Program Creation Process Sign-Off

Program Title: Interventional Pulmonology (IP)

Program Units: 18

Division: Biological and Health Sciences **Proposing Faculty name(s):** Brenda Hanning

Type of Program: _____ Transfer or X_____ Workforce

Type of Award:

_____ Non-transcriptable certificate
X___ Certificate of Achievement
_____ AA/AS Degree

Documentation checklists:

Transfer documentation
_____ Catalog Description
_____ List of Courses
_____ Articulation & transfer data
_____ Identification of existing program(s) at CSU/UCs
_____ Completer Projections
_____ Identification of any additional resources needed to establish program (i.e. faculty, equipment, etc.)

Workforce documentation
X___ Catalog Description
X___ List of Courses
X___ Completer Projections
X___ Labor Market information
X___ Identification of any similar program(s) in the area
X___ Identification of any additional resources needed to establish program (i.e. faculty, equipment, etc.

Transfer/Workforce Work Group: ☐ **Recommended** ☐ **Not Recommended**
Comments:

Work Group Signature: Date:

Supervising Vice President: ☐ **Recommended** ☐ **Not Recommended**
Comments:

Vice President Signature: Date:

Planning & Resource Committee: ☐ **Recommended** ☐ **Not Recommended**
Comments:

PaRC Signature: Date:

Division Curriculum Committee: ☐ **Recommended** ☐ **Not Recommended**
Comments:

Division

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Catalogue Description

This interprofessional education certificate provides respiratory therapists, physician assistants, nurses with advanced training in interventional pulmonology including diagnostic and therapeutic interventions.

(***Additional Information, not part of catalogue description***)

RSPT82-86 are online courses. RSPT88 is a research project. RSPT87A and B are clinic rotations. For the first cohort, El Camino Hospital will provide clinical placements for all students if necessary. Longer term, students will be able to work in their own hospitals/clinics to fulfill this requirement. As we begin to market this certificate nationally, our goal is to develop an online lab which will fulfill the clinic rotation portion of the certificate if necessary to facilitate student access to the certificate.

List of Approved Courses

RSPT 82 ORIENTATION TO INTERVENTIONAL PULMONOLOGY
Orientation and overview of Interventional Pulmonology as a respiratory care specialty. Intended for students enrolled in the Interventional Pulmonology Certificate Program.
2 Units

RSPT 83 CASE BASED ANALYSIS AND CRITICAL THINKING IN DIAGNOSTIC INTERVENTIONAL PULMONOLOGY
Case based reasoning and critical thinking in the field of Interventional Pulmonology. Content will include critical diagnostic thinking, evidence-based medicine and quantitative studies in respiratory care. This course is intended for students enrolled in the Interventional Pulmonology Certificate program.
2 Units

RSPT 84 FUNDAMENTALS OF PULMONARY DISEASE
Review of pulmonary anatomy and physiology. Fundamentals of pulmonary diseases and pathology including cancer staging. This course is intended for students enrolled in the Interventional pulmonology certificate program.
3 Units

RSPT 85 INTERVENTIONAL PULMONOLGY THEORY AND APPLICATION
This course provides the general principles of Interventional Pulmonolgy. Disease specific application including diagnostic and therapeutic interventions, techniques and procedures will be introduced. This course is intended for students enrolled in the Interventional Pulmonology Certificate Program.
3 Units

RSPT 86 INTERVENTIONAL PULMONOLOGY PROCEDURES
Basic and advanced interventional pulmonology procedures. Procedures to be covered will include bronchoscopy, thoracoscopy, endoscopy, airway access procedures and novel

techniques. This course is intended for students enrolled in the Interventional Pulmonology Certificate Program.
3 Units

RSPT 87A INTERVENTIONAL PULMONOLOGY CLINICAL INTERNSHIP I
Clinical application of basic interventional pulmonology procedures. Interpretation of basic diagnostic data and correlation to applied therapies. Procedures will include bronchoscopy for diagnostic and therapeutic interventions such as alveolar lavage. This course is intended for students enrolled in the Interventional Pulmonology Certificate Program.
2 Units

RSPT 87B INTERVENTIONAL PULMONOLOGY CLINICAL INTERNSHIP II
Interpretation of diagnostic data and correlation to applied therapies. In addition to clinical application of procedures covered in Interventional Pulmonology Clinical Internship I, advanced procedures may include (a) balloon dilation, (b) stent placement, (c) lung volume reduction and (d) foreign body removal. This course is intended for students enrolled in the Interventional pulmonology certificate program.
2 Units

RSPT 88 INTERVENTIONAL PULMONOLOGY RESEARCH PROJECT
Research project on a specialized area of interventional pulmonology. Specific topics to be determined by the instructor. This course is intended for students enrolled in the Interventional Pulmonology Certificate Program.
1 Unit

Completer projections

In summer of 2017, the first two IP courses, RSPT 82 and 83, were offered. Enrollment was 27 in each course with a productivity at census of 409 each. In fall 2017, RSPT 84 and 85, were offered with 25 and 23 students respectively. There was only "word of mouth" marketing done for this initial launch, therefore with marketing and outreach, we suspect the enrollment could be much higher. All courses are offered online with the exception of the clinic rotations in winter and spring (RSPT 87A and B). With effective marketing the projected enrollment for courses in this the certificate program to grow as high as 35. As the field grows, the program could take as many as 100 students per year if marketed nationally.

Labor Market Information

Labor market data will be uninformative for this certificate as this is a skill builder in the health care profession. Individuals will take this certificate are already trained and licensed and employed as respiratory therapists, physician assistants or nurses. This will be an additional role they can have in a clinic setting that extends the scope of their job and expands and their skill set.

Attachment A is a narrative by Dr. James Canfield from El Camino Hospital, Director Interventional Pulmonology Lab outlining the emergence of this field and the need for training of the health care providers who will assist the pulmonologists performing these procedures.

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In general, Interventional Pulmonology is a relatively new medical subspecialty. The first Board Certification for Pulmonologists (MD) in this subspecialty was Dec 6, 2013 (*see Attachment B*). Pulmonologist certified in this specialty will need trained respiratory therapists, physician assisants or nurses to perform the techniques and procedures in development.

In order to be at the forefront of this new subspecialty, El Camino Hospital recruited Ganesh Krishna from Stanford Hospital in 2008 to head their Interventional Pulmonology Unit (see below in *Attachment C* for details of El Camino Hospital Interventional Pulmonology program). Pulmonology fellows from UCSF are being trained by Dr. Krishna to bring this subspecialty to UCSF. Stanford Hospital has recently opened their Interventional Pulmonology department headed by Dr. Andrew Sung. Therefore this field is beginning to open up locally and we believe demand will be strong for trained Allied Health professionals for this type of specialty training.

_____

Identification of any similar programs

Multiple Training centers for pulmonologistd (MDs) exist at medical centers across the US however, no training for Allied Health professionals who will be assisting the pulmonologist (MD) is currently offered.

Identification of additional resources

A bronchoscope was requested and approved through the SWP funding to be utilized in development of video demonstrations for certain IP techniques . As the program grows and expands, additional equipment will be requested as needed from SWP funding. Two additional bronchoscopes and associated equipment for IP procedures will be requested to be utilized in the basic RSPT program to introduce this advanced modality in RSPT and provide options for clinical training and practice on mannequins to supplement the clinical training courses. Training videos will be developed using this equipment and be made available in the online format.

Attachment A. Definition of interventional pulmonology (IP) and the current status of IP centers in the Bay area with confirmation of need for IP training for health care providers written by James Canfield

Interventional pulmonology is a subspecialty of Pulmonary Medicine that uses advanced diagnostic and therapeutic procedures to care for patients with benign and malignant diseases of the lung, airways and pleura. There has been a rapid proliferation of new pulmonary procedural technologies over the last decade. The implementation of these procedures is across the breadth diagnoses; from different types of malignant and nonmalignant diseases, including lung cancer (diagnosis and staging); metastatic cancer of the thorax; central airway obstruction (malignant, tracheal stenosis, tracheobronchomalacia); mediastinal lymph node staging; peripheral pulmonary nodules; pleural effusion; pneumothorax; and respiratory failure.

The Interventional Pulmonology (IP) Program at El Camino Hospital has grown to be one of the largest and most comprehensive programs of its kind in Northern California. The program was established in 2008 to provide patients with access to the latest, minimally invasive, state-of-the art diagnostic and therapeutic modalities to treating lung and pleural diseases. The IP division currently has a staff of 10; one Lead Therapist and the other therapist are all level 4 RRTs. Dr. Krishna and I have always believed respiratory care practitioners have the in-depth knowledge that equips them for optimal assistance in these diagnostic and therapeutic procedures. RTs often assist pulmonary physicians in invasive procedures. Assisting in bronchoscopy is one of the more frequently undertaken roles for RTs in this capacity. They need knowledge of the procedure, understanding of disease processes, insight into patient assessment, familiarity with the medications and equipment used, and the ability to anticipate the physician's next step. As new procedures are introduced, the RT must learn each procedure and acquire the skills and knowledge needed to become competent in assisting the physician, in addition to ensuring that the proper supplies are present. There are currently IP centers at California Pacific Medical Center (CPMC), UCSF, Stanford, Regional Medical Center, Good Samaritan, and El Camino Hospital. Under the leadership of Dr. Ganesh Krishna, Sutter Health will be expanding IP procedural Centers to five other Hospitals in the greater bay area. Additional there are at least 20 centers through the state.

Interventional Pulmonary didactic programs such as the one offered at Foothill College are essential to preparing the Respiratory Therapist for the emerging job opportunities.

James Canfield Jr. MBA, RPFT, COPDE
Manager, Respiratory Diagnostic Services
Respiratory Care Service
El Camino Hospital
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Attachment B.

Letter from the President, American Association of Bronchology and Interventional Pulmonology (AABIP) describing first Board Certification testing for MDs in Interventional Pulmonology

AABIP Interventional Pulmonology Board Certification Examination

Dear colleagues,

As you may be aware, the Board of Directors of the American Association of Bronchology and Interventional Pulmonology (AABIP) has committed to producing and implementing an Interventional Pulmonary Board Certification Examination. The rationale for this effort is to enhance training, clinical care, scientific exploration, and collaborative, evidence-based approaches within the field of Interventional Pulmonology.

Initial candidates for the examination will include both individuals completing fellowships in Interventional Pulmonology, as well as clinicians who are actively practicing in Bronchology and Interventional Pulmonology and meet established standards of procedural experience. Those individuals who are eligible to sit for this didactic examination and who achieve a passing score will be honored as "*Diplomates of the AABIP.*"

The AABIP Board of Directors made the decision to proceed initially with a didactic-only Board Certification examination, which is scheduled for December 6, 2013.This exam will be produced and validated in the same format utilized by the American Board of Internal Medicine (ABIM). We vetted multiple companies that design similar examinations for other medical sub-specialty societies, and selected a North Carolina-based company, Castle International,that has extensive experience in this process. They established a feasible timetable for us to develop and implement a Board Certification Examination, and will assist in exam evaluation, implementation and distribution. Of note, Castle will be conducting a thorough statistical analysis of the exam and individual questions both during the writing process as well as over the next several years as we work on exam modifications.The AABIP also hired an attorney to review the copyright issues regarding the proposed contract with Castle, as well as other legal issues that we may encounter in this process.

The first major step needed was to form an exam writing committee responsible for the creation of the examination questions. This was composed of members of the AABIP Board of Directors and Education committee, the Association of Interventional Pulmonary Program Directors (AIPPD), as well as representatives from both academic and community Interventional Pulmonary programs, and a representative from Thoracic Surgery. The objective was to bring together a broad-based group of experienced individuals to formulate a *de novo* product, not simply a modification of the Interventional Pulmonary in-service examination. The committee convened this past January over a three-day period at the headquarters of Castle International in Morrisville, North Carolina and created over 290questions from the full spectrum of medical knowledge encompassed by the field of Interventional Pulmonology, all based directly on the best available evidence from the medical literature.

The timetable for the Board Certification Examination process will be as follows:

1) May/June, 2013: Open Registration for the AABIP Board Certification examination:

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- Dr. George Eapen from MD Anderson Cancer Center in Houston and Ms. Claretha Bradford, Executive Assistant for the AABIP, will be coordinating efforts for registration for the examination and payment of registration fees through the AABIP website.
- Dr. Michael Machuzak from the Cleveland Clinic Foundation will be chairing the AABIP Board Eligibility Application review committee and will be responsible for selection of the membership of the committee and the schedule for reviewing applications.
- Further details on this process will be available shortly on the AABIP website.

2) Friday, October 25, 2013:The AABIP will be sponsoring the first annual Interventional Pulmonology Board Review Course to be held in Chicago on the day prior to the AABIP annual meeting (10/26/13) at the ACCP/CHEST conference.

- Dr. Alexander Chen from Washington University in St. Louis was asked to chair the inaugural Board Review Course, and will be selecting co-chairs and course committee members. Participants in the Board Certification exam question writing process will be ineligible to serve as chairs or committee members for the Board Review course.
- The AABIP is coordinating with Dr. Colin Gillespie from Northwestern University Medical Centerin Chicago to host the Board Review Course. A recommended reading list for preparation for the Board Review Course and the AABIP Board Certification Examination has been posted on the AABIP website (http://www.aabronchology.org/education.php)

3) Friday, December 6, 2013: Date of the first AABIP Board Certification Examination. The examination testing period will be 4 hours in length, consisting of 150 questions and will be coordinated with local computer testing centers, with details to follow.

Please note that no individuals will be exempt or "grandfathered" from the examination. Based on precedent from other societies, members of the 2013 Board Certification Writing Committee will logically be ineligible to sit for the current version of the examination and will be granted temporary "Diplomate" status from 2013-2016. At that time all members of the 2013 Board Certification Writing Committee will need to sit for the 2016 examination - formulated by a new writing committee - to maintain status as a Diplomate of the AABIP.

I fully appreciate all of your assistance (and patience) as we proceed with this groundbreaking project. The Board of Directors of the AABIP fully understands that the initiation of a Board Certification Examination is a controversial measure that is certain to generate criticism from many constituencies, but feels strongly that this will be an important step forward for the field of Interventional Pulmonology. Similar certification exam implementation by Sleep Medicine and Neurocritical Care, among other medical sub-specialty organizations, has proved vital in the growth and development of these fields.

The final approved version of the AABIP Board Examination Eligibility Criteria, has been posted on the AABIP website (http://www.aabronchology.org/) The Board of Directors also understands that the AABIP represents individuals with a wide variety of interests, experience, and training, and for that reason, after much discussion, chose initial Eligibility Criteria that were designed to be inclusive, rather than exclusive. Even so, the Board recognized that there are many members of the AABIP who focus primary on diagnostic procedures, and therefore will be implementing in the future a Certification process for Advanced Diagnostic Pulmonology.

Please do not hesitate to contact me with your thoughts and concerns.

Respectfully submitted,

Daniel H. Sterman, M.D.
President, American Association of Bronchology and Interventional Pulmonology (AABIP)
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Associate Professor of Medicine and Surgery
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Attachment C.
Description of Interventional Pulmonology program at El Camino Hospital

El Camino Hospital®
THE HOSPITAL OF SILICON VALLEY

Interventional Pulmonology

Interventional pulmonology is a new field within pulmonary medicine that focuses on the use of advanced diagnostic and therapeutic techniques to treat patients with lung cancer, benign airway disorders and pleural diseases. The interventional pulmonology program at El Camino Hospital Mountain View, which was founded in 2008 is one of the top interventional programs on the West Coast, providing a diagnostic and therapeutic services and cutting-edge treatment in pulmonary medicine.

An interventional pulmonologist collaborates with doctors practicing in other medical fields, such as Radiation Oncology, Thoracic Surgery and Medical Oncology, on techniques and procedures that will benefit many types of patients. We have specialized pulmonary medicine expertise with the most sophisticated techniques and technologies available to diagnose and treat many patients that are traditionally treated with more invasive procedures.

Diagnostic and Therapeutic Procedures

The conventional bronchoscopic procedures we offer include endobronchial biopsy, transbronchial needle/forceps biopsies and bronchial alveolar lavage. Bronchoscopy involves a non-surgical minimally invasive procedure to allow the physician to look inside the lungs using a bronchoscope. This can be done on an outpatient basis because no general anesthesia is involved. Bronchoscopy is a test that can help your doctor diagnose a variety of conditions, such as lung cancer, cancer of other organs that may have spread to your lungs, many types of pneumonia, tuberculosis, pneumocystis carinii pneumonia (PCP) and many other lung diseases. In some cases, bronchoscopy may allow your doctor to make a diagnosis and avoid a surgical procedure.

In addition, our minimally invasive diagnostic and interventional procedures include:

Airway Stent Placement to Address Narrowing of the Airway
Stents are small, cylindrical, expandable tubes, very similar to the types used by cardiologists to open up arteries in the heart. Interventional pulmonologists use them to open bronchial tubes that are occluded or narrowed due to infection, tumors or scar tissues.

Argon Plasma Coagulation (APC)
APC is the application of heat produced by an electric current to destroy tumor tissue or stop bleeding. An accompanying argon gas jet allows heat to be applied in a non-contact method. This non contact method is useful to cover a larger surface area, thereby shortening the procedure time.

Balloon Dilatation
This involves the opening of an airway using a balloon, similar to the opening of coronary arteries by angioplasty. This is particularly useful when the airway is too narrow, as a result of scarring after a tracheotomy, for example. Depending on the location of the airway narrowing, dilation can be performed using a flexible or rigid bronchoscope.

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Bronchial Thermoplasty **for the Treatment of Severe Persistent Asthma**
El Camino Hospital is one of the first hospitals to offer bronchial thermoplasty (BT). Bronchial thermoplasty (BT), a device-based asthma treatment approved by the FDA, is a novel outpatient procedure that delivers precisely controlled thermal energy to reduce excess airway smooth muscle that is associated with airway constriction in patients with asthma.

Cryotherapy
This involves the destruction of airway tumors by freezing the tissue. Cryotherapy can be performed with rigid or flexible bronchoscopy. The tumor tissue undergoes repeated application of a probe that has been super-cooled; the probe is applied over the entire surface of the tumor. This procedure can be used in conjunction with argon plama coagulation to re-canalize airways occluded by a tumor or by granulation tissue, which forms as part of a healing process.

Electromagnetic Navigational Bronchoscopy
The SuperDimension inReach system we use enables physicians to access peripheral lung lesions and mediastinal lymph nodes with a minimally invasive, image-guided technique that is suitable for patients who cannot undergo more invasive procedures, patients with multiple lesions or patients who request a diagnosis before undergoing surgery. With the inReach system, physicians can gain access to distal lesions in a minimally invasive manner.

Endobronchial Ultrasound (EBUS) and Radial Probe Ultrasound (REBUS)
EBUS is a technique wherein the pulmonologist uses a special bronchoscope with an ultrasound attachment at the tip of the scope to perform biopsies in multiple areas. This technique minimizes the risk of puncturing a blood vessel and allows for better accuracy, because the pulmonologist can see the needle as it is placed inside the abnormality. This procedure is used to biopsy lymph nodes in the middle of the chest (EBUS) or peripheral lung lesions (REBUS).

Endoscopic Lung Volume Reduction
The IBV Valve System is currently under investigation in the U.S. as a new treatment option for people with severe emphysema, and who do not respond well to current medical therapies, are not eligible for invasive surgery such as lung volume reduction or lung transplantation, or who elect not to undergo such surgery.

The device has received Humanitarian Device Exemption (HDE) approval from the U.S. Food and Drug Administration (FDA) to control prolonged air leaks of the lung or significant air leaks that are likely to become prolonged, following lobectomy, segmentectomy, or lung volume reduction surgery. This HDE approval is the first for a bronchial valve procedure. The effectiveness of this device for this use has not yet been confirmed.

Fiducial Marker Placement for Stereotactic Radiosurgery
This is a minimally invasive way of placing markers used to locate tumors for precise delivery of radiation for patients who plan to undergo stereotactic radiosurgery (CyberKnife, Trilogy, and others) to treat tumors that cannot be accessed with traditional forms of surgery.

Pleuroscopy
It is a procedure similar to laparoscopy but when performed in the chest is called pleuroscopy or medical thoracoscopy. It requires the use of a small instrument with a camera that is inserted into the chest cavity through a very small incision, and it allows the physician to perform diagnostic and therapeutic procedures inside the chest.

Transbronchial Cryo Biopsy
Cryoextraction is a procedure for recanalization of obstructed airways caused by exophytic (outward-growing) tumors. Biopsy samples obtained with this method can be used for tissue diagnosis. Transbronchial cryo biopsy can be used as a substitute for surgical lung biopsy in the case of diffuse lung diseases such as pulmonary fibrosis.

Applicable Diseases

- Abnormal chest x-ray
- Amyloidosis
- Asthma
- Benign pleural effusion
- Benign tumors of the airways or lungs
- Bronchial stenosis
- Chronic obstructive pulmonary disease (COPD)/emphysema
- Complications of tracheostomy and intubation
- Diffuse lung diseases such as pulmonary fibrosis
- Foreign body extraction
- Hemoptysis (blood in sputum, aka coughing up blood)
- Lung cancer
- Lung nodule and lung mass
- Malignant pleural effusion (fluid in the pleural space)
- Mediastinal adenopathy/enlarged lymph nodes
- Relapsing polychondritis
- Tracheal stenosis

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- Tracheobronchomalacia
- Wegener's granulomatosis

Research

Research that is focused on the indications for and outcomes of interventional procedures as well as the implementation of new medical devices is an important aspect of our program. We collaborate with many manufacturers and device developers. If you are interested in any of our ongoing trials, please e-mail us.

For More Information

For details about El Camino Hospital Mountain View's interventional pulmonology program, or to schedule an appointment or get a referral, call 650-962-5813 or 800-216-5556. Our interventional pulmonologist is Dr. Ganesh Krishna, MD.

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CC Signature: Date:

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