



Summary of HP Manpower and Future Demand

AAHP Special Session

Portland, Oregon

July 10, 2007

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Health Physics News

Volume XXXII Number 9 For Specialists in Radiation Safety September 2004

The Official Newsletter of the Health Physics Society

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Reflections on the 49th Annual Health Physics Society Meeting

Washington, DC
11-15 July 2004

Ray Guilmette
President

The 49th Health Physics Society (HPS) Annual Meeting in Washington, DC, was an excellent meeting.

The Local Arrangements Committee (LAC) did a great job, planning for every eventuality, except the weather. I am told that it was hot and humid out. I don't know



because I spent the week in air-conditioned rooms meeting with the Board of Directors, committees, sections, and other groups. In fact, much of what I say is based on what others have told me. The fate of presidents at annual meetings!

As is our custom, the annual meeting began with educational opportunities for the members in the form of the American Academy of

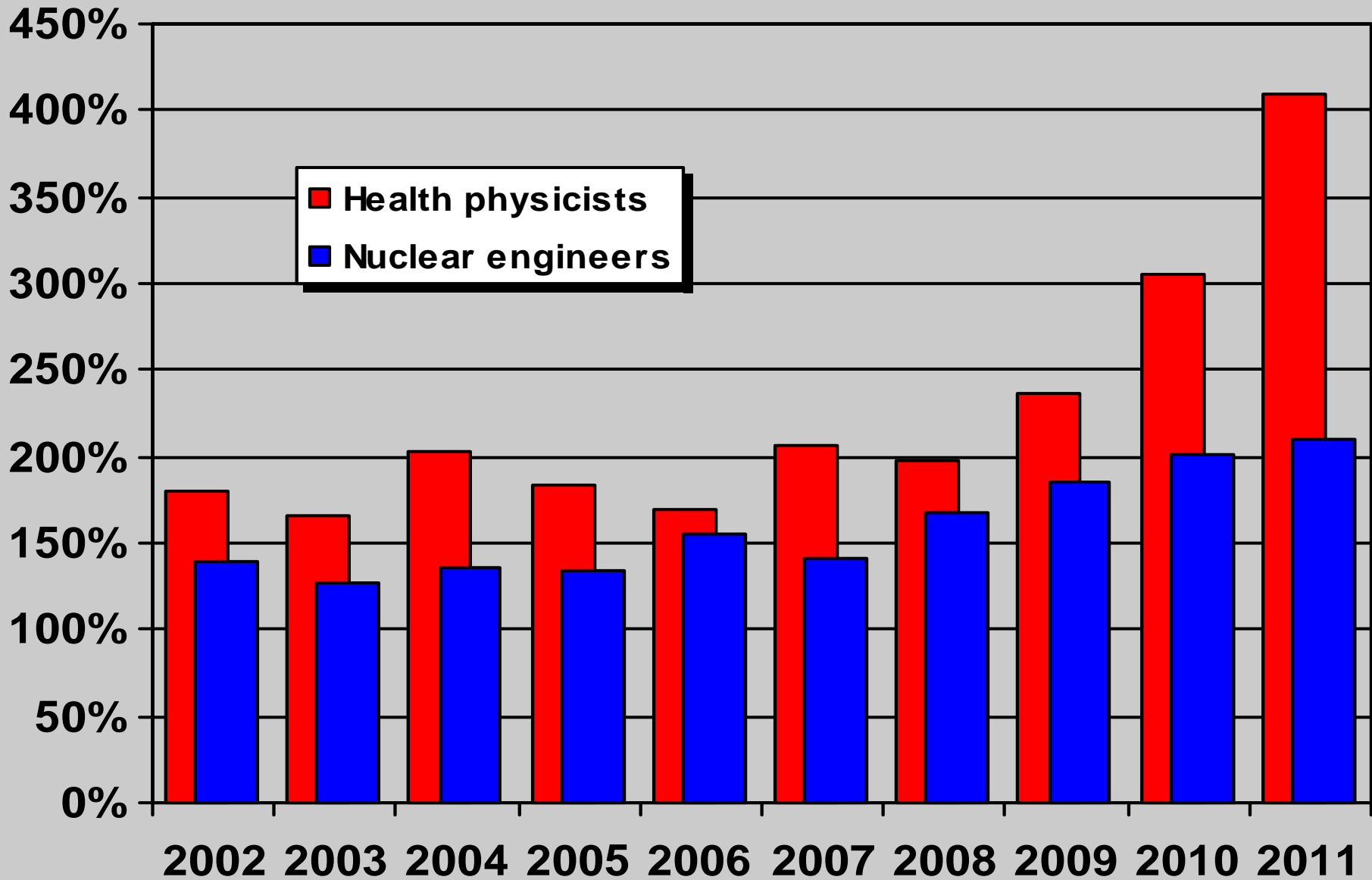
the high course attendance.

This year, there were two plenary sessions, predicated partly on our desire to get participation from members of Congress. The strategy paid off. The first plenary featured an analysis of the proposed recommendations for radiation protection guidelines by Richard V. Osborne [see www.hps.org for a summary of Osborne's talk]. His comments were thoughtful and highlighted the need for alternative viewpoints to be communicated to the International Commission on Radiological Protection (ICRP). To its credit, ICRP has invited critical input from individuals and organizations such as HPS on its guidelines. It behooves us all to study ICRP's recommendations seriously, as they will form the future for radiation protection for years to come. Keith Florig followed with a very insightful talk on incorporating the public into scientific-policy processes. His points, based partially on his own

HP Demand and Supply Issues

- Demand for Degreed Radiation Protection Professionals Exceeding Supply
 - 50% in next 10 years (NEI)
 - 60% in next five years (HPS)
- Dwindling customer-supported fellowships

New Worker Demand As A % Of New Worker Availability For HPs & Nuclear Engineers



Actions Taken By HPS

John Frazier initiative at 2002 Tampa Meeting

Kevin Nelson asked to chair Human Capital Crisis
Task Force

Other Task Force members include

- Richard Brey
- Cynthia Jones
- Richard Morin
- Pearce O'Kelley
- Ralph Andersen
- Thomas Laiche
- John Frazier

Create white paper with supporting documentation

The 4 R's of the Human Capital Crisis

- Recruitment
- Retention
- Retirement
- Resources

Consequences of the 4 R's

- Personnel with limited education and training are filling positions
- More reliance and time spent on in-house training
- Liability for inaccurate decisions increases
- Unable to keep the HP pipeline filled with qualified personnel to address the security, energy and health needs of the nation

Task Force Results, 2004

<i>Employment Sector</i>		<i># of Radiation Protection Professionals</i>	<i>% of Respondents</i>
Energy		4193	62.5
	Commercial Reactors	3790 (2940 permanent; 850 temporary)	56.5
	DOE Contractors	403	6.0
Regulatory/Security		1535	22.5
	Federal Agencies	488	7.0
	State Programs	1047	15.5
Medical		580	9
Private Consultants		399	6
		6707	100%

HPS Task Force Summary

- Found on HPS website ('Discussion Papers')
- 6700 radiation protection professionals identified – conservative estimate
- Does not include part time or consulting individuals
- Does not include military and most of Homeland Security
- Future needs assessment response variable
- Some deficiencies noted – state licensing programs
- # of viable HP academic programs on decline
- 167 retire vs. 122 graduate every year

ENERGY

OPERATIONAL NUCLEAR POWER PLANT

Results:

of *permanent* radiation protection staff: **2940**

% of radiation protection staff > 55 years of age: **10.4%**

% of radiation protection staff < 35 years of age: **7.3%**

% of positions desiring, at a minimum, a 4 year degree in health physics or a related field: **12% (est)**

% of staff with a 4 year degree (minimum): **16% (est)**

of *temporary* radiation protection staff: **800-850**

Supervisory/engineering staff: **36-38**

Senior HP technician: **655-696**

Entry level HP technician staff: **109-116**

ENERGY

DOE CONTRACTORS AND NATIONAL LABS

Results:

of radiation protection staff: 403 (11/12 reporting)

of radiation protection staff > 55 years of age: 114 or 28% (11/12 reporting)

of radiation protection staff < 35 years of age: 60 or 15% (11/12 reporting)

Type and number of positions desiring, at a minimum, a 4 year degree in health physics or a related field: All (10/12); Partial (2/12)

Greatest need currently is for technical radiation protection staff

REGULATORY/SECURITY STATE PROGRAMS

32% of all FTE's devoted to RAM licensing & inspection

CRCPD Criteria For An Adequate Radiation Control Program

Many states understaffed in RAM licensing and inspection

Specialized education or training requirements

–93% of licensing and inspection positions desired 4 yr degree in health physics or equivalent field

–55% of licensing and inspection positions possess a 4 yr degree in health physics or equivalent field

HEALTH

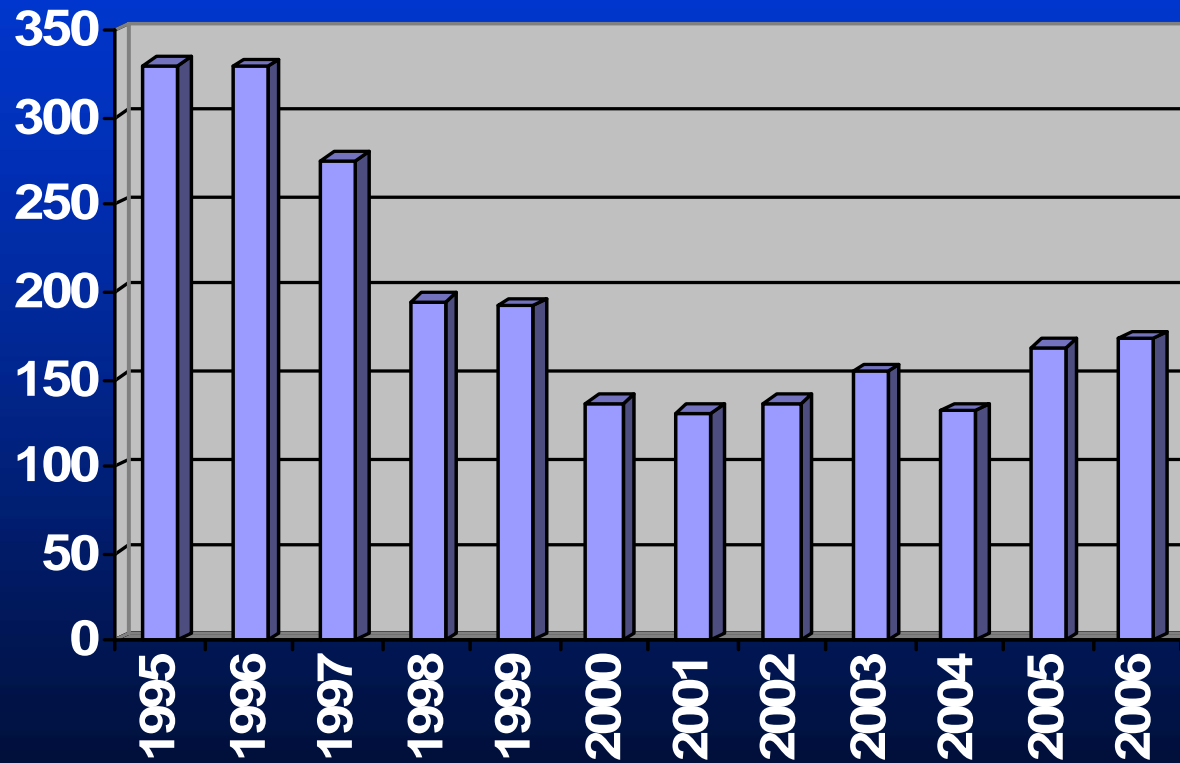
MEDICAL HEALTH PHYSICS

Quantitative data is either unavailable or unreliable.

AHA Hospital Statistics, 2003 Edition

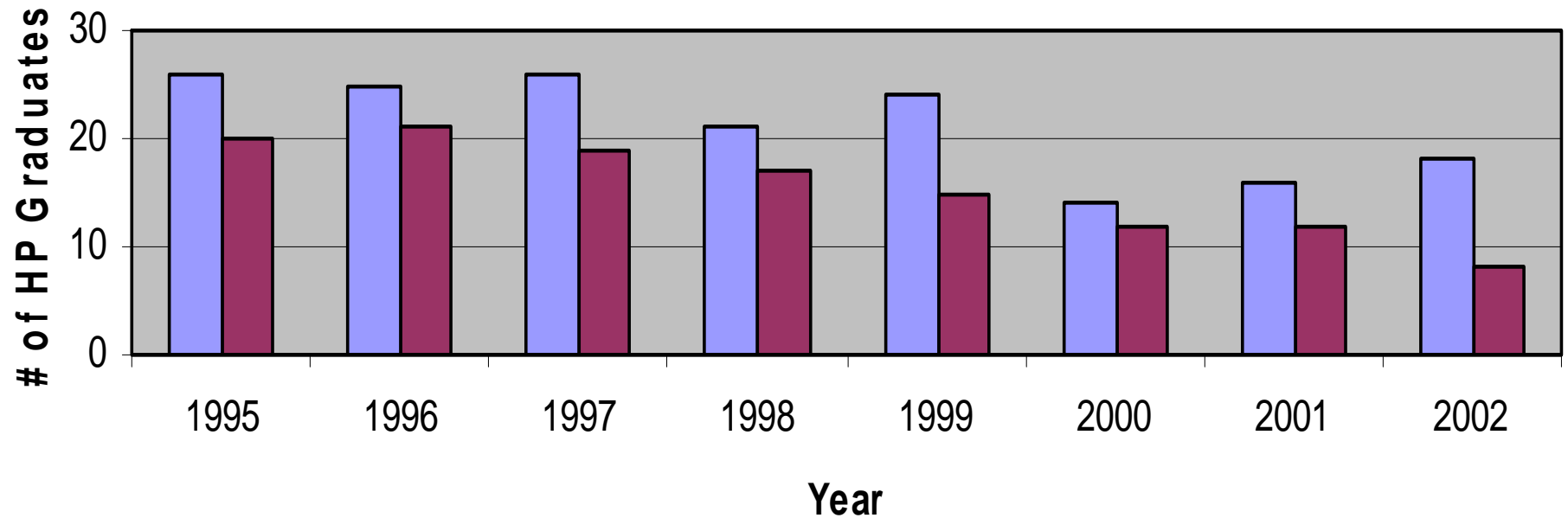
- 2692 hospitals have diagnostic radioisotope facilities
- 1191 hospitals have radiation therapy facilities
- 1092 hospitals have both diagnostic and radiation therapy facilities
- 580 of the 1092 hospitals are considered teaching hospitals**
- 210 of the 307 are classified as major teaching hospitals

Number of Students Graduating From HP Programs

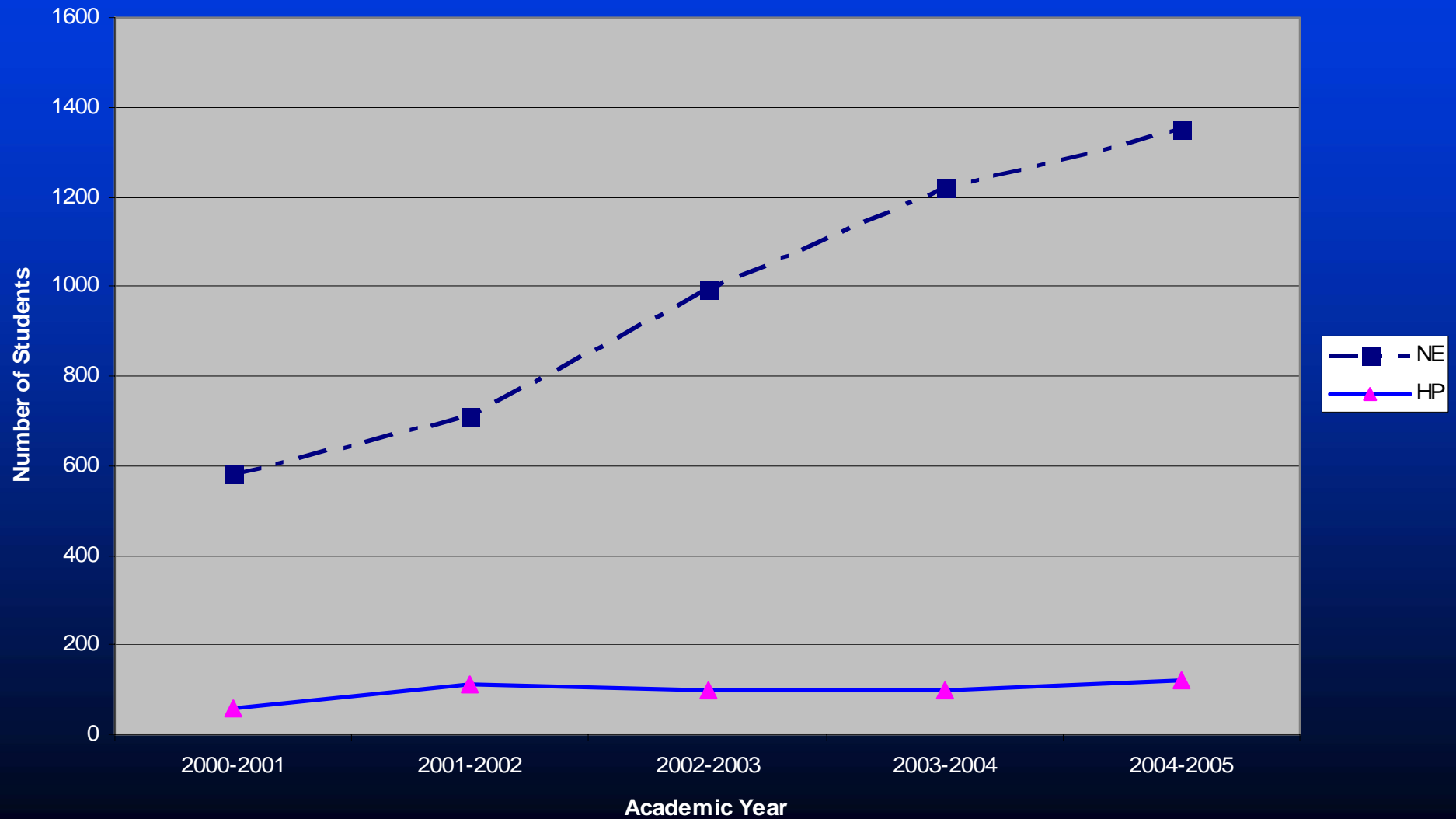


Health Physics Academic Programs

■ # of HP Programs Graduating > 3 Students/Yr ■ # of HP Programs Graduating > 5 Students/Yr



Nuclear Engineering and Health Physics Undergraduate Enrollment



History of HP Academic Support

- 1950-1973; 900 AEC/ERDA Health Physics Fellows
- 1989-1999 171 HP graduate fellowships awarded by DOE (ORISE 2000 Report to DOE)

Federal Funding Opportunities

- EPA – Science To Achieve Results (STAR)
 - FY 05 – 1 Fellowship - \$62,228 (1 yr)
 - FY 06 – 2 Fellowships - \$111,172 (2 yrs)
 - FY 07 – Not Yet Awarded

Federal Funding Opportunities

- Energy Policy Act of 2005 – DOE NE Program University Program

FY	Budget	Appropriations
05	\$200,000	\$150,000
06	\$300,000	\$300,000
07	\$0	\$300,000

Federal Funding Opportunities

- NERI (Nuc Eng Research Initiative) – DOE
Intended to replace DOE NE University Program in FY 08
Competitive grant program for GNEP (Global Nuclear Energy Partnership) research areas – Gen IV reactor design
HP not mentioned as an area of focus

Federal Funding Opportunities

- America COMPETES (Creating Opportunities to Meaningfully Promote Excellence in Technology, Education and Science) Act – S761 - DOE
 - Competitive grants for new and existing ‘nuclear science programs’ - Chap 5
 - Must partner with national lab or similar
 - PACE (Protecting America’s Competitive Edge) Graduate Fellowship Program – competitive merit review - Chap 7 –
 - Must attend institution that offers Ph.D. in relevant field
 - Must be US citizen

HPS Task Force Recommendations

- Continue to work with DOE and other federal agencies to secure funding for HP programs
- Explore private sources of funding for health physics academic programs
- Encourage ABET accreditation for 4 year and advanced degree health physics programs.
- Promote standardization or accreditation of technician level training through the NRRPT or similar organizations.
- HPS should commit to develop methods to encourage students to become interested in health physics programs.



HEALTH PHYSICS SOCIETY

HUMAN CAPITAL CRISIS TASK FORCE REPORT

July, 2004

Health Physics Society Human Capital Crisis Task Force

Kevin L. Nelson, Ph.D., CHP
Chair

<http://hps.org/documents/ManpowerTaskForceReport.pdf>



HEALTH
PHYSICS
SOCIETY



HUMAN CAPITAL CRISIS IN RADIATION SAFETY

POSITION STATEMENT OF THE HEALTH PHYSICS SOCIETY*

Adopted: August 2001

Contact: Richard J. Burk, Jr.
Executive Secretary
Health Physics Society
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Email: HPS@BurkInc.com
<http://www.hps.org>

The Health Physics Society (HPS) recommends significant financial support by the Congress and federal agencies for health physics programs in academic institutions to support faculty, students, and research associated with these programs and thus ensure an adequate supply of qualified radiation safety professionals.

A critical shortage exists in the supply of qualified radiation safety professionals throughout a broad spectrum of activities within the United States including medical practice and research, regulatory oversight, academic research, environmental protection, occupational safety, and the research and application of nuclear technologies. The public and occupational health, and environmental protection concern created within the HPS by this growing shortage is the potential for unnecessary radiation exposure of workers, the general public, and the environment. Further, with expanding uses of radiation in diagnostic and therapeutic medical applications and the potential expansion of nuclear technology to meet the nation's future energy needs, it is clear to the radiation safety community that the current imbalance between supply and demand will significantly worsen in the near term after which it will soon become untenable. The shortage of qualified radiation safety professionals will compromise the rigorous oversight necessary for the continued safe use of radiation for the benefit of the citizens of the United States. Although the existing academic programs have the potential to expand and meet the current demand for graduates in health physics, this potential cannot be realized without rapid and substantial investment by the Congress and the federal agencies responsible for the stewardship of radiation safety in the United States.

A recent survey conducted by the Health Physics Society indicates that present demand for radiation safety professionals is approximately 130% of supply.¹ Demand during the next five years, which appears to be related solely to attrition, outstrips supply by nearly 160%. Anecdotal information from

HP-2020 Ad Hoc Committee

- Established by Ruth McBurney
- Act on recommendations of Task Force
- Ad Hoc Members
 - Rich Brey
 - Derek Jokisch
 - Eva Hickey
 - Kent Lambert
 - Wes Bolch
 - Nolan Hertel
 - Kevin Nelson

HP-2020 Actions

- *Continue to work with DOE and other federal agencies to secure funding for HP programs* - Continue to follow
- *Explore private sources of funding for health physics academic programs* – Encourage endowments
- *ABET accreditation for 4 year and advanced degree health physics programs* - # of HP programs with ABET accreditation grows as value becomes more apparent
- *Promote standardization or accreditation of technician level training through the NRRPT or similar organizations* – Develop and publish a consensus core curriculum for associate degree programs
- *HPS should commit to develop methods to encourage students to become interested in health physics programs* – Student DVD

167 retire vs. 122 graduate every year

Will the replacements know what the numbers really mean?