

August 26, 2013

To: Members of the Pennsylvania House of Representatives
House Committee on Professional Licensure

From: Robert J. Sclabassi, M.D., Ph.D.

Professor of Neurosurgery, University of Pittsburgh (Retired)
Founding Director, IOM Program, 1976 – 2008
Director, IOM Program, WPAHS, 2009 - present
Medical Director, Clinical Neurophysiological Services, LLC (CNS)
CEO, COB, Computational Diagnostics, Inc. (CDI)

Vivian Ye Liang, M.D., Ph.D.

Attending Neurologist, AHN
Associate Medical Director, CNS
Chief Clinical Officer, CDI

Bruce Wilder, M.D., MPH, JD

Neurosurgeon
Member of the Board, CDI

Pittsburgh, PA 15213

Comments Regarding: Senate Bill No. 137 (Printer's No. 1240)
Amending the act of December 21, 194 (P.L. 1253, No. 238), entitled,
“An act regulating the practice of speech-language pathologists, audiologists
and teachers of the hearing impaired;”

We write regarding the above referenced bill for which an open hearing is scheduled on August 27th, 2013, in Rm 418 of the Pennsylvania Capital building. Our particular concerns are with the extension of the licensing act to the “PROVIDING FOR CERTIFICATION OF AUDIOLOGISTS USING INTRAOPERATIVE MONITORING.”

Our comments are directed towards Printer's NO. 1240 of the above referenced bill, which appears to be the most recent revision.

What is Intraoperative Monitoring?

As you are aware, intraoperative monitoring (IOM) provides an information loop around the patient, surgeon and anesthesiologist with the goal of reducing operative morbidity and providing guidance for surgical manipulations. These services are ordered by neurosurgeons, orthopedic surgeons, vascular surgeons, ENT surgeons and by others when the service is deemed, by them, to be beneficial to a particular patient. Everyone benefits from the appropriate providing of these services by qualified individuals; the patients have reduced morbidity, the surgeons have better outcomes, the hospitals have shorter patient stays, and the overall costs to the health system are decreased.

IOM has previously been determined by both the Medical Board and the Audiology Board in the Commonwealth of Pennsylvania to be the practice of medicine (Grimm, 2003; Alton, 2004). The key to these determinations was that “Intraoperative monitoring requires the collection of patient data, and interpretation of the data for the purposes of medical diagnosis and treatment.” The Pennsylvania courts have considered this activity to fall within the realm of the practice of medicine.

What Skill Sets are Required to Provide IOM Services?

There are two sets of tasks required to adequately perform the function of IOM. The first set is technical; i.e., the placing of measuring and stimulating electrodes on the patient, the operation of the equipment and completion of the case documentation. This set of tasks requires extensive training in the preparation of the patient, the correct placement of the sensors and stimulators, and operation of the equipment. It is our practice to hire individuals who have bachelor's degrees in neuroscience or biology and then, to train them in these technical details. The basic training takes approximately a year after their degree, at which time they become certified as a technologist, by a national certifying board. After this, approximately another two years of training are required to adequately perform the technical "set-up" in most cases. These individuals function under the direct supervision of an attending physician.

The second set of tasks are cognitive and involve planning the required services, continuously interpreting the data in real-time to recognize and, if necessary, informing the surgeon and anesthesiologist of changes and their meaning, and finally, documenting for the patient's medical record, the results of the monitoring service. To perform these cognitive tasks requires education in human anatomy, physiology, neuro-anatomy, neurophysiology, pathology, neuro-pathology, biochemistry, pharmacology, anesthesiology interpretation of imaging data and knowledge of the operations being performed. In addition, physicians providing these services receive extensive additional training to develop the skill set to apply these cognitive skills to real multi-dimensional data, in real-time, to data being obtained from patients undergoing the complex operations for which these services are ordered. Finally, these physicians are certified by one of three boards: ABCN, ABPN, or ABNM.

Audiologist's Training

As written, Senate Bill 137 empowers the Board to certify an audiologist in IOM (Section 8.1), yet the specific criteria are vague (Pg 19, lines 10 through 15). In order to compare the level of training of audiologist's against both the criteria in the Bill and the actual required cognitive fund-of-knowledge to provide these services,, we reviewed the seventy-six (76) graduate audiology programs in the United States accredited by the Accreditation Commission for Audiology Education (ACAE). Our source material was the website for each program as linked through the American Academy of Audiology website. When course syllabi were available, they were reviewed. The data is contained in the attached spread sheet (Attachment 3).

All of the Au.D. programs appear to perform adequately in their core task of training individuals to provide hearing assessments, which is the scope of the ordinary and accepted meaning of the term, "audiology." This is based on three factors: program accreditation by ACAE, curricula focused on hearing assessment and posted pass rates for licensing examinations of greater than 90% for first time examinees.

In twenty-five (25) of the programs, there is no formal course focused on neuro- anatomy or neurophysiology; however in most cases this material may be covered in what are identified as Anatomy/Physiology courses, which are almost exclusively focused on the auditory and vestibular systems.. In the remaining 51 programs, 3 have general courses in neuro-anatomy and 48 have courses focuses exclusively on the neuro-anatomy and neurophysiology of the auditory and vestibular systems. This represents a major deficiency in the fund-of-knowledge required to adequately provide IOM services since it is important to understand the structure and function of the entire neuro-axis not just the small subset represented by these two systems. The audiologists are focused on the function of one cranial nerve, the VIIIth. There are eleven more cranial nerves as well as a spinal cord and spinal nerves, a brainstem, cerebellum, midbrain, cerebrum, cortex, vascular system, peripheral nerves and muscles.

We also examined whether training was provided in administering standard electrophysiological tests. All

programs did have such courses, but only two (2) were not limited to the auditory and vestibular systems. The range of semester units across all courses was 1.5 to 12.

We also examined whether training in IOM was provided. Of the seventy-six programs, nine (9) provide some IOM experience. Most of these were 1 semester unit introductions structured to provide some familiarity with IOM. One program is singular (Bloomsburgh, PA) in that it provides up to twenty-seven (27) elective units in IOM. This program is well known to one of us (RJS), as a faculty member from that program spent a year in the IOM program at the University of Pittsburgh, being trained as a technologist, not as a professional provider of services.

Conclusions

The seventy-six Au.D. Programs reviewed appear to do a good job at doing what they were structured to do; train individuals to provide hearing services. There is no data from these programs which suggests that the individuals enrolled in them have the background or the course work to adequately provide IOM services independently.

The basic cognate courses are missing from the curriculum in every Au.D. Program, as well you would expect them to be, since the focus of the training from undergraduate education on through the doctoral level, is the auditory/vestibular system. Even the Bloomsburgh program which has nominal courses, which cover most aspects of the field, appears to focus on the technical providing of services not the information needed to independently assess the data from a medical viewpoint. The graduates of all seventy-six programs likely possess the background to be trained as technologists; however, even there, they are lacking in course work compared to the individuals who are routinely hired and trained for that position.

Furthermore, the Center for Medicare and Medicaid Services (CMS.) recognizes these deficiencies in audiologists training by explicitly prohibited audiologists from independently providing these services to Medicare patients (Federal Register, Vol 62, No 211, Friday Oct 31, 1997, pgs 59063 to 59070.)

Recommendation

The definition of “Audiologist” contained in Section 3 of the Bill (Lines 3 to 26), encompasses the ordinary and accepted meaning of the term “audiology” and is in agreement with what the audiology training programs are focused on. It does not include a specific reference to IOM. The definition of IOM in Section 3(13) under “Practice of Audiology” is clearly beyond the scope of the meaning of the term “audiology” as evidenced by this definition and, more importantly, lack of educational content, within the field, in IOM.

Thus, our recommendation is that the deficiencies in the backgrounds and training of audiologists to provide IOM be recognized by removing from this re-authorization bill, any reference to the providing of IOM services by audiologists. They, as a group, do not have the educational background which allows for the independent providing of IOM services. The granting this additional power to the Board is not only unnecessary, but could pose safety risks to patients in the Commonwealth.

Attachments:

- Legal Review, Grimm, 2003
- Legal Review, Alton, 2004
- Audiology Programs, Spreadsheet.

Audiology Programs – Undergraduate and Graduate – 76 in US Limited (below) means focused on auditory and vestibular systems

NP – not obtainable from website

Introductory Chemistry, Physics and Biology are always undergraduate courses

Limited – Only covers auditory and vestibular systems

UG – undergraduate

E - Elective

Courses = Didactic + Capstone Research

Practicum > 1820 hours

University	Department	Chem/Phys	Biology	Human Anat/Phys	Neuroscience	Imaging	Path	Pharm	Electrophys	IOM	Semester Hours Total/Courses/Prac
Auburn	Comm Disorders	no	UG – Intro – 3u	no	NeuroAnat – 3u	no	no	no	Limited – 3u	no	113/80/33
South Alabama	Sp Path & Audiology	no	UG – Gen – 4u	Limited – 4u	no	no	no	Limited – 3 u	Limited – 6u	no	121/100/21
Arizona State	Sp and Hearing Sci	no	no	no	Limited – 3u	no	Limited – 4u	no	Limited – 3u	no	103/67/36
A.T Still Univ+	Health Sciences	UG – 3u	UG – Intro -3u	Limited -4qu	Limited – 4 qu	Limited – 1qu	Limited – 2qu	Limited – 2qu	Limited – 4qu	2qu	62//NP/NP
Arizona	Sp, Lan & Hearing Sci	UG – Intro – 3u	UG – Intro -3u	Limited – 3u	Limited – 3uE	no	Limited – 3u	Limited – 3 u	Limited – 3u	no	109/89/20
Arkansas	Audiology & Sp Path	UG – Intro -3u	UG – Intro -3u	Limited – 6u	no	no	no	no	Limited – 3u	no	118/89/29
San Diego State*	Sp,Lan & Hearing Sci	UG – 6u	UG – Intro – 3u	no	no	no	no	no	Limited – 6u	Limited – 3uE	140/87/53
U Northern Col	Audiology & Sp-Lan	UG – Intro -4u	UG – Intro -4u	Limited -3u	Limited – 3 u	no	no	no	Limited – 4u	no	117/62/55
U Colorado/Bou	SP, Lan & Hearing	no	no	no	Limited – 3u	no	no	no	Limited – 3u	no	NP/97/NP
Connecticut	Sp, Lan & Hearing	no	UG – Intro -3u	Limited -3u	no	no	Limited – 3u	no	Limited – 7u	no	NP/72/NP
Gallaudet	Hearing, Sp & Lan	UG – Gen -3u	UG - Intro - 3u	Limited -3u	NeuroAnat – 3u	no	no	no	Limited – 3u	no	104/63/41
Nova Southwes	Audiology	no	no	Limited -3u	no	no	Limited – 3u	no	Limited – 8u	no	118/85/33
Florida	Comm Disorders	no	no	Limited -3u	NeuroAnat – 4u	no	no	Limited – 2u	Limited – 6u	no	125/82/43
South Florida	Comm Sciences	UG – Gen -3u	UG - Intro – 3u	Limited -3u	UG – NeuroAnat – 3u	no	no	no	Limited – 6u	no	120/71/49
Idaho State	Comm Sci & Disorders	UG – Gen -3u	UG – Gen - 3u	UG – 4u, Limited -2u	UG – 3u	no	Limited – 2u	no	Limited – 7u	no	102/63/39
Illinois State	Comm Sci & Disorders	no	UG - Intro – 3u	Limited -3u	UG – 3 u	no	no	no	Limited – 5u	no	106/58/48
Northern IL	Comm Disorders	no	no	Limited -3u	no	no	Limited – 3u	no	Limited – 7u	no	99/61/38
Northwestern**	Comm Sci & Disorders	UG – 3u	UG - Intro – 3u	Limited -3qu	no	no	no	no	Limited – 3qu	no	NP
Rush	Comm Disorders & Sci	UG – 3u	UG - 3u	Limited -4qu	Limited – 4qu	no	Limited – 3qu	3 qu	Limited – 8qu	no	166/112/54 qu
U of Ill/Urbana	Sp & Hearing Sci	no	no	Limited -4u	4uE	no	no	no	Limited – 8u	no	112/82/30
Ball State	Sp Path & Audiology	UG – 3u	UG - 3u	Limited – 3u	Limited – 3u	no	no	Limited – 2u	3u	no	100/73/27
Purdue	Sp, Lan & Hearing	no	no	UG-Limited-3u	Limited – 3u	no	no	no	Limited – 6u	no	107/75/32
Indiana	Sp & Hearing Sci	no	no	Limited -3u	Limited – 3u	no	Limited – 3u	no	Limited – 5u	no	90/68/22
Iowa	Comm Sci & Disorders	UG – 4.5u	UG - 4.5u	UG – Limited – 4.5U, G3u	UG – Limited – 3u	no	Limited – 2u	no	Limited – 3u	no	95/69/26
Kansas	Comm Disorders	no	no	Limited -3u	no	Limited – 2uE	Limited – 3u	Limited – 2uE	Limited – 3u	no	110/83/27
Wichita St	Comm Sci & Disorders	UG – 3u	UG - 3u	Limited -3u	no	no	no	no	Limited – 3u	no	106/70/36
Louisville	Comm Disorders	UG – 3u	UG - 3u	Limited -3u	Limited – 4u	no	Limited – 3u	no	Limited – 5u	1u	84/47/37
LSU – NO	Comm Disorders	no	no	no	Limited – 3u	no	no	Limited – 1u	Limited – 12u	no	112/86/26
Louisiana Tech	Speech	no	no	Limited -3u	UG – Limited – 3u	no	no	no	Limited – 9u	no	133/90/43
Towson	Audiology, Sp-Lan,	UG – 3u	UG - 3u	Limited -3u	Limited – 2u	no	no	Limited – 2u	Limited – 6u	no	99/64/35
Maryland	Hearing & Sp	UG – 3u	UG - 3u	UG -Limited – 3u	Limited – 3uE	no	no	no	Limited – 6u	no	93/61/32
Northeastern	Sp-Lan, Path, Aud	UG – 3u	UG - 3u	UG – Limited- 3u	NP	NP	NP	NP	NP	NP	NP/101/NP

Accredited AuD Programs

<u>University</u>	<u>Department</u>	<u>Chem/Phys</u>	<u>Biology</u>	<u>Human Anat/Phys</u>	<u>Neuroscience</u>	<u>Imaging</u>	<u>Path</u>	<u>Pharm</u>	<u>Electrophys</u>	<u>IOM</u>	<u>Semester Hours</u>
Mass/Amherst	Comm Disorders	UG – 3u	UG - 3u	UG – Limited – 3u	Limited – 3u	no	no	no	Limited – 3u	no	NP/69/NP
Central Mich	Comm Disorders	UG – 3u	UG - 3u	Limited -3u	Limited – 3u	no	no	no	Limited – 6u	no	115/66/49
Western Mich	Sp,Path, Aud	UG – 3u	UG - 3u	Limited – 3u	Limited – 3u	no	no	no	Limited – 6u	no	122/NP/Np
Wayne State	Comm Sci & Disorders	no	no	UG – Limited -3u	UG – Limited -3u	no	no	no	Limited – 6u	no	NP
Minnesota	Sp, Lan & Hearing	UG – 3u	UG - 3u	UG -3u	UG – 3u	no	no	no	Limited – 8u	no	95/59/36
Southern Miss	Sp & Hearing Sci	UG – 3u	UG - 3u	no	UG -Limited – 3u	no	Limited – 3u	Limited – 3u	Limited – 9u	no	123/78/45
Missouri St	Comm Sci & Disorders	UG – 4u	UG – 4u	no	Limited – 3u	no	no	no	Limited – 4u	no	109/76/33
Wash U	Aud & Comm Sci	no	no	Limited -4u	Limited – 3u	no	no	no	Limited – 5u	1u	NP
Nebraska-Lin	Sp Ed & Comm Dis	UG – 3u	no	UG – Limited -3u	no	no	no	Limited – 2u	Limited – 3u	no	102/63/39
Montclair St	Comm Sci & Disorders	no	no	Limited -3u	no	no	Limited - 3u	no	Limited – 6u	no	91/64/27
CUNY	Grad Center	UG – 3u	UG - 3u	Limited – 4u	no	no	Limited – 3u	no	Limited – 5u	no	103/80/23
U of Buffalo	Comm Disorders & Sci	UG – 3u	UG - 3u	UG – Limited – 3u	Limited – 3u	no	no	no	Limited – 3u	no	92/75/17
Long Island	AuD Consortium	UG – 3u	UG - 3u	UG – Limited -3u	Limited – 3u	no	Limited – 3u	Limited – 3u	Limited – 9u	1u	89/74/15
Syracuse	Comm Sci & Disorders	UG – 3u	UG - 3u	Limited – 3u	Limited – 3uE	no	no	Limited -2u	Limited – 6u	no	92/75/17
East Carolina	Comm Sci & Disorders	UG – 3u	UG – 3u	Limited -2u	Limited – 2u	no	no	no	Limited - 9u	no	95/NP/NP
North Carolina	Sp & Hearing Sci	no	no	Limited – 3u	Limited – 6uE	no	Limited – 3u	no	Limited – 5u	1u	103/78/25
Kent St/Akron	AuD Consortium	no	no	Limited – 7u	no	no	no	no	3u	no	119/82/37
Ohio St	Sp & Hearing Sci	UG – 3u	no	Limited – 4u	no	no	no	no	Limited – 3u	no	96/66/30
Ohio	Comm Sci & Disorders	UG – 3u	UG – 3u	no	Limited – 3u	no	no	no	Limited – 4u	no	106/85/21
Cincinnati	Comm Sci & Disorders	UG – 3u	UG - 3u	Limited -3u	Limited – 3u	no	no	no	Limited – 6u	no	NP
Oklahoma	Comm Sci & Disorders	UG – 4u	UG – 4u	Limited – 3u	no	no	Limited – 3u	no	Limited – 6u	no	113/79/34
Pacific	Audiology	UG – 3u	UG - 3u	no	Limited – 1u	Limited – 1.5u	Limited – 1.5u	Limited – 1u	Limited – 1.5u	no	121/54/67
Salus	Audiology	UG	G – M&C – 4u	G – OS – 4u	Limited – 3u	no	no	Limited – 1.5u	Limited – 2u	1u	129.5/76/53.5
Pittsburgh	Comm Sci & Disorders	3u	3u	UG – Limited – 3u	Limited – 3u	no	no	no	Limited – 3u	no	121/93/18
Bloomsburgh	Audiology & Sp Path	3u	3u	Limited – 3u	Limited – 3u	no	no	no	Limited – 6u	Yes – 27uE	129/114/15
Puerto Rico	Audiology	UG – 3u	UG - 3u	Limited – 3u	no	no	Limited – 3u	Limited – 2u	Limited – 4u	no	132/94/38
South Dakota	Comm Sci & Disorders	UG – 3u	UG - 3u	Limited – 3u	no	no	Limited – 3u	no	Limited – 3u	no	133/80/53
East Tenn St	Comm Disorders	UG – 4u	UG - 4u	Limited – 3u	Limited – 3u	no	Limited – 3u	no	Limited – 6u	no	123/75/48
Memphis	Aud & Sp Lang	UG – 3u	UG - 3u	Limited – 6u	Limited -3uE	no	no	no	Limited – 3u	no	99/69/30
Tenn/Knoxville	Aud & Sp Path	no	no	Limited – 3u	no	no	Limited – 3u	Limited – 1.5u	Limited – 4u	no	112/70/42
Vanderbilt	Hearing & Sp Sci	no	no	Limited – 3u	Limited – 3u	no	Limited – 3u	Limited – 1u	Limited – 3u	no	104/78/26
Texas Tech	Sp, Lan & Hearing	UG – 3u	UG - 3u	Limited – 4u	Limited – 4u	no	Limited – 4u	no	Limited – 4u	no	109/75/34
North Texas	Sp & Hearing Sci	UG – 3u	UG - 3u	no	Limited – 3u	no	no	no	Limited – 6u	no	114/70/44
Lamar	Sp & Hearing Sci	no	no	Limited – 3u	no	no	no	no	Limited – 9u	no	NP
Texas/Austin	Comm Sci & Disorders	no	no	Limited – 3u	no	no	no	no	Limited – 6u	1u	105/NP/NP
Texas/Dallas	Comm Disorders	no	no	Limited -3u	no	no	no	no	Limited – 3u	no	100/72/28
Utah	Comm Sci & Disorders	UG – 3u	UG - 3u	Limited – 3u	no	no	no	no	Limited – 3u	no	104/68/36
Utah St	Comm Disorders	no	no	UG – Limited -3u	no	no	Limited – 1u	no	Limited – 3u	no	94/51/43

Accredited AuD Programs

<u>University</u>	<u>Department</u>	<u>Chem/Phys</u>	<u>Biology</u>	<u>Human Anat/Phys</u>	<u>Neuroscience</u>	<u>Imaging</u>	<u>Path</u>	<u>Pharm</u>	<u>Electrophys</u>	<u>IOM</u>	<u>Semester Hours</u>
James Madison	Comm Sci & Disorders	no	no	Limited – 5u	Limited – 10u	no	Limited – 3u	no	Limited – 10u	no	100/62/38
Washington	Sp & Hearing Sci	UG – 3u	UG - 3u	no	no	no	no	no	Limited – 7qu	no	188/106/82
West Virginia	Comm Sci & Disorders	UG – 3u	UG-3u	Limited – 3u	Limited – 3u	no	Limited – 3u	no	Limited – 4u	no	116/73/43
Wisconsin	Joint AuD	no	no	no	no	no	Limited – 2u	no	Limited – 6u	no	87/69/18

+ transitional online

** 12 quarters over three years