

PROMOTION RECOMMENDATION  
UNIVERSITY OF MICHIGAN  
MEDICAL SCHOOL  
DEPARTMENT OF SURGERY  
DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

Approved by the Regents  
May 20, 2010

George B. Mychaliska, M.D., assistant professor of surgery, Department of Surgery, and assistant professor of obstetrics and gynecology, Department of Obstetrics and Gynecology, Medical School, is recommended for promotion to associate professor of surgery, with tenure, Department of Surgery, and associate professor of obstetrics and gynecology, without tenure, Department of Obstetrics and Gynecology, Medical School.

Academic Degrees:

M.D.	1991	University of California, San Francisco and Berkeley
M.S.	1989	University of California, Berkeley
B.S.	1986	University of California, Los Angeles

Professional Record:

2004-present	Assistant Professor of Surgery and Obstetrics and Gynecology, University of Michigan
2001-2004	Assistant Professor of Surgery and Pediatrics, Washington University School of Medicine in St. Louis

Summary of Evaluation:

Teaching: Dr. Mychaliska has been actively engaged in teaching and mentoring undergraduate students, medical students, residents, post-doctoral research fellows, and clinical fellows. He devotes substantial effort to teaching clinical trainees at the bedside, operating room and clinic (500+ hours/year). He is an active participant in twice weekly teaching conferences and the educational lecture series. He is the medical student facilitator for pediatric surgery. In addition to his teaching related to pediatric surgery, he teaches a diverse group of students, residents and fellows in the emerging field of fetal therapy. Dr. Mychaliska has worked with a data architect and developed a comprehensive database for infants with birth defects which is being used for educating students, residents and faculty in the field of prenatal diagnosis, fetal therapy and long-term outcomes of complex malformations. As evidenced by his student and resident evaluations (4.4 out of 5.0) and letters, the quality and effectiveness of his teaching are consistently high. In addition to his clinical teaching, Dr. Mychaliska's most important teaching contribution consists of individualized research and professional mentoring for which he devotes considerable time and effort (250+ hours/year). He has provided major research mentoring for undergraduate students, medical students and post-doctoral research fellows.

Research: Dr. Mychaliska's research is closely connected with his areas of clinical expertise and the mission of the Fetal Diagnosis and Treatment Center (FDTC). In particular, Dr. Mychaliska has had a sustained focus on understanding the pathophysiology of congenital diaphragmatic hernia (CDH) in the laboratory and at the bedside. At Washington University in St. Louis, he investigated genomic and extracellular matrix alterations in a nitrofen rat model of CDH. At the University of Michigan, he has focused on clinical and translational research in CDH. He is the principal investigator on a funded randomized clinical trial of perflubron induced lung growth (PILG) in severe CDH patients who require ECMO (Clinical Research Initiatives Grant, \$53,000). This exciting and novel treatment strategy has the potential to significantly improve outcomes in severe CDH patients and shed light on the mechanisms of lung growth. The NIH has expressed interest in this study, and NIH funding would be anticipated for a definitive multicenter, prospective, randomized controlled trial of PILG versus conventional mechanical ventilation in patients with CDH on ECMO, after completion of the proposed pilot study. He is also co-investigator on a NIH R01 grant examining the molecular genetic analysis of CDH. Dr. Mychaliska has also been active in clinical research in the areas of prenatal diagnosis, fetal therapy and ECMO. Given his expertise in these areas, he is on the editorial board of *Pediatric Surgery International*. Dr. Mychaliska's basic science research focuses on the development of an artificial placenta to support premature infants. This high-risk project has the potential to revolutionize the basic treatment approach to prematurity--by recapitulating the intrauterine environment, mechanical ventilation and other iatrogenic therapies associated with prematurity would be avoided. He has assembled a multidisciplinary team of investigators to create a complex fetal sheep model of arterio-venous extracorporeal life support. The initial work has been supported by the Coulter Foundation (\$200,000 – 2007-2009) and other grants. He recently received an excellent priority score of 20 for a NIH R03 grant for which funding is anticipated. His clinical, translational and basic science work has been presented at numerous invited lectures and national and international conferences.

#### Recent and Significant Publications:

Bryner BS, West BT, Drongowski RA, Hirschl RB, Mychaliska GB: Congenital Diaphragmatic Hernia Requiring Extracorporeal Membrane Oxygenation: Does Timing of Repair Matter? *Journal of Pediatric Surgery* 44(6), 1165-1172, June 2009.

Bryner BS, Kim AC, Drongowski RA, Bruch SW, Hirschl RB, Mychaliska GB: Right-Sided Congenital Diaphragmatic Hernia: High Utilization of ECMO and High Survival. *Journal of Pediatric Surgery* 44(5):883-887, May 2009.

Davis RP, Treadwell MC, Drongowski RA, Teitelbaum DH, Mychaliska GB: Risk stratification in gastroschisis: Can prenatal evaluation or postnatal factors predict outcome? *Pediatric Surgery International* 25 (4):319, March 10, 2009.

Reoma JL, Rojas A, Kim AC, Khouri J, Boothman E, Brown K, Cook K, Grotberg J, Bartlett RH, Hirschl RB, Mychaliska GB: Development of An Artificial Placenta I: Pumpless A-V ECLS In A Neonatal Sheep Model. *Journal of Pediatric Surgery* 44 (1):53-59, January 2009.

Mychaliska GB, Officer SM, Heintz CK, Pierce RA: Pulmonary Elastin Expression Is Decreased In The Nitrofen Induced Rat Model Of Congenital Diaphragmatic Hernia. *Journal of Pediatric Surgery* 39(5): 666-671, 2004.

Service: Given his specialized training in fetal surgery, Dr. Mychaliska was recruited to the University of Michigan to develop and lead a major interdisciplinary fetal therapy center. During his tenure, he has built and effectively managed the Fetal Diagnosis and Treatment Center (FDTC), which is only one of seven comprehensive fetal therapy centers in the country. This program has seamlessly integrated many disparate disciplines including pediatric /fetal surgery, maternal and fetal medicine, neonatology, pediatric and maternal anesthesiology, pediatric radiology, pediatric cardiology, pediatric neurosurgery, pediatric urology, genetic counselors, fetal pathology and other pediatric subspecialists. The FDTC has been a major contribution to Women's and Mott Children's Hospital and generated regional and national recognition for innovation and state-of-the-art patient care. Under the leadership of Dr. Mychaliska, the FDTC provides a unique interdisciplinary approach to patient care, education and scholarship. Dr. Mychaliska is a nationally recognized expert in prenatal diagnosis and fetal therapy and has lectured regionally, nationally and internationally. He has been active on a national level as a member of the Fetal Diagnosis and Treatment Committee of the American Pediatric Surgical Association. In addition, Dr. Mychaliska has developed a busy clinical practice and is recognized by his peers as an outstanding pediatric surgeon. His meticulous operative skills, dedication to patient care, excellent outcomes and collegiality have made him a valuable member of the section of pediatric surgery and Mott Children's Hospital. Dr. Mychaliska has a special clinical interest in CDH, and has led the effort to develop an interdisciplinary CDH follow-up clinic to provide comprehensive treatment for this complex malformation. Given his expertise in ECMO therapy, he has become the co-director of the ECMO Program. He has provided additional service to the University as a member of the Holden Joint Practice Committee and the Holden Design Team for the new Children's Hospital Committee.

External Review:

Reviewer A: "I would describe Dr. Mychaliska's scholarly and professional productivity to be well ahead of most of his peers at this point in his career...On a national and international level, Dr. Mychaliska has been active in a number of organizations...I believe that he is likely to become more involved in many of these organizations at a leadership level."

Reviewer B: "Dr. Mychaliska's work has had significant impact in the arena of Pediatric Surgery with his contributions focused on the fields of congenital diaphragmatic hernia and artificial placental support. The number and quality of his papers are first class...Based on his years of service he has mentored a surprisingly large number of successful students, residents and fellows who are also recognized contributors to the field."

Reviewer C: "He has attained a national reputation in the areas of fetal treatment and diagnosis and ECMO...Of his notable publications, his recent paper on the development of an artificial placenta holds the potential for significant advancement in the field, and Dr. Mychaliska is well-poised to lead the field in this important and novel research area."

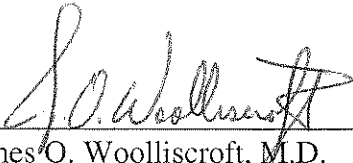
Reviewer D: “In his role as the director of the Fetal Diagnosis and Treatment Center, Dr. Mychaliska has shown his real strength in rallying the various units that work together on managing the fetal patients, and which requires a focus on education – mutual education of the members of the Center, education of referring physicians, education of patients, parents and families; and teaching medical students, residents and fellows from various disciplines in all the aspects of this new specialty. Nor has Dr. Mychaliska’s teaching endeavors been limited to Michigan.”

Reviewer E: “Dr. Mychaliska has mentored several students and residents. The excellent presentation [sic] given by these mentees at national scientific meetings truly reflect on their mentor and the institution. Several of these presentations have resulted in first-author, peer-reviewed publications for these mentees.”

Reviewer F: “By all reports Dr. Mychaliska demonstrates professionalism of the highest order. He is widely respected by all health care professionals with whom he collaborates...Dr. Mychaliska is involved in important educational activity at the medical student, general surgery, pediatric surgery fellow, and laboratory fellow levels. By all reports he is an excellent teacher of clinical pediatric surgery and a central member of the teaching faculty.”

Summary of Recommendation:

Dr. Mychaliska is an outstanding academic pediatric surgeon who is prominent in the fields of fetal therapy, CDH and ECMO. He is a superb teacher and mentor and has made substantial interdisciplinary contributions in both the clinical and research arenas. I am very pleased to recommend George B. Mychaliska, M.D for promotion to associate professor of surgery, with tenure, and associate professor of obstetrics and gynecology, without tenure.

  
James O. Woolliscroft, M.D.  
Dean  
*Lyle C. Roll Professor of Medicine*

May 2010