastructure resources are needed for the program? How are the revenues shared within the college? How much will it cost in start-up fees, then maintenance? What is the time horizon for positive return on investment? No positive return, no investment.
- Ability to be Nimble?
Can the program be set up or taken down rapidly? Have we established criteria to evaluate success and failure?
- External Factors (Political, Economic, Social, Technological)?

What are the driving political forces that can enable—or present a barrier—to program expansion? What industry clusters are growing? Who/what are you competing with for attention, for enrollments? Where are the emerging demographics? Is this a region that is technology-smart or Internet driven? Are you going to be servicing global students or employers with global demands?

2. SWOT ANALYSIS – Non-Doctoral Educational Initiatives

- Internal factors – the *strengths* and *weaknesses* internal to the organization
- External factors – the *opportunities* and *threats* presented by the environment external to the organization

	STRENGTHS	WEAKNESSES
Internal	<ul style="list-style-type: none"> • National expertise of Faculty • Course and Program Content • Teaching Academy 	<ul style="list-style-type: none"> • Faculty Time • Not knowing external market well • Faculty not well versed in work of CDE (yet) • Lack of College infrastructure to support rapid course and program development
	OPPORTUNITIES	THREATS
External	<ul style="list-style-type: none"> • Could start some initiatives tomorrow! • More revenues to College • Collaboration with UVM CDE • IBB • Teaching Academy 	<ul style="list-style-type: none"> • University Course/Program Approval Process • IBB used at other universities?

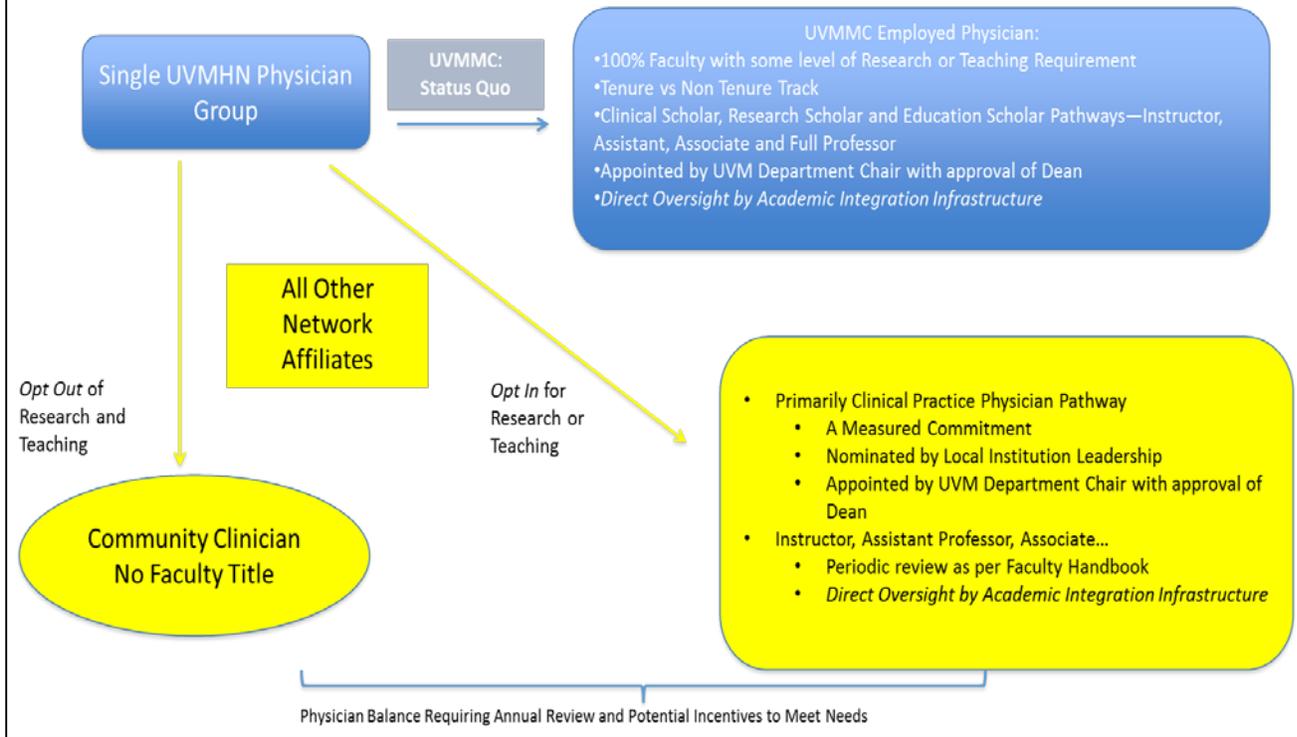
3. Potential Academic Appointment Range of UVM Health Network Employed Physicians in the Network

Title	UVM Medical Center Employee Physician Eligible	Non-UVM Medical Center Network Employed Physician Eligible	Requirements	UVM FTE and Salary eligible	UVM Benefits eligible
Clinical Assistant Professor	No	No	Voluntary, approval of Chair and Dean	No	No
Clinical Practice Physician (Potential to transition to Clinical Scholar Pathway after 2 Years)	Yes	Yes	Local Appointment, Approval of Chair and Dean, per Handbook	Usually Not: Per Chair Discretion	Selectively
Assistant to Full Professor, Non Tenure Track (i.e. Research, Clinical or Education Scholar Pathway)	Yes	Yes	Local Appointment, Approval of Chair and Dean, Per Handbook	Yes	Yes
Assistant to Full Professor, Tenure Track	Yes	Yes	Local Appointment, Approval of Chair and Dean, per Handbook	Yes	Yes
Community Clinician, UVM Health Network Physician Group	No	Yes	None	No	No

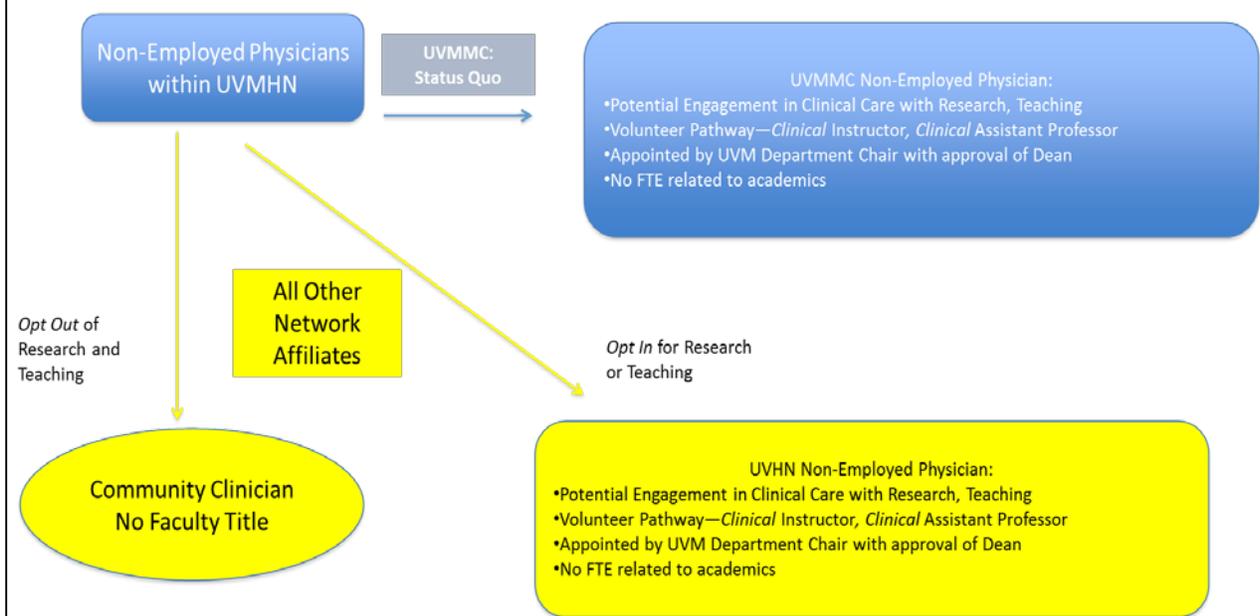
4. Incentives to Join the UVM College of Medicine Physician Faculty: Stratification by Pathway

Benefits and Incentives	Clinical Practice Physician Faculty— Title: Faculty	Clinical Faculty on all other compensated Pathways	Volunteer Pathway: Title—Clinical Asst. Prof.
Tuition Remission at UVM for Family Members	No	Yes	No
FTE offset of RVU Target (i.e. 10% Educational Time= 10% less RVU clinical target)	Not Necessarily: At discretion of Department Chair	Yes	No
Professional Faculty Development Programs via Teaching Academy	Yes	Yes	Yes
Annual CME Bonus Money for journals, subscription and conferences	Yes; Prorated up to 50% of UVM Full Time Faculty	Yes: Full	No
Resident Coverage of Patients: (night, day, weekend, holiday) if UVM residency available on site	Yes	Yes	No
Educational Package: Online access to Dana Library journals, Free access to CME Programs coordinated by UVM Medical Center	Yes	Yes	Yes
Access to UVM Medical Center for Complex Surgery/Procedure with Faculty Support (if non UVMMMC Patient)	Yes	Yes	No

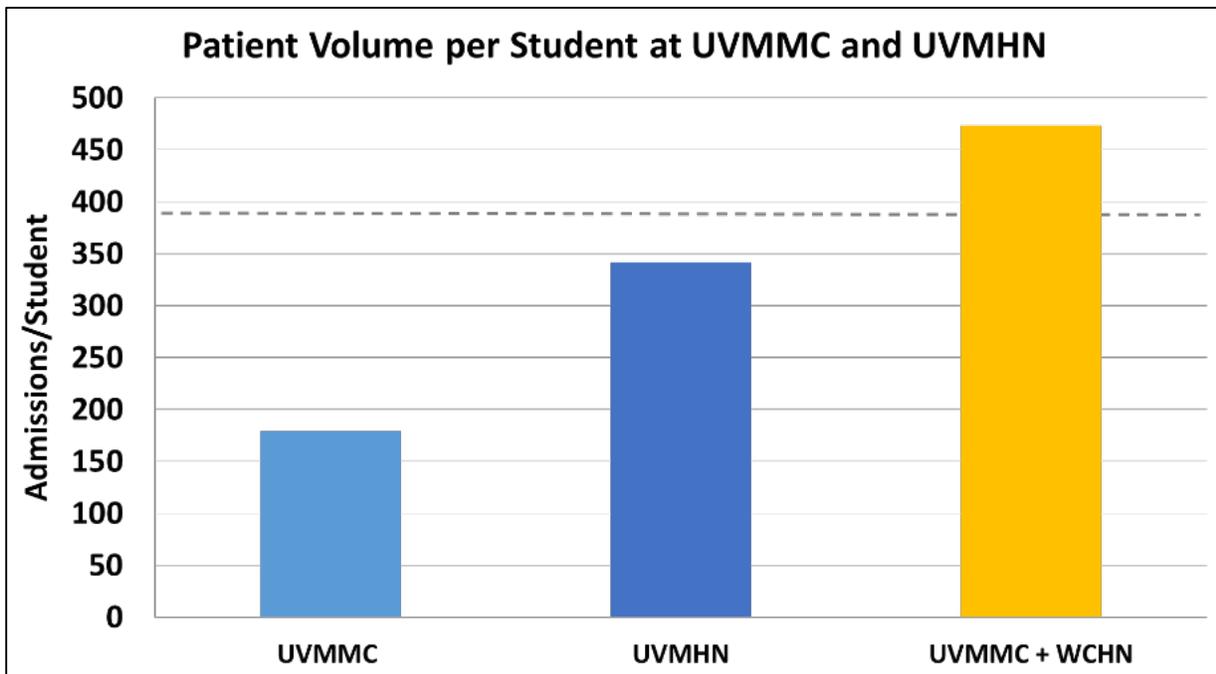
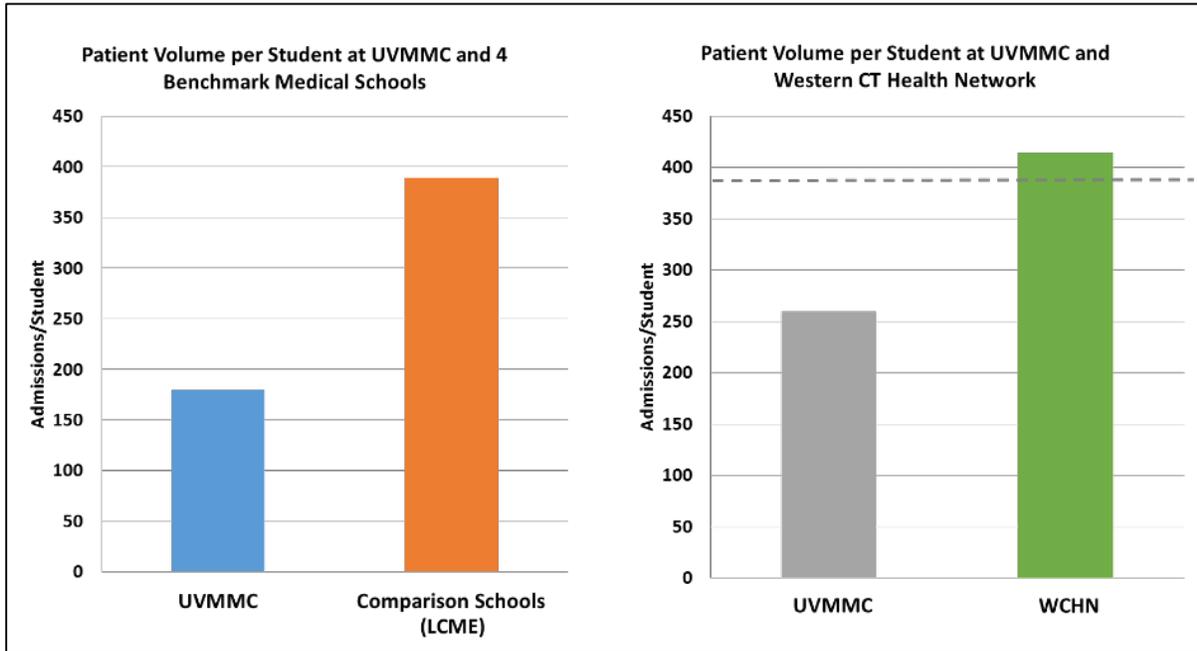
UVMHN Employed Physicians

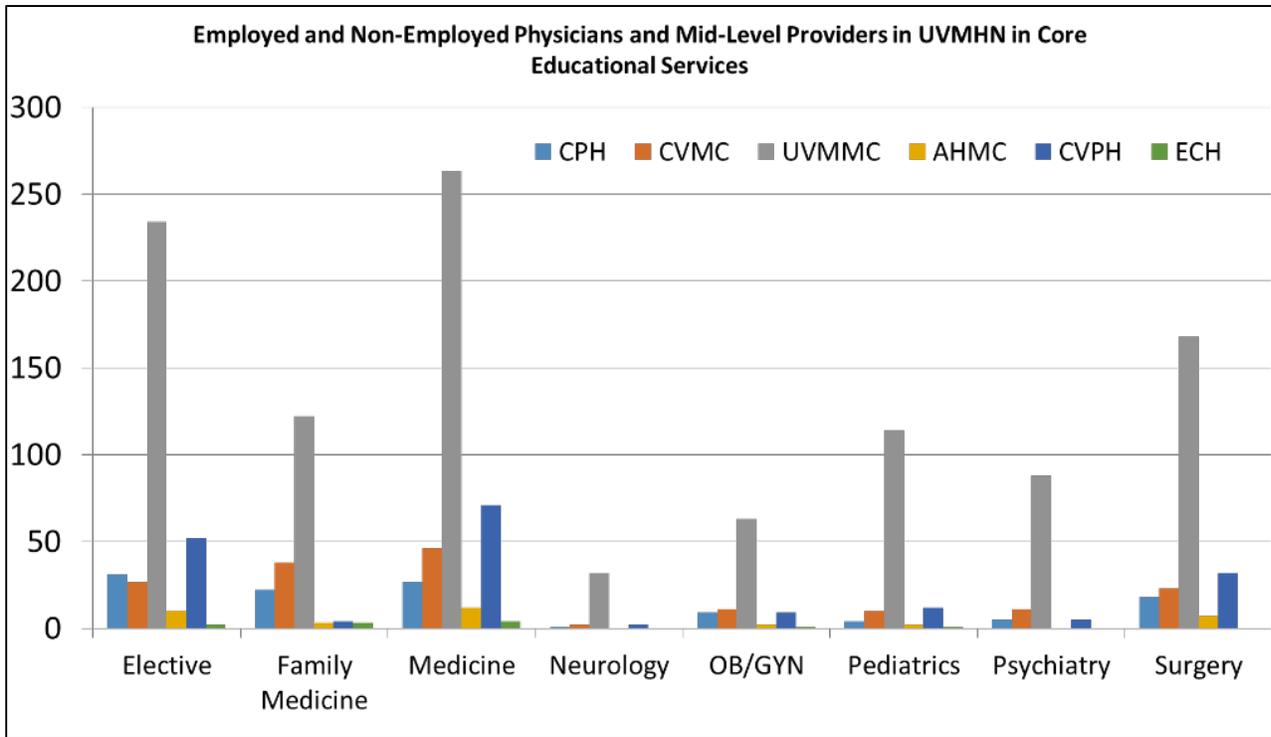


UVMHN Non-Employed Physicians



5. Integration of Undergraduate Medical Education





6. Background on the Status of Graduate Medical Education

- a. GME Funding Resources – Currently, there are a fixed number of GME slots funded through CMS and the current number of GME trainees at the UVM Medical Center exceeds the DGME and IME caps by approximately 25%. Highly targeted additional cap growth in the UVM Health Network could potentially be achieved through developing new GME programs in the network at sites where the UVM Medical Center is not the sponsoring institution.

- b. GME Scope of Opportunities – It is anticipated that additional GME training opportunities, including rural and community practice experiences, will emerge as the UVM Health Network develops and these may support expansion of existing UVM Medical Center GME programs. It is recognized that certain types of clinical training programs may require tertiary or quaternary experiences available only at the academic medical center while others may not, such as the family medicine residency program currently being developed at CVPH. Similarly, a network Emergency Medicine Program is envisioned as part of the clinical and physician integration discussions. At this time, it is not entirely clear whether patient volumes, faculty resources, and administrative infrastructure will support significant additional development of independent residency training programs in the UVM Health Network. Accordingly, it may be advantageous to use the existing GME administrative infrastructure and expertise to expand existing UVM Medical Center residency and fellowship programs when there is sufficient and strong educational rationale. It is likely that there will be opportunities in the UVM Health Network for value-added curriculum development in areas such as health policy, ACOs, population health, transitions of care, quality improvement, interprofessional teamwork, and health care reform.

- c. Faculty development at affiliate/remote sites – Faculty development around resident supervision, education, and evaluation will be a necessary component of residency program development and expansion. It is clear that faculty development around teaching and assessment at all levels of medical education will be key components to success of our training sites throughout the UVM Health Network. An important and expanded role for the UVM College of Medicine Teaching Academy in supporting network faculty development targeted toward all levels of medical education is essential.