



American Academy of Health Physics American Board of Health Physics

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STATE OF THE ACADEMY ADDRESS

Edgar D. Bailey

President of the American Academy of Health Physics

It is impossible to believe that my term as President of the American Academy of Health Physics (AAHP) will be ending so soon. In many ways it seems like it has just begun and as always there seem to be so many things that I have not gotten done. I want to express my thanks and appreciation to Past President Ray Johnson, each of the other members of the Executive Committee, the Chairs and Members of our committees, and especially to our Executive Secretary and Program Director, Nancy Johnson. Without their efforts nothing could have been accomplished this year.

We are fortunate to have Bob Miltenberger as our incoming President for 2015 and Kent Lambert as our President Elect. I know they and the other member of the Executive Committee for 2015 will do outstanding jobs. Bob has recruited Committee Chairs and new Committee Members who were approved at the Executive Committee meeting in July.

As I look back on 2014 there are several items I think need to be highlighted.

The first is the change that will be occurring for CHP renewals beginning at the end of 2015. As has been mentioned previously this year, the American Board of Health Physics (ABHP) and its certification process are accredited by the Council of Engineering and Scientific Specialty Boards (CESB) and have been for many years. Beginning with renewals in 2016, the CESB will require the ABHP to increase the minimum number of continuing education credits necessary for CHPs to recertify to an average of 20 per year. This will require increasing the number of credits required for recertification from the current 64 to a total of 80 per 4-year period after 2015.

Coincident with this increase, efforts are also under way to reevaluate how continuing education credits are awarded and to possibly requiring a professional ethics component in the renewal process. This effort will look for opportunities to make the transition at the end of 2015 as equitable and seamless as possible. Final changes to the structure of continuing education credits should be approved at the meeting of the Executive Committee in Norfolk in February 2015. Notification to CHPs of these changes will quickly follow so that all CHPs have ample opportunity to adjust to the new requirements.



At the present time I am planning on the AAHP Special Session at the HPS Annual Meeting in Indianapolis in July 2015 to be related to Professional Ethics as they are related to Health Physicists and in particular to CHPs. I welcome

your suggestions for topics, case studies, and speakers for presentations at that Special Session. The speakers need not be health physicists but knowledgeable persons from other professions that have professional ethics standards as a goal value within the profession.

This past year has also brought a heightened awareness that CHPs must remain connected to the regulatory framework under which we work to ensure that CHPs are not inadvertently or deliberately excluded from practicing health physics in various industries/organizations. This issue was raised by proposed standards of the Joint Commission, an accrediting body for healthcare organizations, that on the surface appeared to possibly exclude CHPs from practicing health physics as the Radiation Safety Officer (RSO) in health care facilities. Timely and professional interactions with the staff of the Joint Commission by the Title Protection/Professional Recognition Committee and the Executive Committee resulted in a delay in the implementation of the proposed standards and a reconsideration of the language of the requirements to hopefully specifically mentioning CHPs as meeting the mandatory educational, training, and experience requirements to be the RSO at a medical facility. As CHPs we must be alert to further developments in the evolution of Joint Commission requirements.

Other regulatory actions that should be followed closely are the currently proposed changes by the U. S. Nuclear Regulatory Commission (NRC) to the Training and Experience requirements for RSOs and Associate RSOs in 10 CFR Part 35. As a reminder to those of you located in Agreement States, these changes will require that Agreement State requirements in these areas for all practical purposes be identical to those of the NRC.

Likewise CHPs working in x-ray facilities need to be aware of and participant in activities of the Conference of Radiation Control Program Directors (CRCPD) committees/working groups dealing with the Suggested State Regulations for Control of Radiation (SSRCR) to ensure that CHPs have input into the training, experience, and certification requirements for RSOs that appear in the SSRCRs.

This past year the AAHP Executive Committee, its functional committees, and many individual members have worked to ensure that CHP input is included in regulations and regulatory guidance. I foresee that this involvement of CHPs will need to continue.

This past year we have had an event that I wish had not occurred. For the first time in several years, an ethics complaint was filed against a CHP. The complaint was filed anonymously and provided no specific allegations that were violations of the Standards of Professional Responsibility for Certified Health Physicists. Therefore the AAHP could take no action on the complaint other than to acknowledge its receipt. Efforts will be made to ensure that the process for filing complaints is known and available to CHPs and non-CHPs alike.

I would like to close with a happy and proud note for the readers. I think one of the things that the AAHP does that is little known is that each year the AAHP gives a small unrestricted donation to the National Council on Radiation Protection and Measurements (NCRP) for its use in the development and dissemination of information, data, and recommendations that all CHPs use in the daily conduct of the practice of health physics. Perhaps we can do even more in the future.

ABHP EXAM APPLICATION REMINDER

Stop procrastinating! Applications to take either part of the 2015 ABHP examination must be filed with the Secretariat, and postmarked no later than 15 January 2015. Application information may be found at <http://www.hps1.org/aahp/boardweb/forms.html>.

CALL FOR NOMINATIONS
2015 Joyce P. Davis Memorial Award

Timothy D. Taulbee
Chair, Professional Standards and Ethics Committee

The American Academy of Health Physics (AAHP) established the Joyce P. Davis Memorial Award in recognition of her dedication to the advancement of health physics and her humanitarian efforts to uphold the ethics of the profession. In her honor, the AAHP provides this award in recognition of those Certified Health Physicists that maintain high professional standards and ethics in their careers.

December is a great time to start thinking about those individuals in the Academy, who possess the great qualities of high professional standards and ethics, so they may be recognized at next year's meeting in Indianapolis. During this season and into the New Year, I encourage all members to nominate a deserving member of AAHP for this prestigious award. Any member of the Academy can make nominations. The recipient of this award should demonstrate excellence in professional achievement as well as being admired for ethical behavior and interpersonal skills.

The previous recipients of the award are:

- John P. Kelly, 2002
- James E. Tarpinian, 2004
- Carol D. Berger, 2006
- Howard W. Dickson, 2008
- Frazier Bronson, 2010
- Bryce Rich, 2014

The eligibility requirements are:

1. A member of the AAHP for at least 10 years,
2. A champion of professional standards and ethics, and
3. Exemplary professional service to the AAHP or the American Board of Health Physics.

Selection criteria are presented in AAHP Standard Operating Procedure 2.7.2, which can be found on the AAHP web site in the Members Only Section; AAHP Library. The criteria for selection includes excellence and distinction in the professional practice of health physics by having demonstrated open and honest communications, accepting and honoring agreements, including but not limited to service to the AAHP. Professional service may include scientific achievement, health physics education, and health physics administration. The selection criteria also include consistently high ethical behavior in all scientific and professional interactions as exemplified by treating colleagues with mutual respect, trust and dignity. This award focuses more on professional work in health physics, whereas the William McAdams Award focuses more on service to the AAHP and the Board.

Nominating a deserving member of the AAHP is not difficult and only requires the following:

1. A nomination letter
2. A brief biographical resume of the nominee's career
3. A description of their service to the profession and the AAHP and how it relates to the selection criteria, and
4. At least three reference letters in support of the nomination from other AAHP members.

Nominations must be submitted to the AAHP Nominating Committee (the 2015 Chair is Dale Thomas, e-mail dale.thomas@moellerinc.com) on or before March 1st, 2015. The Selection Committee for this distinguished award is comprised of the AAHP Professional Standards and Ethics Committee 2015 Chair, the Past President of the AAHP, and the Past Chairman of the ABHP.

The award will be presented at the AAHP Awards Luncheon during the 60th Health Physics Society in Indianapolis, Indiana in July 2015.

**AMERICAN ACADEMY OF HEALTH PHYSICS
EXECUTIVE COMMITTEE**

Minutes of July 14, 2014
Baltimore, Maryland

1.0 Call to Order

The meeting of the Executive Committee (EC) of the American Academy of Health Physics was called to order on July 13, 2014 in Baltimore, MD, by President Bailey at 8:30 am.

2.0 Welcome to Members and Guests

AAHP Position or Affiliation:

- Ed Bailey– President
- Ray Johnson – Past-president
- Robert Miltenberger – President-elect
- Alex Boerner – Treasurer/Finance Committee Chair
- Alan Jackson – Secretary
- Louise Buker – Director
- Kyle Kleinhans – Director and Parliamentarian/ *CHP News* - *CHP Corner* editor
- Nora Nicholson - ABHP Chair
- Tim Taulbee – Professional Standards & Ethics Committee Chair
- Vicki Morris – Title Protection/Professional Recognition Committee Chair
- Nancy Johnson – Secretariat-Program Director/AAHP Executive Secretary
- Kent Lambert – President-elect Designate
- Jim Willison – Assistant Webmaster/Continuing Education Committee Chair
- Jeff Brunette (Telephone) – Past Secretary/Director
- Andy Miller – HPS Board liaison
- Earl Fordham – CRCPD liaison

3.0 Discussion and Approval of Agenda

The agenda was approved as amended.

4.0 Approval of Minutes of February 7, 2014, Meeting

The minutes from the February 2014 Executive Committee meeting were accepted as revised.

5.0 Reports of 2014 Officers

5.1 President (Ed Bailey)

Ed described highlights of his report:

- ✓ Ed noted that he participated in the Executive Committee meeting in Baton Rouge.
- ✓ Ed described Nancy's preparations for succession planning for the AAHP Executive Secretary. Prior to the February meeting Nancy had already created a notebook to guide her successor. Nancy indicated her plan to provide substantial notice prior to retirement.
- ✓ Ed noted that the Joint Commission delayed implementation of the standards for diagnostic imaging services. Perhaps due to work by Vicki and others in the Academy. Ed indicated a strong commitment to ensure that CHP be considered qualified for shielding designs, radiation surveys, and other traditional medical health physics tasks. Ed observed that during the part F meeting of CRCPD the term "Qualified Medical Physicist (QMP)" was broadly used and the term CHP was poorly understood by The Joint Commission (TJC).
- ✓ Ed noted the professional development committee prepared a pamphlet for use at the AAHP booth, titled *How to Become a Certified Health Physicist*. Nancy passed out copied to the attendees.
- ✓ Ed noted that he was in a LinkedIn health physics group and he responded to a question about how to prepare for the certification exam. Nancy cautioned board members to avoid even giving the appearance of providing an official answer in such forums.

Ed also reviewed SOP 4.5 and no revisions were required.

Ed sent timely letters to candidates to notify about the election outcomes.

Ed noticed that CRCPD has "organizational representatives" which requires an annual payment of \$10,000. Ed wondered whether this would be worthwhile to AAHP interests commensurate with the cost.

Ed indicated that professional ethics is likely to be a major topic for his special session.

5.2 President-elect (Robert Miltenberger)

Bob described the changes in appointments. He noted that contrary to the general hope to bring in new people, there were still a few repeats; Jim Willison will remain as Continuing Education chair for 3 more years which Bob thought was a logical extension; and Morgan Cox will also repeat in Nominations.

Bob had no changes to make to the GTTK document.

Bob also indicated that Vicki provided an excellent summary of the Joint Commission matter in her report.

Bob asked Jim to put a note on the AAHP website regarding the need to be vigilant about Joint Commission initiatives.

5.3 Past President (Ray Johnson)

Ray indicated that he has excellent speakers for his special session which is entitled "New Frontiers in Radiation Risk Communication". Steven Becker will co-chair the session. Ray indicated that this is one of 9 concurrent sessions. Ray was happy to note that Fred Mettler identified 4 of the session speakers as giants in the field. Ray also noted his efforts to publicize the special session.

Ray reviewed the GTTK document and no changes were needed.

Letters to proctors were sent out thanking them for their service. Bob asked if the academy letterhead was available electronically. Ray noted that Nancy did much of the work in preparing these letters.

Ray also reviewed and completed the action items for him detailed in the February minutes.

5.4 Secretary (Alan Jackson)

No report was submitted as most of his work is shown in the form of the minutes. Alan did not identify a need to make any changes to the GTTK document.

5.5 Treasurer (Alex Boerner)

Alex stated that it is easy to be the Treasurer in the current market. He is happy to report that we have money. Compared with last May we are up \$79,326 (an 11% increase). Alex described the investment rating system which has “green”, “yellow”, and “red” rankings. While we had two red rankings he described this as a very minor concern.

Alex highlighted the May 28, 2014 Finance Committee meeting in Mclean. Alex noted that our Certified Financial Planner (CFP), Neal Abravanel, asked for a change to SOP 2.4.2 “to provide additional flexibility to adjust AAHP allocations in times of market distress or opportunity”.

Alex will discuss the proposed budget in new business.

Alex thanked the service of the other finance committee members.

Alex noted that there were two “red” rankings our accounts were doing reasonably well but simply lagged behind the market. Alex noted this is partly due to the cautious approach we take toward our investments.

Alex noted that our balances total \$871,665 which is the highest he has seen. Alex noted that our overall portfolio is up about \$160,000 over the past two years.

Alex discussed the proposed changes in investment strategy from Neal.

The proposed budget was discussed. Alex followed the usual budget practices of the past which project higher expenses than usually seen and also lower revenues than are actually realized. This results in a budget which shows a projected deficit that is unlikely to be realized. Ed noted that while the budget doesn’t appear to be balanced, in most years it ends up being close to neutral. Alan noted that the budget is pessimistic on the income side which protects the organization. Ed noted that additional effort could refine the numbers but this would require a great deal of work with little associated benefit. Vicki noted that her committee budgets for funds in case they are needed but are rarely used. Tim noted that in contrast, the professional standards committee does not budget for a challenge because they are so rare but would simply ask for emergency funds in the rare case they are needed. A general discussion ensued about how to refine the budget, whether that is desirable, ensued. Alex noted that anyone can request additional funds throughout the year. Ed noted that the procedure for managing the funds is robust and effective. Bob discussed whether we should budget for contingencies such as government shutdowns as these would affect government employees and prime government contractors. He noted that some hotel reservations immediately charge one night which can violate some employers’ corporate policies. Nancy indicated that she would mention this problem to Brett.

5.6 Parliamentarian (Kyle Kleinhans)

Kyle provided highlights of his report. Kyle indicated that he requested officers to describe their review of their respective SOPs in their reports. Alex and Vicki noted all of the reminders were very helpful, efficient and written in a quite friendly manner. Kyle indicated that he reviewed SOP 3.2.1, 3.2.2, and 3.4.3 and no revisions were needed. Kyle indicated that he continued to request an electronic copy of SOP 6.2.14 from Scott Medling, the Webmaster, but did not get a response. Concern was expressed regarding proper documentation for this very important resource. In the interest of contingency and succession planning, Nancy and Jim will work with Scott to generate a document for use in the future. Additional related discussions ensued without any resolutions being made.

Kyle proposed no new business.

6.0 Committee Correspondence and Reports

Ray congratulated the new officers.

6.1 Appeals Committee (Cheryl Olson)

Nancy noted that they revised a procedure which is contained in new business under section 10.1.1.

6.2 Continuing Education Committee (Jim Willison)

Jim indicated that the report was fairly typical. Jim reported dispositioning 160 requests for evaluation and has no backlog. The committee arranged 3 AAHP courses for this meeting. The attendance was almost 70 attendees which is the most he has ever had. Ed asked about the potential for continuing education credits for reading articles. Jim indicated that historically they didn't award credits for this category because this is presumed to be an everyday professional activity. Ed commented that we have to expand the number of credits we issue but this will be discussed later in the meeting. Jim noted that they still need to create 2 classes for the Virginia Beach meeting. Jim indicated that an upcoming class will be done by Rob Hayes to discuss a recent WIPP incident. Jim mentioned that this incident resulted from the use of biodegradable kitty litter with low pH waste. This caused a large exothermic reaction releasing airborne Am-241 inside WIPP causing a shutdown. Jim is considering holding a class about radiation science outreach program for NASA.

6.3 Exam Site Committee (Todd Baker)

Nancy summarized Todd's report which is found on page 44 of the meeting packet. She noted that 17 exam sites were created, including one in Honolulu to accommodate a serviceman. The outpouring of support for helping with Hawaiian exams was considerable. Nancy noted the difficulty to host an exam site in Columbus due to room charges but Battelle agreed to support this exam. There were some problems with the Hartford Connecticut location as the exam site was unable to handle the number of candidates. The committee noted the need to address the rotation cycle of committee members by having Anthony William serve a truncated term. The exam site requested \$500 in funds for similar contingency expenses in the future. Nancy noted that this request was not put into the budget but funds could be given in extenuating circumstances through a request to the Treasurer.

6.4 Finance Committee (Alex Boerner)

Alex indicated his report was incorporated into the Treasurer's report which was already discussed in section 5.5 of these minutes.

6.5 Nominating Committee (Dale Thomas)

Earl presented the report on behalf of Dale. He noted that there are differences in terms for AAHP appointments and the ABMP terms but they have gotten candidates who are willing to end their terms early to avoid this problem. Earl indicated that the nomination committee ranked the 4 candidates for the 2 slots on the ABHP effective January 2015. Bob indicated this impacts one of his nominations as there is a prohibition on serving as a Committee chair and on the ABHP board at same time.

6.6 Professional Development Committee (Maya Keller)

Nancy summarized Maya's report. She noted that the professional development committee created the brochure that was sent to for review to this committee. Nancy printed 500 copies for use at this meeting in case revisions will be made. Nancy asked members to take a turn in the booth, and reminded us to not forget the AAHP luncheon. The brochure indicates that a bachelor's of science degree is required when either a BS or BA degree is allowed. A discussion ensued regarding qualification requirements for BA versus BS candidates. Somewhat as a result of Mike Davidson's death there was some committee continuity issues that arose as most of the terms would have expired simultaneously. Bob resolved this by Maya stepping down early.

6.7 Professional Standards & Ethics Committee (Tim Taulbee)

Tim provided his report ahead of the other reports due to other meeting commitments. Tim provided highlights of his report. He reported the good news that, consistent with recent years, the committee has not been very active as there were no allegations raised to the Committee's attention regarding violations of the Standards of Professional Responsibility for Certified Health Physicists. Tim also reported a nomination for the Joyce P. Davis award for Bryce Rich. Tim indicated that his committee decided not to continue to actively participate in the discussion regarding the Joint Commission as he determined this was not one of the purposes of his committee..

6.8 Title Protection/Professional Recognition Committee (Vicki Morris)

These items are summarized in Vicki's report. She indicated that there has been no progress with the Tennessee lawmakers. Vicki asked for direction regarding Georgia as it was unclear to her what was wanted. No direction was given in regard to GA. Vicki also discussed The Joint Commissions (TJC) definitions of a medical physicist. Vicki did reach out to TJC and discussed this matter. TJC asked to have a single individual to work with and Vicki pointed out that we are a volunteer organization so the TJC contact said a specific title is a valid substitute. Vicki modified the GGTK document to add this task. Bob indicated an individual at Burk could be designated, such as Nancy. Ed indicated that a relatively permanent liaison from the society could be identified. Bob indicated a liaison would be properly designated by the president. Bob noted that how this is structured is based on TJC needs. Ed conveyed a lack of trust about an unaffiliated organization effectively communicating with AAHP. Bob indicated this could be a reason to pay for CRCPD membership. Ed indicated that we partnered on state accreditation with the American Industrial Hygiene Association. Nancy noted that Howard Dixon previously connected with Aaron Tripler to advance these efforts. AAHP committed to fund \$1000 toward these efforts should they come to fruition. Nancy suggested contacting Tom Buhl who is retired in Santa Fe because he started this committee. Kyle noted that the July 2005 HPS newsletter had an article about this same topic. Bob noted that many of the committee chairs involved their committees in nomination activities and many ranked the candidates to help the president-elect. Bob asked about the budget request for travel. Bob indicated that travel requests must be approved by the treasurer. Vicki noted that her question to the AAHP regarding travel was not warmly received. Alex will work with Vicki regarding this matter.

6.9 Liaisons and Representatives

6.9.1 ABMP (Amir Huda / Michael Erdman / Michael Sheetz)

No report was submitted.

6.9.2 CRCPD (Earl Fordham, presented by Ruth McBurney)

Earl noted that ACR and AAPM have a special status as they donate \$10,000 per year. CRCPD annually visits NRC with the Organization for Agreement States. The main topics of recent interest have been training because the NRC had cut this budget leaving states without good training options. Some states also have had travel prohibitions even when it is fully funded as in this case. September is a prime time for visiting NRC as government shutdowns have recently complicate this task later in the year. Lobbying generally amounts to educating staffers. Earl noted the Care Bill is tried every year. The Care Bill covers accreditation and licensure and would be of significant interest to AAHP. Alan notes this is typically viewed as new regulations and is unlikely to move forward in this climate. Earl also discussed AAPM efforts related to Qualified Medical Physicists (QMP). Earl noted that the term QMP is not contained in the Suggested State Regulations.

6.9.3 HPS (Andy Miller)

No report was submitted.

6.9.4 NRRPT (Ed Benfield)

Eddie Benfield presented his report; he is the current chairman of the NRRPT executive committee. Eddie noted that the exam passing rate has recently declined but not for people who reported on the post exam questionnaire that they studied for more than 200 hours. NRRPT recently acquired the NRRPT.org and NRRPT.com domain names. NRRPT now has 1600 sustaining members (5200 total have passed the exam). NRRPT requested changes to 40 CFR 190. There will be a special HPS session on the History of NRRPT. NRRPT is developing an international exam based on IAEA standards. They are getting this new exam ready for the 2016 IRPA meeting in South Africa. Eddie noted that one benefit is that American Council on Education has approved NRRPT certification as eligible for college credits (up to 40 credits total). NRRPT executive committee will now include coordinating with continuing, past, and current president for better board continuity. NRRPT has a requirement that poor exam performers have to sit out for one year to encourage well prepared candidates. Eddie noted that they have a massive exam bank exam of questions. The exam is quite similar to Part I. Their current practice is to simultaneously use 5 separate exams based on an initiative by John Mullner. The Canadian exam is different from the US exam. Exams are given twice a year. They do not use an exam center but give it at about 30 separate locations. Ed asked whether we have an international exam but Nora indicated that the exam is already internationally accepted. Kent noted that he is co-chair of a IRPA committee to develop guidance to societies on international certification efforts. Kent described this as a very difficult process.

7.0 Reports from the Editor & Webmaster

7.1 CHP News - CHP Corner Editor (Kyle Kleinhans)

Kyle noted the summary the newsletter articles. He also indicated that he determined that there was no need to change SOP 3.3.1 or the charter. Bob asked how critical the 15th of the month is as a deadline for nominations. Kyle indicated another week is acceptable.

7.2 Webmaster (Scott Medling)

No report was submitted.

8.0 Report of the American Board of Health Physics (Nora Nicholson)

Nora reported the new ABHP officers as follows: The Chair will be Patrick LaFrate, Vice Chair is Andy Miller, Secretary is Jay Tarzia, and the ABHP Parliamentarian remains as Andy Karam. ABHP met yesterday and accomplished quite a bit. The exams are ready for tomorrow with proctors. ABHP implemented a new procedure for review of Part II and lessons were learned. Andy Miller will be a liaison to the Part II chair to ensure that timetables are being properly met during a transition to a new schedule. This task is an action item for Andy. The purpose is to help adhere to timelines of the reviews. This will change the Part II panel to the annual meeting. CESB granted a shortened reaccreditation through December 31, 2015 regarding continuing education requirement to 80 per 4 years or 20 as an average. Thus, if we remain with CESB this would result in changes to the continuing education requirements as our requirement is 64.

9.0 Report of the Secretariat (Nancy Johnson)

Nancy noted the large number of applicants, which is up now to 334. Nancy noted that the CHP statistics, such as the number of deceased CHPs at 254, is a cumulative number not an annual one. The exam statistics indicate that there were 334 initial applicants which has winnowed down to 272 who were still in the process. Nancy noted that only about 8 applicants were turned down but the large majority comes from individuals who defer taking the exam. Nancy noted there are 179 Part I examinees and 122 Part 2 examinees for a total of 301 exam participants. Nancy indicated the report also lists the 2014 exam sites.

Executive session commenced, which was recorded by the Parliamentarian (Kyle Kleinhans) instead.

10.0 Old Business

10.1 Review of February 2014 Action Items

10.1.1 Revise SOP 2.1.1 (See Agenda Item 6.1) (Cheryl Olson)

Bob questioned the process description in the SOP revision. After discussion it was resolved that the wording in sections 3.5 and 3.6 do not appear to follow the committee's charter. Thus, AAHP is asking for a revision from Cheryl at next EC meeting.

10.1.2 Contact Exam Site Chair re: Terms (Ed Bailey/Bob Miltenberger)

Bob indicated that this was already fixed.

10.1.3 Provide Pamphlet to EC (Tom Johnson/Maya Keller)

After many comments, the first version of the pamphlet was produced. Nancy prudently produced a test run of only 500 copies so that any revisions would not result in significant waste.

10.1.4 Report on CESB Accreditation Process (Jim Willison)

This item is of considerable interest and importance to all diplomates. The certification body used by ABHP is CESB. CESB has a standard of continuing education training hours of 20 per year or 80 in 4 years. Jim noted that CESB denied the waiver request to allow the 64 CEC standard we use to continue. Thus, if we want to continue with CESB after 2015 we would need to increase our CEC requirements to 80 hours over the 4 year interval. Jim noted that none of the engineering societies require more than 15 per year. Ed pointed out that none of these bodies are certified. Jim agreed but pointed out these organizations are much larger than any covered by CESB. Jim indicated that the first option is to increase number of credit hours to 80. Jim indicated that this logistically would require a revision to the ABHP policy manual which requires a vote by the board and subsequent ratification by executive committee. Jim noted that we could alter the way in which credits are calculated. This could be accomplished with a change to Academy procedure 2.2.2. Jim noted that current procedure has a single activity cap on scientific meetings. This change would automatically increase from 32 to 40 if our requirement increased from 64 to 80 CEC hours. Jim was trying to identify relatively painless ways for diplomates to meet this standard. Jim asked whether we really want to remain with CESB and potentially replace CESB with another body. Ed asked whether we have any assurance that other certification bodies have similar CEC requirements or other issues. Nora said that we haven't benchmarked other certification bodies. Ed also noted the work required to change certification bodies may be substantial. Jim indicated that this work is already required with CESB so it may not require that much additional work. Ed indicated a preference to be certified. Jim indicated that the board also wanted to remain certified by some group. Kent asked who certifies the certification bodies and, how far up the ladder do you go? American Board of Medical Specialties certifies medical societies such as the American Board of Radiology. Alan also noted that ABMS has increased requirements for organizations under their purview. Kent indicated that a difference is that CESB is instituting changes he categorizes as unnecessary. Vicki wondered how many people would actually be affected by the changes, their number of training hours are that close to the 64 CEC hours in their submissions. Ray asked if the change would be a hardship for some diplomates. Jim noted that he prepared a report last year related to this topic. He indicated that there are some who would appear to be impacted by this change. Nora indicated that one option would be to reapportion how credits are awarded. Jim noted that our use of credits versus hours is one concern CESB raised. Ed asked what would be the effect of simply switching to hours. Jim indicated that we grant more credits for extremely relevant courses with material that could be found on the exam For example, we grant 2 credits per hour for AAHP and PEP courses. Alan indicated a perverse effect could be a loss of revenue from the courses and more importantly, that these classes are quite valuable. Nancy read an e-mail from Cheryl Olson. Cheryl indicated that we should keep certification and that we should put this to the entire society membership for a vote. Cheryl also called for an ad hoc group to develop on-line CEC courses. Ed indicated this was the time for a motion on this matter. An initial motion was withdrawn. Jim noted this would be act as a recommendation to the board.

Discussion then turned to whether we should retain CESB. Nancy noted that ISO/ANSI certification was expensive

(\$10,000) and the requirements were quite onerous. Nancy said ABIH looked at ISO/ANSI and did not recommend this path.

Kent noted that ABIH left CESB. Alan discussed the notion as to whether we should continue with a dual track, that is to simultaneously also seek another certification. Jeff indicated that on-line course credits, by enabling those who are unable to attend meetings, is successful for other organizations. Alex pointed out that that the development and maintenance cost for on-line courses is quite substantial. Nancy noted there are credits for watching lectures that were produced within the 4 year renewal cycle. Ed said an additional motion could be used to determine an action plan. Nora noted that CESB finance are getting weaker as CESB has about 1.5 years of operating funds as dues haven't been increased in 24 years and large member organizations have recently departed. None of this discussion altered the initial motion. A motion to maintain accreditation with an external board was made by Miltenberger and seconded by Kleinhans. The motion carried.

Note: The motion carried as indicated above with a careful count to ensure quorum requirements were met.

10.1.5 Reconstitute CESB Reaccreditation Committee (Ed Bailey)

Discussion ensued regarding what steps need to be taken regarding the motions in 10.1.4. Jim noted that the board is responsible to work with CESB. Kent noted that falling out of certification would not be a catastrophic event. Ed discussed how this could be used against us with Joint Commission for example. Alan noted that we are listed on the NRC website. Kent pointed out we are a 50 year organization so it would be silly to characterize us as a rogue organization. Discussion ensued as to whether we upped the training hours to 80 from the above action. Jim indicated this is actually a board decision that we can ratify (or not). Jim indicated that Ed could elect to reconstitute the CESB Reaccreditation Committee and assign task-specific recommended executable actions, produce specific wording changes for the board, propose procedure changes for the Executive Committee, and to establish a communication strategy to diplomates. Ray asked when would the new training hour requirements take effect? Jim indicated that the new requirements would phase in by adding 4 additional per year. Thus, it would change by year from 64 to 68 the next year, to 72 and then, 76 to finally reach 80. Jim said the committee should identify specific actions to take, recommend changes in documents and academy procedures. Bob indicated we have a year and a half to comply. Nora noted this is actually a very ambitious schedule for a volunteer organization. Nancy read from a variety of sources, board and academy, that mention the training hours. Bob made a motion to increase training hours to 80 over 4 years and to have a transition plan for full compliance with that requirement. Nora seconded the motion.

Ray mentioned that staying with CESB automatically requires 80 hours anyway. Bob wanted to make it crystal clear that this was a CESB requirement that we intend to meet this standard. Discussion ensued from Ed about how to implement this plan with board and academy participation. Louise asked if there is a conflict of interest problem. Kyle noted that since this is an *ad hoc* committee, that there are no restrictions regarding membership from the boards. Ed will seek advice. Ed discussed the size of the committee and decided 5 was an appropriate number with 3 from academy and 2 from the board. Ed discussed formation of a second *ad hoc* committee to investigate other options than CESB. Ed will also formulate the second committee with that purpose in a similar manner as the first. Ed indicated that he is seeking input on membership.

10.1.6 Contact HPS Chapters re: Legislative Support (Vicki Morris)

Vicki did send out notices to chapters and did not receive any information back. Vicki plans to send these out twice a year with help from Brett, the executive director, at HPS.

10.1.7 Obtain Word Version of 6.2.14 & Upload to Web (Kyle Kleinhans/Scott Medling)

This document does not exist and thereby the action item was closed.

10.1.8 Develop Secure Storage for Executive Session Minutes (Kyle Kleinhans/Jeff Brunette)

Kyle indicated a lack of progress. Jeff will work with Jim to upload this information onto the secure servers in a similar manner as the exam questions.

10.1.9 Send Letters of appreciation to Proctors (Ray Johnson)

Ray completed this task. Ed will do this task next. Ray reported some problems with the contact information.

10.1.10 Connect with The Joint Commission, Ruth McBurney and Others (Ed Bailey)

This task has been completed.

10.1.11 Send Draft Business Meeting Minutes to Secretariat & Brunette (Alan Jackson)

This task has been completed.

10.2 Succession Planning for the Executive Secretary/Program Director (Brett Burk/Nancy Johnson)

Nancy expressed questions about why this was undertaken. Alan indicated it is because of how invaluable Nancy is to AAHP. Nancy reported she has produced a desk manual and Heide is capable of accessing the database. Nancy reported that she decides each summer whether to work the next year. Louise made a motion to close the item and all agreed.

11.0 New Business**11.1 Appointment of New Committee Members (see item 5.2)** (Bob Miltenberger)

Please note that item 11.3 was voted on prior to this item. Bob indicated that the report which is contained in the meeting packet cannot be approved as written. Bob did not directly specify this but with Vicki Morris now approved to be on the ABHP board she can't serve as a standing committee chair. A motion to accept the nominations in report 5.2, not including the nomination for chair for Title Protection/Professional Recognition, was made by Bob and seconded by Ray. The motion carried.

This naturally led to a need for an action item to nominate a new Title Protection/Professional Recognition member and also appoint a chair for the replace the Title Protection/Professional Recognition chair now vacated by Vicki.

11.2 Budget Approval (see item 5.5) (Alex Boerner)

Alex noted that the entire budget was discussed line by line in McLean, Virginia in May. On the column "FY 14-15" on the far right there is a blank line under "Contract Performance Bonus – BAI". Alex indicated that this missing value should now be a \$4,500 addition to the disbursements category. If approved, the new proposed budget changes from \$219,684 to \$224,184 with a projected deficit now of (\$39,884). Motion to approve the budget revised as described was made by Alex and seconded by Ray. The motion carried.

11.3 Replacement ABHP Members (see agenda item 6.5) (Tim Taulbee)

The Non-voting attendees are left the room during the vote. A motion to approve Vicki Morris and Bill Rhodes was made by Ray and seconded by Kyle. The motion was approved.

11.4 Proposed Modifications to Strategic Plan (Bob Miltenberger)

Bob noted that the Strategic Plan was not consistent with the prospectus and mission documents. Nancy noted there is a typo in the mission statement that says "rotection" instead of "protection". Vicki noted that provide should not be capitalized. Vicki also pointed out that the "as amended date" should change to today's date (7/13/14). A motion to approve the changes in the Strategic plan as amended by the discussion was made by Bob and seconded by Ray. The

motion was approved.

11.5 Approval of Revised Finance SOPs (Alex Boerner)

Alex prepared revisions to SOP numbers 2.4.1, 2.4.2, and 2.4.3. Alex characterized the revisions to 2.4.1 and 2.4.3 as minor changes. Alex indicated that 2.4.2 is a major change in the investment strategy change which was suggested by the professional investment manager Mr. Neal Abravanel. Questions arose regarding how travel requests are approved. Alex indicated that he approves these travel requests if budgeted. A motion to approve 2.4.1 and 2.4.3 as amended was moved by Alex and seconded by Ray. The motion was approved.

Alex described the difference in the investment strategy. Neal asked for greater flexibility in times of “economic distress and opportunity”. Alex indicated his comfort with Neal, based on years of experience, negates his general wariness about financial types wanting to “play” with our money. Ed was pleased with the progress made and is interested in taking the advice for the investment change. Nancy noted the investment policy has changed many times over the years. Alan indicated most of the changes are pretty modest with the exception of the category of “alternate investments”. Alan noted this exposes us to a different set of investment risk such as securities, credit default swaps, and the like with their new advantages and disadvantages. Alan was concerned that allowing up to 50% of our assets to be held in this new category seems extreme and advocates a lower percentage such as 25%. Alan also felt that our current strategy is doing well and sees little reason to deviate from that significantly. Alan said we could enter this asset class more cautiously and first develop experience Alan said that later we could increase our position in these asset classes. Ray noted this is Neal’s expertise and we should give him the flexibility to do his job. Ray asked for the recommendation from the finance committee. Alex, Jeff and Nora all support the change. Motion to approve the changes to SOP 2.4.2 was approved.

11.6 Request to Change ABMP Appointee Terms (SOP 1.2.1) (Nancy Johnson)

Nancy noted we have 3 appointees: Mike Erdman; Mike Sheetz; and Amir Huda. Our SOP allows for self-electing for a second term and Mike Sheetz would like to do so keeping him on until 2016. Mike Erdman would also like to self-appoint for a third term, which is allowed by ABMP but this is in conflict with our SOP 1.2.1 which only allows 1 self-appointed term. Ed noted that we could appoint Erdman which gets around the self-appointing issue. Ed asked if anyone else was eager to get on this committee and Earl said they didn’t identify any other willing candidates. Earl indicated the nominating committee is in favor of nominating Mike Erdman for a third term. Ed indicated we should simply allow Mike Erdman’s third term to move forward. No vote was taken but did not appear to be required.

11.7 CRCPD Radiation Protection Advisory Council (Ed Bailey)

Ed put this information in because of recent events such as the Joint Commission’s recent initiatives. Ed wants to make sure our presence is properly known. Ed was concerned that AAHP could be doing a disservice to our members by not being a member of CRCPD but the \$10,000 annual contribution is a large expense. Earl Fordham noted that much of the appointees come from the states. Earl noted resource persons on committees could be contributors and HPS or AAHP could facilitate those connections. Earl indicated that Ruth McBurney was renewed as the executive director for the next 5 years which essentially provides a voice for the Academy

11.8 Title Protection and Profession Recognition SOP 2.8.1 (Nancy Johnson)

Nancy indicated this was an addition from earlier in the meeting. Ed asked about reimbursements to AIHA. Nancy reported that we have an agreement with AIHA to reimburse \$1000 in the event of progress with a legislative action. Ray noted this reimbursement plan is not a change in the procedure. Motion to approve the amendment with the typographic error corrected, as identified by Alex in section 3.1.1 was approved.

11.9 Digitizing CHP Folders (Nancy Johnson)

Nancy reported that she is asking for advice as to whether she could digitize the CHP files. No objection to this initiative was raised. Ed asked for a cost estimate for the various options. Nora noted that Andy Miller and Pat

LaFrate have experience in this work.

11.10 2015 Special Session Update (Ed Bailey)

This was originally number 11.16 on the packet and renumbered for the purpose of the minutes. Ed is leaning toward holding a special session on ethics and to include some material that IRPA will be releasing regarding environmental justice. Ed noted that John Poston has an ethics course at Texas A&M. Ed noted we are extremely lucky that CHPs as a group are quite truthful and ethical. Ed wanted to provide some support to members regarding ethics. Ed also talked about how ethics applies in the use of social media. Jim noted that New Mexico professional engineers are required to have a portion of their continuing education in ethics. Ed is seeking advice on speakers.

11.11 Academy Open Meeting Agenda (Nancy Johnson)

This was originally number 11.17 on the packet and renumbered for the purpose of the minutes. The meeting is on Tuesday, July 15, 2014 at 5 PM.

11.12 February 2015 Meeting Date (Feb 1-4, 2015 Norfolk, VA) (Nancy Johnson)

This was originally number 11.18 on the packet and renumbered for the purpose of the minutes. Ed noted that the midyear meeting is on Sunday February 1, 2015 at 8:30 AM.

12.0 Adjournment

The meeting was adjourned at 4:20 pm.

2014 AAHP Special Session New Frontiers in Radiation Risk Communication *Ray Johnson, Past President, AAHP*

The AAHP has an established tradition of hosting a Special Session on Tuesday at the annual meeting of the Health Physics Society. The title for this year's Special Session in Baltimore on July 15, 2014 – ***“New Frontiers in Radiation Risk Communication”*** was proposed by Dr. Steven Becker, who co-chaired the program with me. Eight specialists in risk communication were invited as speakers over a year ago. We learned subsequently that five of these speakers: Dr. Robert Brent, Dr. Richard Toohey, Dr. Paul Locke, Dr. Steven Becker, and Dr. Evelyn Bromet were identified by Dr. Fred Mettler, who gave the L.S. Taylor Lecture at the annual NCRP meeting on March 10, as giants on whose shoulders our profession has evolved. Their presentations as described below certainly confirmed Dr. Mettler's assessment. Slides from these presentations are available on line at http://www.hps1.org/aahp/public/wp_sessions.htm.



The program began with a lively presentation by **Mr. Larry Petcovic** on ***“Social Neuroscience Insights for Building Relationships During Radiation Risk Communication.”*** Larry is the Director of 3rd Order Communications, a consulting firm in Columbia, MD, where he provides leadership training and communication coaching to executives of Fortune 500 companies. Larry has advanced degrees from Rutgers and Johns Hopkins, and graduate studies at George Washington. Larry and I have presented communication workshops together for 30 years.

He got us off to an energizing start for the day by demonstrating how M&Ms could improve our communication effectiveness. He noted that while most technical people listen carefully to questions to determine their best technical response, they often may have very little awareness of the other person's situation or feelings about the issue. He said, “The most difficult skill for us as leaders is to NOT answer a question for

which we know the answer.” He emphasized, “If we knew more about the other person’s circumstances, we might give an entirely different answer.” To learn more about the other person, Larry proposed that we use three M&Ms as reminders to ask at least three open-ended questions before giving our answer. This is to encourage that we switch from the expert role to a learner role. The three M&M strategy for responding to inquiries will aid in establishing rapport, showing the other person that we care, and determining better what their real question or concern may be. Larry presented this profound insight with humor as he passed out M&Ms for us to practice his strategy. His approach of asking three open-ended questions before giving an answer sounds so simple and yet it could be an incredibly powerful approach to increasing our effectiveness for radiation risk communication.



Dr. Robert Brent gave the second inspiring presentation on “*Deficiencies in Counseling Education and Methodology.*” Dr. Brent is Distinguished Professor, Louis and Bess Stein Professor of Pediatrics, Radiology, and Pathology at the Jefferson Medical College of Thomas Jefferson University, Emeritus Chairman of Pediatrics, and Director of the Clinical and Environmental Teratology Laboratories at the duPont Hospital in, Wilmington DE. Dr. Brent received his AB, MD with honor, and PhD in radiation biology, physics and embryology from University of Rochester. He trained in Pediatrics at the Massachusetts General Hospital and was Chief of Radiation Biology at the Walter Reed Army Institute of Research. He was Chairman of Pediatrics for 30 years at Thomas Jefferson University and the Alfred I. duPont Hospital for Children. He has over 475 publications and has received numerous national and international awards.

Dr. Brent described how doctors in the first half of the 1900s believed that basic science education and research “could provide all the answers,” so that physicians could diagnose, meliorate, treat, or cure most medical problems they encountered. In 1960 Dr. Engle advised that you cannot ignore the impact of the environment on the patient’s disease or the behavioral defenses available to them. Drawing upon this advice for 60 years of counseling experience, Dr. Brent emphasized the importance of counseling with compassion and empathy while providing information on options as an educator rather than telling people what they should do. He noted that empathy requires some knowledge of and sensitivity to the social and cultural position of the persons being counseled. Dr. Brent also presented the scientific basis for concluding there is little or no evidence for genetic effects of radiation for children of exposed parents. He explained the carcinogenic risks of radiation in-utero and noted that lifetime risks following in-utero exposure may be considerably lower than for early childhood exposure. Dr. Brent concluded by saying, “I have had the good fortune to experience a most memorable and exciting lifetime scientific journey with rewards that would be priceless to any physician; namely, to have concrete evidence that thousands of lives have been saved or changed.”



Dr. Richard Toohey gave us insights in “*The Memetics of Radiation Protection.*” He received his Ph.D. in physics from the University of Cincinnati in 1973 and spent the first part of his career at Argonne National Laboratory in both research and operational health physics. He recently retired from Oak Ridge Associated Universities, where he directed the Radiation Internal Dose Information Center, was Sr. Health Physicist for the Radiation Emergency Assistance Center/Training Site, Director of Dose Reconstruction Programs, and Associate Director of the Independent Environmental Assessment and Verification Program. He is currently a senior health physics consultant with M. H. Chew & Associates of Livermore, CA. He was the 2008-09 President of the Health Physics Society and is a member and Director of the National Council on Radiation Protection and Measurements, Treasurer of the International Radiation Protection Association, and Chair of the Science Advisory Committee for the U.S. Transuranium and Uranium Registries.

Dr. Toohey explained that the term “meme” was applied by the evolutionary biologist Richard Dawkins to a unit of cultural evolution, i.e., an action that spread from an originator to others, such as tool-making. The concept was later expanded to include ideas that spread from one brain to another (their environment) and compete for success (retention and further transmission) under Darwinian rules, i.e., the memes best suited to their environment will survive and propagate, eventually driving out memes less well-suited. The resulting science, developed by Brodie,

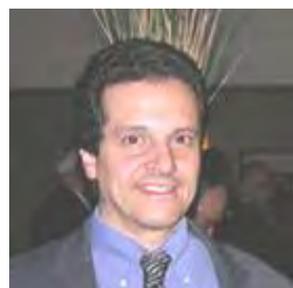
Lynch, Blackmore, and others is known as memetics, and deals with the propagation of ideas among humans. Given that the human brain is hard-wired for survival by incorporating automatic analyses of sensory inputs for threats and responds accordingly without higher-level conscious processing, memes that convey a threat will naturally survive and prosper in such an environment. He explained that while LNT has many scientific problems, it has come to be the accepted model (meme) for most people. He said, “You cannot unring the bell.” This alone explains why the phrase “deadly radiation” has become commonplace in media coverage of radiological issues. Some memes relevant to radiation risk communication include contagion, dread, autonomy, vulnerability, confirmation bias, justice, and others, all of which thrive in human brains much better than do most of the memes of science.



Dr. Paul Locke gave a presentation on *“Risk Communication and the Safety Culture.”* Dr. Locke holds an M.P.H from Yale University School of Medicine, a Dr.PH. from the Johns Hopkins University Bloomberg School of Public Health, and a J.D. from Vanderbilt University School of Law. He is an environmental health scientist and attorney, and an Associate Professor at the Johns Hopkins University Bloomberg School of Public Health. He holds his primary appointment in the Department of Environmental Health Sciences and a joint appointment in the Department of Health Policy and Management. Dr. Locke directs the Doctor of Public Health Program in Environmental Health Sciences. Dr. Locke’s research and practice focus on how decision makers use and communicate scientific data and research in regulation and policy-making and how environmental health sciences influence the policy-making process. Dr. Locke was a member of the National Academy of Sciences Nuclear and Radiation Studies Board from 2003 to 2009, and chaired the National Academy’s Committee on Uranium Mining in Virginia. He also served on the Board of the NCRP and is now the Vice-President for NCRP’s PAC 7 on Radiation Education, Risk Communication and Policy.

Dr. Locke explained how the concept of nuclear safety culture came into widespread use in the mid-1980s, after the Chernobyl accident. It has been adopted and implemented worldwide. In the United States, the Nuclear Regulatory Commission (USNRC) published a formal safety culture statement in 2011. This policy was adopted after extensive consultation with stakeholders, and is intended to apply to all USNRC licensees. Adoption of this policy is voluntary; it is not a regulation, and is not enforceable. Nevertheless, it has been embraced by the nuclear power industry and the Institute of Nuclear Power Operations. According to the USNRC, nuclear safety culture is defined as “... the core values and behaviors resulting from a collective commitment by leaders and individuals to emphasize safety over competing goals to ensure protection of people and the environment.” USNRC defines 9 traits of a positive safety culture, which include leadership safety values and actions, personal accountability, respectful work environment and effective safety communication.

Dr. Locke explained the interdependent relationship between implementation of a positive nuclear safety culture and risk communication. USNRC’s safety culture statement and explanation – as well as almost every other definition of safety culture – makes transparency and openness key attributes. One successful way to foster openness and transparency is through dialogue and the risk communication process. In addition, risk communication can be utilized to explain the idea of nuclear safety culture and the reasons why the nuclear safety culture’s core values must be adopted and nurtured by all entities that use nuclear materials. Beyond that, however, risk communication is the most direct way to engage members of the public and the regulated community in discussions about how to build a strong and proactive nuclear safety culture.



Dr. Steven Becker gave a presentation on *“Public Communication and Radiation Emergency Risk Communication: Continuing Lessons from Fukushima Dai-ichi.”* Dr. Becker is Professor of Community & Environmental Health in the College of Health Sciences at Old Dominion University in Virginia. He has had extensive field experience at the sites of major radiation incidents around the world, including the 1999 nuclear criticality accident in Tokaimura, Japan. He has done Chernobyl disaster follow-up work in Ukraine and Belarus, and was a member of a three-person radiological emergency assistance team invited to Japan in 2011 in response to the earthquake-tsunami disaster and the Fukushima Dai-ichi accident.

Dr. Becker discussed some of the Fukushima Dai-ichi nuclear accident's main lessons regarding public information and radiation emergency risk communication. His presentation drew on recent scholarly research and on his first-hand experience as a member of the team invited to Japan. He discussed several broad types of communication lessons learned: 1) those involving immediately affected areas; 2) those involving locations farther away (outside of the immediately affected areas); and 3) those involving new populations and audiences or groups whose communication needs tend to be overlooked. One communication lesson learned was that the volume of questions people have about population monitoring, screening, and decontamination can be enormous. Effectively meeting people's information needs requires considerable advance planning, training, and the up-front development of information resources. Dr. Becker noted that communication and information needs in areas away from the directly impacted areas can also be immense, particularly in places that receive evacuees. If people's questions, fears, and concerns are not adequately addressed in such receiving communities, the possibility that evacuees may find themselves facing such problems as exclusion, stigma, and discrimination is increased.

With respect to communication needs related to new populations or audiences, he cited the example of children. In the aftermath of the Fukushima Dai-ichi accident, dosimeters were distributed to thousands of preschoolers, children in elementary schools, and students in junior high schools. Not surprisingly, many had questions and some had concerns. Yet today, no nation has much available in the way of age-appropriate and developmentally-appropriate radiation emergency informational materials. This gap needs to be filled. Another communication gap involves healthcare staff and their families (particularly with young children), who can also have many questions, concerns, worries, and information needs. When such needs are not fully understood and addressed, new challenges can result. In the case of Fukushima Dai-ichi, significant numbers of healthcare practitioners have left the Prefecture, and there continues to be difficulty in attracting nurses, trainee doctors, etc. Dr. Becker concluded by saying that although much progress has been made in recent years in terms of radiation emergency risk communication, considerable work remains.



Dr. Evelyn Bromet spoke to us about the *“Emotional Consequences of Nuclear Power Disasters.”* She is Distinguished Professor of Psychiatry and Preventive Medicine at Stony Brook University. She has her BA from Smith College, PhD in epidemiology from Yale, and post-doctoral training at Stanford. She has done research on the psychological aftermath of TMI and Chernobyl. Her current research is on the illness course of people hospitalized with psychosis and mental-physical co-morbidity in responders to the World Trade Center disaster. She is a consultant to Project Valor (a Registry study of Post Traumatic Stress Disorder), the US army suicide research program headed by Ron Kessler, IAEA, and Fukushima Medical University.

Dr. Bromet noted that after TMI, Chernobyl, and now Fukushima, the official consensus is that the greatest short and long-term public health effect is mental health. The major mental health consequences of such disasters are depression, anxiety, post-traumatic stress, and medically unexplained somatic symptoms, smoking, alcoholism, and suicide. These conditions are often long-term and are associated with stigma, fear of developing cancer, grief, and a lost sense of safety and control. Research on such radiation disasters, including a-bomb survivor studies, indicates that exposed adults from contaminated regions report persistently higher levels of distress, but not diagnosable disorders, than similar people in non-radiation exposed areas. The highest risk groups are clean-up workers and mothers of young children. While demographic and psychiatric history play a role in determining these effects, disaster-related experiences, including being told by a doctor that one's health problems are from exposure, are the most toxic. In contrast, studies of children raised in the shadow of the Chernobyl accident show that they perceive their health more negatively than their peers, but their emotional, neuropsychological, academic, and social development is comparable. Psychological effects are independent of actual exposure level. Preliminary data from Fukushima suggest that the patterns occurring after Three Mile Island and Chernobyl are repeating themselves. It is imperative that the psychological experiences of Fukushima survivors are fully understood by mental health and medical professionals, and that they are addressed early so as to reduce the long-term burdens these survivors will otherwise face.



Ray Johnson gave the next presentation on *“Radiation Safety Decisions – How we are Prone to Errors.”* Ray is the Director of the Radiation Safety Counseling Institute in Rockville, MD where he provides consulting, training, and workshops on radiation safety and risk communications. He has advanced degrees in engineering from MIT, Harvard, and Rensselaer Polytechnic Institute. In addition to a 50 year career in radiation safety, Ray took three years of training in the 1970s to practice psychological counseling. Since then he has been providing counseling as a volunteer, currently as a Commissioned Stephen Minister in his church. To address health physicists’ concerns for radiation risk communication, over the years he has attempted to build bridges between the field of psychology (where they know how to deal with fears, but do not know about radiation) to the field of radiation safety (where we know about radiation, but usually do not know how to deal with fears). He has over 500 publications and presentations on risk communication and radiation safety. He is a Certified Health Physicist and Licensed Professional Engineer. Ray is a Past President of the Health Physics Society and the American Academy of Health Physics and has received over 30 Society awards.

Based on a series of monthly articles in the HPS Newsletter (2012-2013), he noted that health physicists have long been puzzled and often frustrated about how people can make instant decisions regarding radiation with little or no actual data. Studies in psychology show that our ability to make instant decisions for safety is a part of how our brains are wired for our protection. We are programmed to fear first and think second. We have survived by this innate ability to foresee dangers and take protective actions accordingly. Instant prediction of danger is not something we do consciously by evaluation of facts or circumstances. For example, if we took the time to analyze whether a nearby snake looks angry and whether it is close enough or fast enough to strike us, it may be too late. Instead our subconscious has automatically responded with an order to our body which says jump back. Our subconscious functions as a superfast computer processing all incoming signals by associations with images and experiences in our memories (what Dr. Toohey calls memes). Thus we are programmed for instant response without any conscious thought. While this instinct for safety is important for our survival, it is also prone to substantial errors for some dangers, such as radiation.

In the process of making decisions for radiation safety, there are at least 15 or more ways that our subconscious is prone to errors relative to the actual circumstances. My studies are showing that even technical professionals are prone to errors according to what they have come to believe subconsciously based on what they have heard or read about radiation. Our subconscious mind is prone to running ahead of the facts to draw coherent conclusions from a few scraps of evidence. Subconscious impressions then become the basis for instant decisions and long term beliefs. Ray noted that it is OK to be afraid of radiation. Fears are a natural function of our minds for our protection. However, fears can also be harmful as described by Dr. Bromet. Unfortunately radiation fears are often based on radiation mythology (something believed which is not technically true). One of the most prevalent radiation myths is the linear non-threshold dose response model (LNT). This model is shown as a straight line down to zero. The myth of this model is that there is NO zero. In the US, zero on the health effects scale starts at 560,000 cancer deaths a year. Zero on the dose scale starts at background, which is 310 mrem a year in the US. However, background for other parts of the world start at 3,000 to over 20,000 mrem a year. This raises the question about whether it makes any sense to begin looking for health effects above 310 mrem a year in the US when other countries start at levels above 20,000 mrem a year? Ray concluded by saying we can be helpful for frightened persons by affirming it is OK to be afraid and then providing information as a technical resource to help people derive their own answers to what safe means for them (note this is the same guidance offered by Dr. Brent).



Dr. Robert Emery concluded the Special Session with an energetic presentation on *“Strategies for Correcting Misinformation about Radiation.”* He is Vice President for Safety, Health, Environment & Risk Management for The University of Texas Health Science Center at Houston and Professor of Occupational Health at the University of Texas School of Public Health. Bob has over 30 years of experience in health & safety and holds master’s degrees in radiological hygiene and environmental health and a doctorate in occupational health. He is unique in that he possesses national board certification in 7 main areas of health & safety (CHP, CIH, CBSP, CSP, CHMM, CPP, ARM). He is the author of over 70 peer-reviewed articles (31 in the Health Physics Journals) and makes frequent presentations on such issues at the local, national, and international level.

Dr. Emery noted that individuals will most certainly continue to experience apprehensions about possible exposures to radiation both in the workplace and in the environment. These apprehensions can be exacerbated by previously held beliefs, intensive media coverage, and uncontrolled postings on the internet. In the absence of counterbalancing factual information presented in ways individuals can readily comprehend, poor decision making and the wasting of precious public health resources can ensue. So what should the health physics profession be doing to address situations where incorrect or misinformation abounds? He noted that once misinformation (what Ray calls mythology) is acquired it is quite difficult to remove its influence. He discussed an example of misinformation published in a medical journal which said that 14,000 deaths occurred in the US in 2011 as a result of fallout from Fukushima. Upon careful review, he noted that the speculated deaths were determined by comparing the number of deaths in 2010 and 2011 in 122 US cities. He raised a question about such speculations, “Sound science or sounds like science?” He defined how “Lysenkoism” is used to describe the manipulation or distortion of the scientific process as a way to reach a predetermined conclusion as dictated by ideological bias, often related to social or political objectives. Articles as noted above posted by “crusaders, critics, and conspiracy theorists” serve to weaken the messages made by qualified experts. Correcting misinformation is a matter of careful choice of words. For example, when refuting misinformation, avoid mentioning the wrong information as individuals tend to lose the “tag” and actually remember the myth. Don’t say, “Irradiation won’t make your food radioactive.” It is better to focus on the facts you wish to communicate and say, “This procedure eliminates dangerous pathogens from your food and makes it healthier for you.” He concluded, as public health professionals, “We hold an ethical obligation to monitor for, and correct, misinformation.” Relying on the science behind effective risk communications is “not about manipulating people – it’s about giving the facts a fighting chance.”

AMERICAN ACADEMY OF HEALTH PHYSICS – 2015

Voting Members of the Executive Committee

(Term expires at the end of the year indicated)

PRESIDENT

Robert Miltenberger ('16)
Sandia National Lab, Bldg. 1090
PO Box 5800, MS 1103
Albuquerque, NM 87185-1103
(505)845-0904
rpmilte@sandia.gov

PRESIDENT-ELECT

Kent Lambert ('17)
300 Glenside Rd
Millville, NJ 08332
(215)255-7860
Kent.lambert@drexel.edu

PAST PRESIDENT

Edgar Bailey ('15)
2804 Misty Shore Lane
Pflugerville, TX 78660
(512)934-2357
edbaileychp@msn.com

SECRETARY

Alan Jackson ('16)
1705 David Court
Ann Arbor, MI 48105
(313)916-2739
AlanJ@rad.hfh.edu

TREASURER

Steven Brown ('17)
7505 South Xanthia Place
Centennial, CO 80112
(303)721-0722
sbrown@senesusa.com

DIRECTOR & PAST-TREASURER

Alex J. Boerner ('15)
10605 Eagle View Dr
Knoxville, TN 37922
(865)574-0951
alex.boerner@ornl.gov

DIRECTOR

Louise Buker ('16)
6678 Old Station Drive
West Chester, OH 45069
(513)758-1645
lbuker@oraucoc.org
lbuker@gmail.com

DIRECTOR

Dan Mantooth ('15)
144 Montana Ave
Oak Ridge, TN 37830
(865)-220-7188
dsm37830@att.net

DIRECTOR

Jim Stafford ('17)
347 Beech Island Ave
Beech Island, SC 29842
(803)952-9888
Jim.stafford@urs-ps.com

ABHP CHAIR, EX-OFFICIO MEMBER

Pat LaFrate ('15)
6426 Myston Lane
Huntersville, NC 28078
(980)875-3204
plafrate@nc.rr.com

AMERICAN ACADEMY OF HEALTH PHYSICS – 2015

APPOINTED POSITIONS

EXECUTIVE SECRETARY AND PROGRAM DIRECTOR

Nancy Johnson
 American Academy of Health Physics
 1313 Dolley Madison Blvd, Ste. 402
 McLean, VA 22101
 (703)790-1745 ext. 25 Work
 (703)790-2672 FAX
njohnson@burkinc.com

NEWSLETTER EDITOR

Kyle Kleinhans, Editor
 9025 Colchester Ridge Road
 Knoxville, TN 37922
 (865)241-1024 Work
Klink17@tds.net

WEBMASTER

E. Scott Medling
medling@hps1.org

ASSISTANT WEBMASTER

James S. Willison
 URS Professional Solutions
 2131 Centennial Avenue, SE
 Aiken, SC 29803
 (803) 502-9852
jim.willison@urs-ps.com

AAHP APPOINTEES

ABMP:

Michael C. Erdman (1/09 through 12/17)
 Hershey Medical Center
 Health Physics MC H141
 Hershey, PA 17033
 (717)531-4222
merdman@psu.edu

Michael Sheetz (1/11 through 12/16)
 6945 Rosewood St
 Pittsburgh, PA 15208
 (412)624-2728
msheetz@pitt.edu

Amir Huda (1/13 through 12/15)
 (599)278-8427
ahuda@csufresno.edu

AAHP LIAISONS:

CRCPD:

Earl Fordham
 Washington Dept. of Health
 Office of Radiation Protection
 309 Bradley Blvd., Suite 201
 Richland, WA 99352
 (509)946-0234 Work
 (509)946-0876 FAX
earl.fordham@gmail.com

HPS:

Mark (Andy) Miller
 23012 Roberts Run
 Bay Village OH 44140
 (615) 557-8178
Miller1099@hotmail.com

NRRT:

Eddie Benfield
Eddie.benfield@duke-energy.com

ABHP LIAISONS:

CESB:

Nora Nicholson
nora.nicholson@dom.com

AMERICAN ACADEMY OF HEALTH PHYSICS – 2015

AAHP COMMITTEES AND CHAIR

Appeals

Sarah Hoover, Chair ('16)
126 Bandelier Avenue
Los Alamos, NM 87544
(505)665-4224
shoover@lanl.gov

Continuing Education

James S. Willison, Chair ('17)
URS Professional Solutions
2131 Centennial Avenue, SE
Aiken, SC 29803
(803) 502-9852
jim.willison@urs-ps.com
aahpcec@burkinc.com

Exam Site

Anthony Williams, Chair ('16)
4896 Diggins Dr.
Fort Meade, MD 20755
(757)642-4471
Anthony.williams@med.navy.mil

Finance

Alex Boerner ('15)
10605 Eagle View Dr
Knoxville, TN 37922
(865)574-0951
alex.boerner@orau.org

Nominating

Dale Thomas, Chair ('15)
14520 #1 Miller Rd
St. Hedwig, TX 78152
(210)275-5737
Dale.thomas@moellerinc.com

Professional Development

Janet Johnson, Chair ('16)
1001 Painted Lady Lane
Carbondale, CO 81623
(970)481-5101
janetj@sopris.net

Professional Standards & Ethics

Tim Taulbee, Chair ('16)
5305 Riverplace Blvd
Austin, TX 78730
(502)382-7869
taulbet@gmail.com

Title Protection/Professional Recognition

Steven Frey, Chair ('15)
1412 Pine Crest Drive
South Williamsport, PA 17702
(570)567-7443
stevenfrey@aol.com

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23012 Roberts Run
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(603)778-2871 ext 228
jptarzia@radsafety.com

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2615 W 13th St
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(585)734-6863
Akaram238@gmail.com

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11962 Stone Quarry Court
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(513)558-4110
mor3pm@gmail.com

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(505)844-2750
capotte@sandia.gov

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William Rhodes '19
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Albuquerque, NM 87122
(505)844-4597
wgrhode@sandia.gov

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American Board of Health Physics
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McLean, VA 22101
(703)790-1745 ext 25
njohnson@burkinc.com

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(865)241-2865
Paul.jones@npo.doe.gov

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Hopkinton, MA 01748
(508)497-9057
Chris.martel@verizon.net

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Ashburn, VA 20147
(703)858-4898
cindy.flannery@nrc.gov

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Excel Energy
250 Marquette Ave., 4th Floor
Minneapolis, MN 55401
(612)330-5913
rwachp@yahoo.com

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3841 S Lakeshore Drive
Baton Rouge, LA 70808
(225)578-2743
weihsung@lsu.edu

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2504 Erindale Oaks Lane
Valrico, FL 33657
karancurk@hotmail.com

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THE 2014 CHP SALARY SURVEY

By Gary Lauten

Introduction

The 2014 Certified Health Physicist (CHP) survey data was collected by having CHPs submit their responses to survey questions on a web-based data entry form. As was done in previous years, data was collected in conjunction with a salary survey of the entire Health Physics Society (HPS).

The HPS salary survey results will be reported separately in the Health Physics Newsletter.

The survey was also available in hardcopy form for those who preferred to fax or mail their responses.

Questions about this survey should be directed to Gary Lauten, via email: chpsalarysurvey@yahoo.com

Data Analysis

The salary ranges marked by CHPs on the completed survey forms were rounded to the midpoints of those ranges before statistical analyses were performed. For example, if a CHP marked the salary range \$100,000 to \$102,499; their salary was rounded to the midpoint value of \$101,250. Responses from CHPs who were either part time or retired

All of the following tables are for fulltime CHPs with health, vacation, and retirement benefits unless otherwise indicated.



Were not analyzed, since the data did not allow meaningful comparisons to be made.

To minimize skewing the results, data from four survey respondents were excluded from the data analysis because they indicated that they earned less than \$65,000 or more than \$205,000 per year.

Of 43 respondents who reported receiving a significant (10% or more) salary increase upon attaining ABHP certification: 19% received this increase from their current employer, 16% from a promotion with their current employer, 49% received this increase from a new employer, and 16% did not specify.

CHP salaries by region are also presented in this report.

Data Presentation

In an effort to make the results of the survey interesting and useful, CHPs were subcategorized in several ways by education, primary job responsibility, years of experience, and combinations of these subcategories.

Readers are advised that for statistical validity, results were given only if there were 10 or more CHPs within that subcategory. Data presented for one subcategory of CHPs may not be possible for another subcategory.

The subcategories in the tables may also change from year to year, depending on the number of responses received. Every effort was made to keep the subcategories consistent with previous surveys, but if there were less than 10 CHPs the results were not given.

Tables and Figures

Tables show results for full-time CHPs who received health, vacation, and retirement benefits from their primary employer unless otherwise noted.

Histograms of the data shown in Table 1- All CHPs, and Table 2 - Masters Health Physics are included as Figures 1 and 2 respectively.

Table 1: All CHPs

All CHPs	Count	Average	Median	Max	Min	Std Dev
	176	\$131,250	\$130,000	\$203,750	\$63,750	\$28,566

Table 2: CHPs by Education and Field

Education	Count	Average	Median	Max	Min	Std Dev
Bachelors Health Physics	12	\$133,750	\$132,500	\$193,750	\$96,250	\$26,522
Bachelors Other Field	15	\$118,917	\$123,750	\$151,250	\$88,750	\$18,039
Masters Health Physics	79	\$131,440	\$131,250	\$203,750	\$66,250	\$29,798
Masters Other Field	16	\$128,906	\$125,000	\$201,250	\$73,750	\$30,598
Masters Nuclear Engineering	12	\$127,917	\$127,500	\$176,250	\$78,750	\$32,584
Ph.D. Health Physics	20	\$139,000	\$141,250	\$188,750	\$63,750	\$28,457
Ph.D. Nuclear Engineering	10	\$142,750	\$147,500	\$186,250	\$103,750	\$28,117

Table 3: CHPs by Education and 6-15 Years Experience

Edu & 6-15 Yrs Experience	Count	Average	Median	Max	Min	Std Dev
All CHPs 6-15 yrs Experience	14	\$109,643	\$106,250	\$148,750	\$78,750	\$23,628

Table 4: CHPs by Education and >15 Years Experience

Edu & >15 Yrs Experience	Count	Average	Median	Max	Min	Std Dev
All CHPs >15 yrs Experience	160	\$133,391	\$131,250	\$203,750	\$63,750	\$28,175
Bachelors Health Physics	10	\$137,000	\$132,500	\$193,750	\$101,250	\$26,248
Bachelors Other Field	14	\$121,071	\$123,750	\$151,250	\$96,250	\$16,597
Masters Health Physics	70	\$134,321	\$138,750	\$203,750	\$66,250	\$29,523
Masters Nuclear Engineering	10	\$132,750	\$132,500	\$176,250	\$93,750	\$31,671
Masters Other Field	15	\$131,083	\$126,250	\$201,250	\$73,750	\$30,362
Ph.D. Health Physics	20	\$139,000	\$141,250	\$188,750	\$63,750	\$28,457

Table 5: CHPs by U.S. Regions*

CHPs by Region	Count	Average	Median	Max	Min	Std Dev
Northeast	28	\$127,500	\$122,500	\$201,250	\$86,250	\$27,668
Midwest	26	\$131,250	\$128,750	\$203,750	\$76,250	\$28,071
South	55	\$124,114	\$126,250	\$191,250	\$63,750	\$30,666
West	50	\$137,650	\$138,750	\$201,250	\$73,750	\$26,487

*- The four major regions of the United States as defined by the U.S. Census Bureau for which data are presented represent groups of states as follows:

Northeast. Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont.

Midwest. Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin.

South. Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia.

West. Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming.

Table 6: Masters Health Physics and Primary Employer

Masters Health Physics & Primary Employer	Count	Average	Median	Max	Min	Std Dev
Federal Government	12	\$138,542	\$140,000	\$178,750	\$98,750	\$22,700
Medical	10	\$130,000	\$128,750	\$171,250	\$81,250	\$26,777
National Laboratory	10	\$137,019	\$138,750	\$181,250	\$86,250	\$24,482
Government Contractor	13	\$137,386	\$133,750	\$191,250	\$101,250	\$26,466

Table 7: All CHPs by Other Certifications

All CHPs by Other Certifications	Count	Average	Median	Max	Min	Std Dev
NRRPT	30	\$124,167	\$125,000	\$176,250	\$71,250	\$26,229
Other	23	\$132,446	\$131,250	\$186,250	\$73,750	\$30,487

Table 8: Masters Health Physics and Primary Job Responsibility

Masters Health Physics & Primary Job Responsibility	Count	Average	Median	Max	Min	Std Dev
Applied Health Physics	27	\$128,843	\$136,250	\$181,250	\$66,250	\$28,810

Table 9: All CHPs by Primary Job Responsibility

Primary Job Responsibility	Count	Average	Median	Max	Min	Std Dev
Administration	12	\$135,208	\$142,500	\$178,750	\$73,750	\$29,628
Applied Health Physics	52	\$125,385	\$125,000	\$181,250	\$66,250	\$27,030
Dosimetry	14	\$143,750	\$142,500	\$203,750	\$101,250	\$27,856
Emergency Preparedness	13	\$130,288	\$138,750	\$171,250	\$96,250	\$24,336
Medical Health Physics	12	\$136,875	\$128,750	\$193,750	\$66,250	\$40,803
Power Reactor	14	\$130,179	\$127,500	\$153,750	\$106,250	\$15,182
Regulations/Standards	12	\$136,250	\$138,750	\$161,250	\$86,250	\$21,186

Table 10: CHPs as Professional Staff (All CHPs in this category and by Education)

CHPs as Professional Staff	Count	Average	Median	Max	Min	Std Dev
All CHPs in this Category	89	\$130,801	\$136,250	\$201,250	\$63,750	\$26,360
Masters Health Physics	36	\$132,222	\$137,500	\$201,250	\$81,250	\$27,706
Masters Other Field	10	\$133,250	\$131,250	\$163,750	\$96,250	\$20,132
Ph.D. Health Physics	11	\$129,205	\$136,250	\$156,250	\$63,750	\$27,061

Table 11: CHPs as Supervisor of Professional Staff (All CHPs in this category and by Education)

CHPs as Supervisor of Professional Staff	Count	Average	Median	Max	Min	Std Dev
All CHPs in this Category	31	\$135,927	\$131,250	\$173,750	\$86,250	\$22,507
Masters Health Physics	18	\$131,389	\$133,750	\$173,750	\$86,250	\$22,630

Table 12: All CHPs as Facility Manager, RPM/RSO, University RSO

CHPs as RPM/RSO	Count	Average	Median	Max	Min	Std Dev
All CHPs RPM/RSO	16	\$138,594	\$138,750	\$201,250	\$103,750	\$23,514
All CHPs University RSO	14	\$102,679	\$105,000	\$171,250	\$66,250	\$30,583

Figure 1: Histogram of Table 1 Data, all CHPs

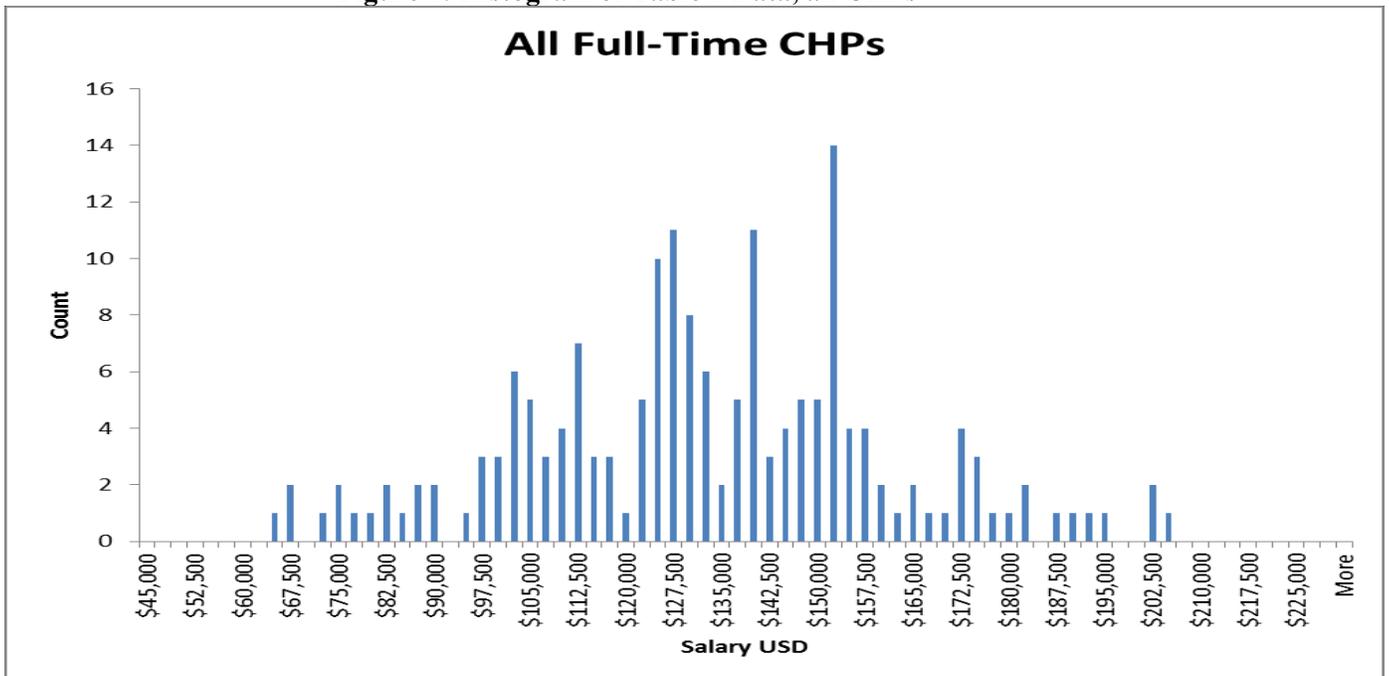
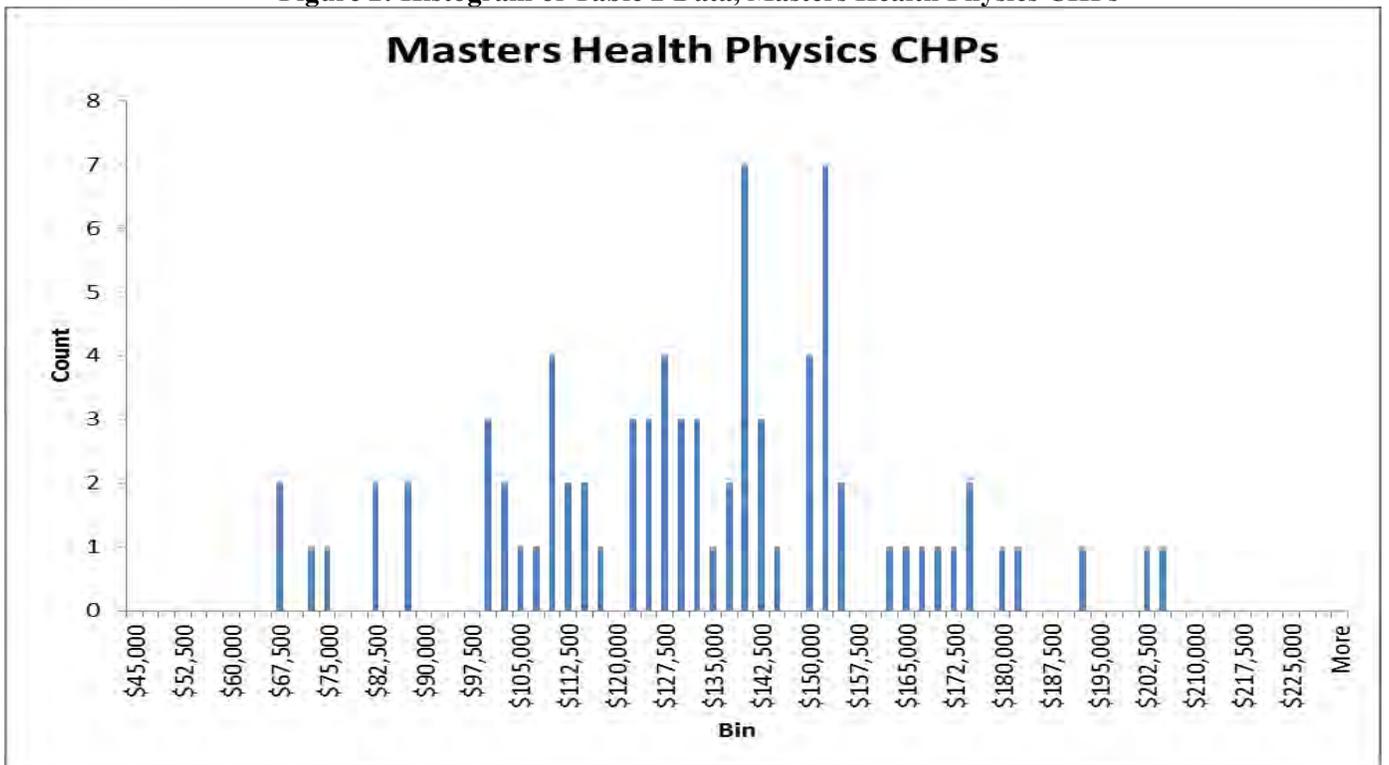


Figure 2: Histogram of Table 2 Data, Masters Health Physics CHPs



Acknowledgements

Thank you for participating in this survey. Your confidential data benefits the entire health physics community, and is never shared such that it would be possible to identify individual participants.

THE 2014 HPS SALARY SURVEY

Stephen L. Bump

Introduction

The 2014 Health Physics Society (HPS) survey data was collected by having health physicists (HPs) submit their responses to survey questions on a web-based data entry form. As was done in previous years, data was collected in conjunction with a salary survey of certified health physicists (CHPs).

The CHP salary survey results will be reported separately in the *CHP News*.

The survey was also available in hardcopy form for those who preferred to fax or mail their responses.

Questions about this survey should be directed to **Stephen L. Bump** via email: steve.bump@moellerinc.com

Data Analysis

The salary ranges marked by HPs on the completed survey forms were rounded to the midpoints of those ranges before statistical analyses were performed. For example, if an HP marked the salary range \$50,000 to \$52,499, his or her salary was rounded to the midpoint value of \$51,250.

Responses from HPs who were either part-time or retired were not analyzed, since the data did not appear to allow meaningful comparisons to be made.



To minimize skewing the results, data from three survey respondents were excluded from the data analysis because they indicated that they earned more than \$225,000 per year.

HP salaries by region are also presented in this report.

Data Presentation

In an effort to make the results of the survey interesting and useful, HPs were subcategorized in several ways by education, primary job responsibility,

years of experience, and combinations of these subcategories.

Readers are advised that for statistical validity, results were given only if there were 10 or more HPs within that subcategory. Data presented for one subcategory of HPs may not be possible for another subcategory. There were approximately 20% fewer respondents in 2014 than in 2013, for example.

The subcategories in the tables may also change from year to year, depending on the number of responses received. Every effort was made to keep the subcategories consistent with previous surveys, but if there were fewer than 10 HPs, the results were not given.

Tables and Figures

Tables show results for full-time HPs who received health, vacation, and retirement benefits from their primary employer unless otherwise noted.

Histograms of the data shown in Table 1–All HPs and in Table 2–Master’s Health Physics are included as Figures 1 and 2 respectively.

All of the following tables are for full-time HPs with health, vacation, and retirement benefits unless otherwise indicated.

Table 1: All HPs

All HPs	Count	Average	Median	Max	Min	Std Dev
HPs	205	\$103,872	\$101,250	\$183,750	\$38,750	\$30,873

Table 2: HPs by Education and Field

Education	Count	Average	Median	Max	Min	Std Dev
Bachelor's - HP	26	\$94,808	\$92,500	\$176,250	\$43,750	\$31,750
Bachelor's - Other	49	\$97,015	\$88,750	\$178,750	\$38,750	\$30,996
Master's - HP	62	\$110,202	\$108,750	\$183,750	\$51,250	\$33,220
Master's - Other	40	\$105,688	\$102,500	\$163,750	\$51,250	\$27,371
Master's - Nuclear Engineering	11	\$113,977	\$108,750	\$163,750	\$78,750	\$30,320
PhD - All	23	\$107,880	\$106,250	\$156,250	\$51,250	\$27,434

Table 3: HPs by Education and <6 Years Experience

Edu & <6 Yrs Experience	Count	Average	Median	Max	Min	Std Dev
All HPs <6 yrs Experience	35	\$79,893	\$81,250	\$108,750	\$43,750	\$16,023
Bachelor's - all Fields	12	\$80,625	\$78,750	\$101,250	\$43,750	\$17,325
Master's - HP	13	\$78,173	\$78,750	\$108,750	\$51,250	\$ 15,684

Table 4: HPs by Education and 6-15 Years Experience

Edu & 6-15 Yrs Experience	Count	Average	Median	Max	Min	Std Dev
All HPs 6-15 Yrs Experience	50	\$92,550	\$86,250	\$158,750	\$38,750	\$26,998
Master's - HP	12	\$113,750	\$107,500	\$176,250	\$66,250	\$29,867

Table 5: HPs by Education and >15 Years Experience

Edu & >15 Yrs Experience	Count	Average	Median	Max	Min	Std Dev
Bachelor's - HP	12	\$113,750	\$107,500	\$176,250	\$66,250	\$29,867
Bachelor's - Other	30	\$105,583	\$105,000	\$178,750	\$56,250	\$33,081
Master's - HP	38	\$124,605	\$127,500	\$183,750	\$61,250	\$29,565
Master's - Other	23	\$110,924	\$111,250	\$163,750	\$61,250	\$26,169
PhD - All	11	\$124,886	\$128,750	\$156,250	\$78,750	\$22,841

Table 6: HPs by U.S. Regions*

HPs by Region	Count	Average	Median	Max	Min	Std Dev
Northeast	38	\$96,974	\$91,250	\$181,250	\$43,750	\$31,013
Midwest	34	\$97,426	\$95,000	\$176,250	\$51,250	\$27,942
South	59	\$108,496	\$103,750	\$183,750	\$38,750	\$34,708
West	49	\$108,648	\$103,750	\$176,250	\$58,750	\$28,020

*The four major regions of the United States as defined by the U.S. Census Bureau for which data are presented represent groups of states as follows:

Northeast. Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont.

Midwest. Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin.

South. Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia.

West. Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming.

Table 7: Master's Health Physics and Primary Employer

Master's Health Physics & Primary Employer	Count	Average	Median	Max	Min	Std Dev
Medical	15	\$118,250	\$126,250	\$181,250	\$63,750	\$34,255
Federal	13	\$118,250	\$116,250	\$183,750	\$58,750	\$32,580
University	14	\$86,071	\$86,250	\$141,250	\$51,250	\$23,747

Table 8: All HPs by Other Certifications

All HPs by Other Certifications	Count	Average	Median	Max	Min	Std Dev
NRRPT	32	\$107,031	\$100,000	\$176,250	\$58,750	\$32,276
Other	53	\$116,486	\$111,250	\$181,250	\$61,250	\$30,138

Table 9: Master's Health Physics and Primary Job Responsibility

Master's Health Physics & Primary Job Responsibility	Count	Average	Median	Max	Min	Std Dev
Applied Health Physics	11	\$102,386	\$91,250	\$146,250	\$63,750	\$29,651
Medical Health Physics	11	\$128,295	\$131,250	\$181,250	\$68,750	\$31,481

Table 10: All HPs by Primary Job Responsibility

Primary Job Responsibility	Count	Average	Median	Max	Min	Std Dev
Administration	13	\$104,135	\$106,250	\$133,750	\$66,250	\$25,635
Applied Health Physics	47	\$101,144	\$96,250	\$176,250	\$51,250	\$29,461
Dosimetry	10	\$118,000	\$123,750	\$146,250	\$68,750	\$25,001
Environmental	17	\$106,250	\$106,250	\$136,250	\$51,250	\$24,431
Instrumentation	11	\$90,568	\$86,250	\$146,250	\$38,750	\$31,127
Medical Health Physics	19	\$118,487	\$118,750	\$181,250	\$61,250	\$30,888
Radiological Assessment	17	\$97,721	\$93,750	\$181,250	\$61,250	\$29,844
Regulations/Standards	16	\$106,406	\$100,000	\$178,750	\$43,750	\$33,757

Table 11: HPs as Professional Staff (All HPs in this category and by Education)

HPs as Professional Staff	Count	Average	Median	Max	Min	Std Dev
All HPs in this category	107	\$101,110	\$101,250	\$81,250	\$51,250	\$29,954
Bachelor's - Health Physics	14	\$84,643	\$77,500	\$133,750	\$61,250	\$24,191
Bachelor's - Other Field	25	\$97,450	\$96,250	\$151,250	\$51,250	\$27,803
Master's - Health Physics	33	\$103,068	\$101,250	\$181,250	\$51,250	\$31,327
Master's - Other Field	18	\$109,861	\$110,000	\$163,750	\$51,250	\$34,001

Table 12: HPs as Supervisor of Professional Staff (All HPs in this category and by Education)

HPs as Supervisor of Professional Staff	Count	Average	Median	Max	Min	Std Dev
All HPs in this category	21	\$112,083	\$111,250	\$181,250	\$71,250	\$30,744

Table 13: All HPs as Facility Manager, RPM/RSO, University RSO

HPs as RPM/RSO	Count	Average	Median	Max	Min	Std Dev
All HPs - RPM/RSO	28	\$110,268	\$105,000	\$176,250	\$68,750	\$26,860
All HPs - University RSO	19	\$89,145	\$83,750	\$148,750	\$61,250	\$23,322
All HPs - Medical RSO	15	\$116,417	\$118,750	\$151,250	\$61,250	\$26,057

Figure 1: Histogram of Table 1 Data, all HPs

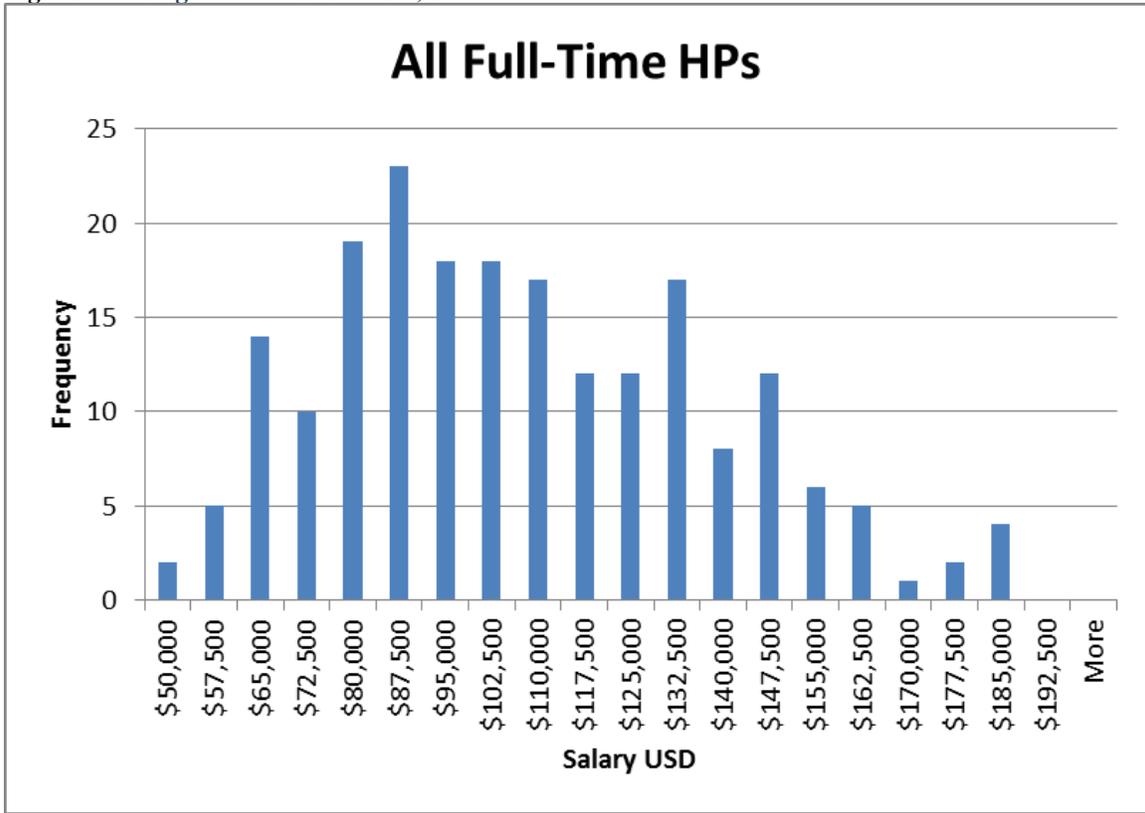
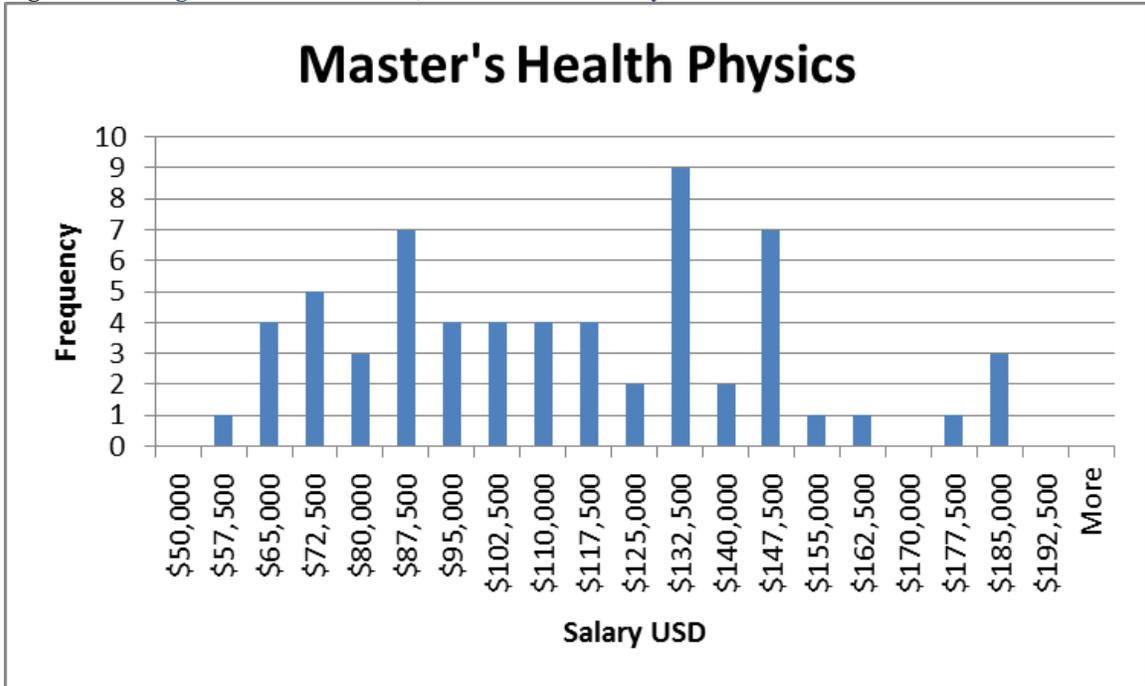


Figure 2: Histogram of Table 2 Data, Master's Health Physics HPs



Acknowledgements

Thank you for participating in this survey. Your confidential data benefits the entire health physics community and is never shared such that it would be possible to identify individual participants.