

Porovnání výkonu zaměstnání radiologického fyzika v klinické praxi mezi ČR a USA – pětileté zkušenosti ze dvou klinických pracovišť v USA

Ing. Josef Novotný, Ph.D.

Nemocnice Na Homolce, Oddělení lékařské fyziky, Praha, ČR

Onkologická klinika 2.LF UK a FN v Motole, Praha, ČR

ČVUT FJFI, Katedra dozimetrie a aplikace ionizujícího záření, Praha, ČR

1.LF UK, Ústav biofyziky a informatiky, Praha, ČR

UT Southwestern Dallas, Texas

Assistant professor and medical physicist
(lead physicist for Gamma Knife and CyberKnife stereotactic program)



Scientific Discoveries



UT Southwestern Medical Center is home to many nationally and internationally recognized physicians and scientists, including five Nobel Laureates, 19 members of the National Academy of Sciences, and 18 members of the Institute of Medicine, a highly esteemed component of the NAS. Faculty members' investigations, ranging from the microscopic level to patient care as a whole, continue to bring about notable discoveries, important educational opportunities, and advanced treatment options for improved health care.

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Accuray CyberKnife G4



Elekta Leksell Gamma Knife 4C



University of Pittsburgh Medical Center Pittsburgh, Pennsylvania

Medical physicist and clinical assistant professor
(lead physicist for Gamma Knife stereotactic program)

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Elekta Leksell Gamma Knife Perfexion



Elekta Leksell Gamma Knife 4C



Elekta Synergy S



Může radiologický fyzik z ČR
pracovat v USA?

Za jakých podmínek?

Vzdělání a specializační vzdělání

ČESKÁ REPUBLIKA

České vysoké učení
Vysoká škola technická v Praze
Fakulta jaderná a fyzikálně
inženýrská

DIPLOM

Císlo diplomu AA 029208 C. 2268/93

Josef Novotný
(jméno a příjmení)

narozen(a) dne 26. července 19 69 v Praze okres Praha

ukončil(a) studium vykonáním státní zkoušky a získal(a) vysokoškolské vzdělání ve studijním oboru
jaderné inženýrství

Podle § 21 odst. 2 zákona č. 172/1990 Sb., o vysokých školách se mu (jí) přiznává akademický titul
inženýr
ve zkratce Ing.

V Praze dne 8. října 19 93

rektor vysoké školy
děkan fakulty

SEVT - 49 881 0

ČESKÁ REPUBLIKA

INSTITUT POSTGRADUÁLNÍHO VZDĚLÁVÁNÍ VE ZDRAVOTNICTVÍ

Císlo osvědčení: 3057-PV /19 99

OSVĚDČENÍ

Jméno a příjmení: Ing. Josef Novotný

Den, měsíc a rok narození: 26. 7. 1969

V době od do se účastnil(a)
speciální průpravy na úseku činnosti
technická spolupráce v oborech nukleární medicíny,
radiodiagnostiky a radioterapie

podle § 45 vyhlášky č. 77/1981 Sb., o zdravotnických pracovnících a jiných
odborných pracovnících ve zdravotnictví a zakončil(a) jej ověřením znalostí dne:
6. 12. 1999

SEVT 92 403 7 Petišek zahradn II. X. B. 036 97

Prof. MUDr. Karel Trnavský, DSc.
ředitel Institutu postgraduálního
vzdělávání ve zdravotnictví

Prof. Ing. Jan Vrba, CSc.
předseda zkušební komise

MINISTERSTVO ZDRAVOTNICTVÍ
ČESKÉ REPUBLIKY

na základě předložených dokumentů rozhodlo o vydání

OSVĚDČENÍ
k výkonu zdravotnického povolání
bez odborného dohledu

v oboru radiologický fyzik

pan Ing. Josef Novotný Ph.D.

narozen - datum a místo 26. 7. 1969 Praha

s platností do 27. 12. 2011 registrační číslo 025-0079-1986

podle § 67 a dále podle § 93 zákona č. 96/2004 Sb., o podmínkách získávání a uznávání způsobilosti k výkonu
některých zdravotnických povolání a k výkonu činnosti souvisejících s poskytováním zdravotní péče a o změně
některých souvisejících zákonů (zákon o některých zdravotnických povoláních) a podle § 46 a následujících zákona
č. 171/1967 Sb., o správním řízení (správní řád), ve znění pozdějších předpisů

k označení své odbornosti může připojit též označení „Registrováný(á)“

22. 2. 2006
datum

za Ministerstvo zdravotnictví

ČESKÁ REPUBLIKA

ČESKÉ VYSOKÉ UČENÍ TECHNICKÉ V PRAZE

Císlo diplomu HF 0007186

DIPLOM

Ing. Josef Novotný
titul, jméno a příjmení

narozen(a) dne 26. července 19 69 v Praze

ukončil(a) studium v doktorském studijním programu
Aplicace přírodních věd
Jaderné inženýrství kód 3913
ve studijním oboru
Fakultě jaderné a fyzikálně inženýrské

Podle § 47 odst. 5 zákona č. 111/1998 Sb. o vysokých školách a o změně a doplnění dalších zákonů se mu (jí) přiznává akademický titul
DOKTOR
ve zkratce „Ph.D.“ uváděné za jménem

V Praze dne 19. února 2003

SEVT - 82 875 1 B.N.B. 981 2001

Přijímací pohovor

Itinerary for Josef Novotny, PhD (Medical Physicist for Gammaknife)



<p>Arrive in Pittsburgh on Tuesday, March 27, 2007 American Airlines #3645 Depart Dallas @ 7:30 PM Arrive Pittsburgh @ 11:05 PM</p> <p>Hotel accommodation: Courtyard Marriott, 5308 Liberty Avenue, Pittsburgh, PA. 15213 Phone: 412/683-3113 Arrival: Tuesday, March 27 - Departure: Thursday, March 29 Confirmation: #84487322</p> <p><i>Ground transportation: First Class Limousine from hotel to Cancer Pavilion-Phone: 412/462-8000 (Located at the Hertz Rental counter at the bottom of the escalator near baggage pickup. They will have a pink sign with your name on it.)</i></p>	
INTERVIEW DATE – WEDNESDAY, MARCH 28, 2007	
<p>8:00 – 8:30 AM UPMC Cancer Pavilion 5150 Centre Avenue Fifth Floor, Room 543 Pittsburgh, PA 15232 (412) 647-1813 (Renée)Room</p>	<p>Gregory D. Ross, MBA <i>Operations Director</i> Department of Radiation Oncology UPMC Cancer Centers</p>
<p>8:30 - 9:30 AM UPMC Cancer Pavilion Room 542</p>	<p>M. Saiful Huq, PhD <i>Director of Medical Physics</i> Department of Radiation Oncology UPMC Cancer Centers</p>
<p>9:30 - 10:00 AM UPMC Cancer Pavilion Room 545</p>	<p>Dwight E. Heron, MD <i>Vice-Chairman of Clinical Affairs</i> Department of Radiation Oncology UPMC Cancer Centers</p>
<p>10:00 – 10:30 AM UPMC Cancer Pavilion 5150 Centre Avenue Fifth Floor, Room 543</p>	<p>HR UPMC Cancer Centers</p>
<p>10:30 – 11:00AM</p>	<p>Cheng B. Saw, PhD <i>Associate Director of Medical Physics</i> Department of Radiation Oncology UPMC Cancer Centers</p>
<p>11:30 AM – 1:00 PM Place TBD</p>	<p>Lunch (Dr. Huq, Krishna Komanduri, Dr. Saw)</p>

Itinerary for Josef Novotny, PhD (Medical Physicist for Gammaknife)

<p>1:00 PM UPMC Presbyterian Shadyside-Presbyterian 200 Lothrop Street, B Wing Pittsburgh, PA 15213</p>	<p><i>Limo to pick up at Cancer Pavilion entrance to travel to Presby</i></p>
<p>1:30 – 2:00 PM UPMC Presbyterian Department of Neurological Surgery Suite B-400</p>	<p>David Bissonette, PA-C, MBA <i>Assistant Professor and Executive Director</i> Department of Neurological Surgery</p>
<p>2:00 – 2:30 PM UPMC Presbyterian Suite B-461</p>	<p>Douglas Kondziolka, MD <i>Peter J. Jannetta Professor and Vice Chairman</i></p>
<p>2:30 – 3:00 PM UPMC Presbyterian Suite B-354</p>	<p>Mubina Quader, PhD <i>Medical Physicist @ Presbyterian</i></p>
<p>3:00 – 3:30 PM Department of Neurological Surgery Suite B-461 PUH</p>	<p>L. Dade Lunsford, MD <i>Lars Leksell Professor of Neurological Surgery</i></p>
<p>3:30 – 4:00 PM UPMC Presbyterian PUH B-441, Minimally Invasive endoNeurosurgery Center</p>	<p>Amin B. Kassam, MD, FRCS(C) <i>Associate Professor and Interim Chair</i> Department of Neurological Surgery</p>
<p>4:00 – 4:30 PM UPMC Presbyterian Suite B-343</p>	<p>John Flickinger, MD <i>Professor of Radiation Oncology</i></p>
<p>5:00 PM</p>	<p><i>Travel back to Cancer Pavilion to meet w/Dr. Huq</i></p>
<p>6:00 PM Place TBD</p>	<p>Dinner (Dr. Huq, Mubina Quader and others)</p>
THURSDAY, MARCH 29, 2007	
<p><i>Limo to pick up at Courtyard Marriott</i></p>	<p><i>Depart PIT @ 7:55 AM American Airlines #3714 Arrive Dallas @ 10:00 AM</i></p>

Uznání akademických titulů a atestace

Uznání titulu Ph.D. z ČVUT FJFI

Obecně vysoká tolerance na vzdělání

Atestace z ČR uznána není

Global Credential Evaluators, Inc.

P.O. Box 9203 • College Station, TX 77842-9203 • USA • 512-528-0908 FAX 512-528-9293

P.O. Box 1904 • Ocean Springs, MS 39566-1904 • USA • 228-818-4487

EVALUATION REPORT

DATE: February 15, 2006

NAME: Novotny, Josef

PURPOSE OF EVALUATION: Employment

REF: CZ20439.EM page 1 of 1

COUNTRY: Czech Republic

In the judgment of Global Credential Evaluators (GCE), Josef Novotny has completed education in Czech Republic equivalent to a Doctor of Philosophy (Ph.D.) in Nuclear Engineering awarded by a regionally accredited university in the U.S.

Josef Novotny presented to this evaluation service copies in the native language with English translations of the following academic credentials for evaluation.


Transcript and *Doktor*, 1995-02/19/2003,
Czech Technical University in Prague, Czech Republic

The transcript and *Doktor* indicate completion of a program of study in Nuclear Engineering. This program included a thesis titled: "Implementation of the nuclear magnetic resonance polymer-gel dosimetry into clinical practice." Admission into this program requires the equivalent to a U.S. college or university diploma.

The Czech Technical University in Prague, a public institution, was founded in 1707. The language of instruction is Czech. The government recognizes the programs and degrees.

Having been employed for six years as a full-time credential evaluation specialist with a private credential evaluation service in the United States, I, Margaret R. Donaldson, am qualified to review international academic records. I am an active member of NAFSA: Association of International Educators which conducts educational research and publishes the recommendations of the National Council on the Evaluation of Foreign Educational Credentials. GCE is a member of National Association of Credential Evaluation Services, (NACES®).

This evaluation conforms with the placement recommendations approved by the National Council on the Evaluation of Foreign Educational Credentials and published by the American Association of Collegiate Registrars and Admissions Officers and NAFSA: Association of International Educators. GCE prepares evaluation reports based upon copies of educational documents, unless otherwise indicated above. While GCE verifies submitted credentials in order to conduct a thorough and professional evaluation, we cannot guarantee the authenticity of a particular document. A copy of this evaluation report and Josef Novotny's credentials will remain on file and available for five years. Please make all inquiries in writing to the above address.


Margaret R. Donaldson,
Global Credential Evaluators, Ocean Springs, MS

Atestace



Část 1 (test z obecné fyziky a klinických základů, kandidát musí být alespoň zapsán do dvouletého CAMPEP schváleného rezidenčního programu)

Část 2 (test z dané specializace, kandidát musí mít ukončen CAMPEP schválený rezidenční program)

Část 3 (závěrečná ústní zkouška z dané specializace)

Commission on Accreditation of Medical Physics Educational Programs (CAMPEP)

Graduate Education Programs

Residency Education Programs

Professional Doctorate Degree Programs

Continuing Education

CAMPEP

Commission on Accreditation of Medical Physics Educational Programs, Inc.

Logged in as josef.novotnyml@homolka.cz, CAMPEPID# 18137 | [Logout](#)

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Online Instructions
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[CAMPEP.org](#)

Continue Application Process

Application No. 6523

17th International Leksell Gamma Knife Society Meeting

Total Application Fee: \$210.00

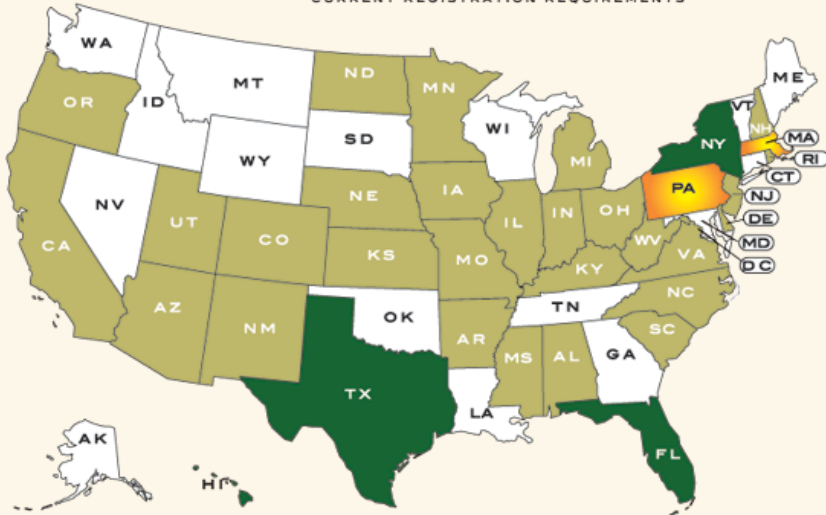
Completed Checklist	Checklist Items	Description
✓	[Program Title and Date] *	The title of your program and the date the program will begin.
✓	[Program Details] *	Your program URL, program location and hosting sponsor.
✓	[Application Type] *	Annual Program - An Annual Program is comprised of educational activities with varying topics offered by the same applicant on an annual basis.
✓	[Application Form] *	You must first download the application form. Once you have completed the form, please return to CAMPEP to continue the application process.
✓	[Upload Application Form] *	You may upload your WORD document application form into our system. Once your application has been submitted for review, you will not be able to upload your application again.
✓	[Program Director] *	You must have a least one Program Director assigned to an application. Therefore before the application can be submitted, the Program Director must have a biographical form on file.
✓	[Program Contact] *	Add Program Contacts to the application. NOTE: If there is at least one program contact assigned to this application, the completed checklist box will be checked.
	[Educational Activities] *	You may upload your Educational Activities using an Excel file only or add them individually using a form. This item will not be checked if the faculty/speaker agreements have not been verified.
Pending Agreements	[Faculty/Speaker Agreements] *	The Faculty Agreement to Participate form must be distributed to each faculty/speaker participating in the educational program.
	[Supporting Documentation]	The supporting documentation area is a place to upload documents that may assist the reviewers in making their decision. Supporting documentation is not required.

* Denotes a CAMPEP requirement.

Licence pro výkon práce radiologického fyzika

State Regulations and Licensure

 LICENSURE  REGISTRATION  LICENSURE TARGET STATE  NONE OR NO INFORMATION
*VIEW STATE INFO BELOW FOR ANY CURRENT REGISTRATION REQUIREMENTS



TEXAS BOARD OF LICENSURE FOR PROFESSIONAL MEDICAL PHYSICISTS

does hereby certify that

JOSEF NOVOTNY

*is duly qualified to practice medical physics in
the State of Texas in the specialty area(s) of*

Therapeutic Radiological Physics

and is entitled to be known as a

Temporary Licensed Medical Physicist

Awarded
06/06/2006

Expires
06/30/2007

License Number
TMP6196

Philip D. Bourland

Philip D. Bourland
Presiding Officer



Renewal issued 06/08/2006
6820062944

Pro práci s Leksellovým gama nožem

FBI background check



Otisky prstů




American Association of Physicists in Medicine (AAPM)

Unencrypted | Logged in as Dr. Novotny, AAPM ID# 30614 | Logout

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The American Association of Physicists in Medicine
We advance the science, education and professional practice of medical physics

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Josef Novotny Jr., PhD
Assistant Professor, Medical Physicist [\[New Search?\]](#)

CONTACT MEMBERSHIP CHAPTERS SPECIALIZATION



volunteers have unlimited views of directory contact information

Address Book Import
.vcf file [instructions]
-or-
(scan barcode with
smartphone to import
contact information)

Josef Novotny Jr., PhD
Assistant Professor, Medical Physicist

Medical Physics Department
Hospital Na Homolce
ROENTGENOVA 2
PRAGUE 15030 CZECH REPUBLIC

+420-257-272-919 (w)
josef.novotnyml@homolka.cz
+420-603-440-249 (m)



Dr. Novotny (Josef)
Dr. Novotny on AAPM's flickr

CONTROL PANEL
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focus on our future donor

View Self-Reported Potential Sources of Conflict of Interest

Committee Memberships [\[View History\]](#)
View my 2014 Committee Appointment Letter

Member of TG 178 Gamma Stereotactic Radiosurgery Dosimetry and Quality Assurance

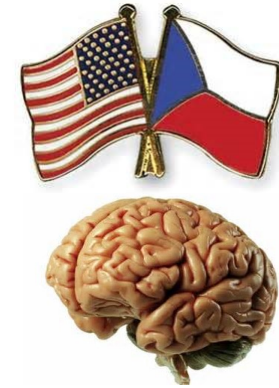
Current Individual Appointments
Click [here](#) to see the Individual Appointments Summary.

Benefits of Membership

- AIP and IOMP Affiliation:** The AAPM is a member society of the AIP (American Institute of Physics) and the IOMP (International Organization of Medical Physics); as such, AAPM Members (except Corresponding and International Affiliate who need to opt-in to receive the papercopy) receive the AIP's journal, Physics Today, free with their paid membership, as well as discounted subscriptions to dozens of other physics publications, including Physics in Medicine and Biology and Computing in Science & Engineering. Those already receiving Physics Today through other AIP membership(s) will not receive two copies.
- Committee Participation:** The AAPM has more than 100 councils, committees, subcommittees, and task groups that meet at least twice a year to discuss, determine, research, and/or publish information important to the profession of medical physics and to its practitioners. The AAPM has published over seventy task group reports; they are published in Medical Physics when appropriate, or published separately and mailed to all AAPM members in the subsequent monthly mailing. Each year, the AAPM President-Elect calls for Members to request committee assignments for the following year. The standard duration for a committee appointment is one three-year term.
- Medical Physics Journal:** Each AAPM Member and Affiliate are granted access to the AAPM peer-reviewed, scientific journal, Medical Physics Journal online. Full, Resident, Junior, and Associate will receive print issues of Medical Physics according to the quarter in which they join. All other categories of Membership and Affiliation may subscribe to the print version of the journal for a small additional fee.
- Meetings:** The AAPM holds an Annual Meeting each year during the summer. This five-day meeting includes scientific and continuing education sessions, technical exhibits, and paper displays. Please contact the AAPM for more information. At the RSNA (Radiological Society of North America) Meeting each autumn, designated AAPM Members are responsible for the physics scientific program; as such, the RSNA invites all AAPM individual Members to register at a reduced fee. For RSNA Meeting registration information, please contact the RSNA at (630) 571-2670.
- Membership Directory:** The on-line AAPM Membership Directory contains the current information for each calendar year, including names of executive officers, dates for upcoming meetings, lists of the Board of Directors and Regional Chapter officers, lists of each existing council, committee, and task group and its members, and the current version of the AAPM By-Laws and Rules. Members are requested each quarter to correct their "directory address" (which is not necessarily the same as the mailing address) for the alphabetical and geographical listings in the directory and the web site.
- Career Services:** AAPM maintains a Career Services, the AAPM Bluebook, that allows AAPM Members to search or browse position listings online. The powerful Job Search feature allows members to specify a search criteria to be saved so that each time a new ad that meets that criteria is approved and published online, an email notification will be sent via email.
- Regional Chapter Affiliation:** There are 20 AAPM Regional Chapters. Each chapter holds its own meetings, elects its own officers, and sends a Board Representative to the national Board of Directors' meetings. Individuals who have interests similar to the objectives of the AAPM but who are not eligible or do not wish to be members of the AAPM may be members of one or more Regional Chapters.
- Salary Survey:** Every Spring, the AAPM requests salary and occupation data from each of its North American members. The data is analyzed and posted online in June for member-only access.
- Summer School:** Each Summer, the AAPM hosts a Summer School on a university campus in North America, focusing on applications in medical physics. The subject alternates between diagnostic and therapy topics from year to year. Please contact the AAPM for more information on our next Summer School.
- Web Site:** All of the above information AND MORE is available at [AAPM Online](#). There is a section for Members Only and a section of general information. The AAPM application can be [found here](#). Members have access to the Online Membership Directory, the Online Career Services, the Online Medical Physics Journal, and other Members Only sections.

Adaptace na pracovní, životní styl a kulturní prostředí USA

≈ 3-6 měsíců jazyková adaptace pro zkušeného mluvčího



≈ 3 roky adaptace na pracovní a mezilidské vztahy



≈ ∞ adaptace na tzv. „American culture“



Styl práce a vztahy na pracovišti v USA

Kolegové původem z celého světa

Oslovení křestním jménem



Veliký důraz na samostatnou práci a osobní zodpovědnost
oproti týmové práci

Velmi malá vzájemná osobní kontrola a kontrola ze strany
vedoucího

Styl práce a vztahy na pracovišti v USA

Očekávaná vlastní aktivita oproti jen plnění přidělených úkolů

Většinou ne příliš velká ochota sdílet informace → „Job security“

Důraz na rychlost a efektivnost

Pro některé pozice pracovní doba 24/7

Vysoký stupeň vzájemné důvěry i mezi jinými pracovišti
(zapůjčení přístrojů apod.)

Styl práce a vztahy na pracovišti v USA

Důsledné dodržování předpisů, standardních postupů apod.

Nulová tolerance k neohlášení či neupozornění na nestandardní situaci nebo dokonce radiologickou událost

Systemové nikoliv osobní řešení problémů na pracovišti a radiologických událostí

Možný rychlý kariérní postup bez ohledu na „odsloužená léta“

Neexistuje kategorizace pracovníků (kategorie A, B)

Hlavní pracovní náplň radiologického fyzika na RTO

„Acceptance and Commissioning“ nových systémů

Klinická práce s pacientem (plánování, brachyterapie, stereotaktická radiochirurgie, IMRT QA apod.)

“Initial chart check“ – první kontrola ozařovacího plánu s
nezávislou kontrolou MU - ruční výpočet
- nezávislý software
- měření

“Weekly chart checks“ – týdní kontrola ozařovacího plánu a kontrola
průběhu ozáření

“Daily, Monthly, Annual QA“ – zajištění všech aspektů ZPS a ZDS

Řešení veškerých nestandardních a problémových situací

Akademická práce: výuka a výzkum

Struktura a odpovědnosti na RTO v USA

Clinical director
Vedoucí lékař

Administrative director
Vedoucí administrativní manažer

Physicians
Lékaři

Nurses
Zdravotní sestry

Technicians
Sanitáři

Medical physicists
Radiologičtí fyzici

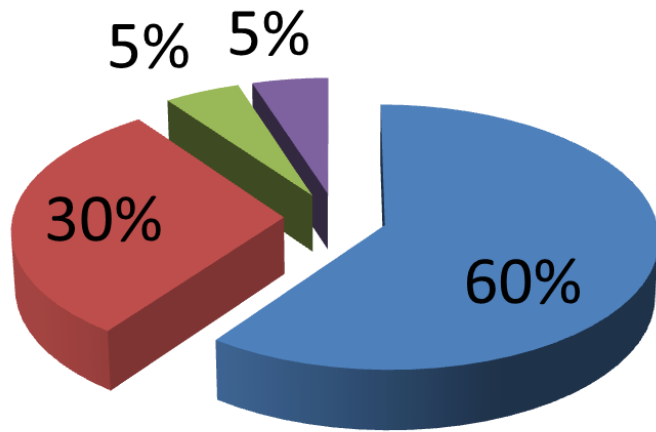
Radiation safety officer
Radiologický fyzik – dohlížející osoba

Dosimetrists
Radiologický technik/asistent

Therapists
Radiologičtí asistenti

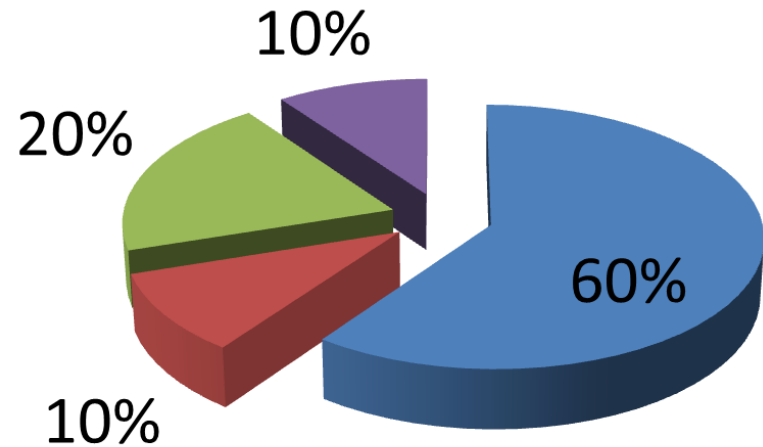
Rozdělení pracovní náplně

USA



- Klinická práce zahrnující QA
- Akademická činnost (výzkum, výuka)
- Administrativa a papírování
- Ostatní

Česká republika



- Klinická práce zahrnující QA
- Akademická činnost (výzkum, výuka)
- Administrativa a papírování
- Ostatní

„Administrativní tlak“ na radiologického fyzika v ČR

Tvorba a udržování veškeré dokumentace vůči SÚJB



Tvorba a udržování organizačních směrnic, standardních operačních postupů, místních radiologických standardů aj. dokumentace v rámci nemocnice

Nyní také dokumentace spojená s interními klinickými audity

„Administrativní tlak“

Méně času na klinickou práci a zejména pacienta

Méně času na zavádění nových metod do klinické praxe

Méně času na výzkumnou a vývojovou činnost

Vedou vysoké nároky a veliký rozsah dokumentace k opravdu kvalitnější práci?



Příklad publikační aktivity z ČR

PubMed.gov US National Library of Medicine National Institutes of Health

PubMed (Czech Republic) AND "Medical physics"[Journal]

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Clinical Trial
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Publication dates
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Humans

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Results: 7

[Long-term stability of the Leksell Gamma Knife® Perflexion™ patient positioning system \(PPS\).](#)
1. Novotny J Jr, Bhatnagar JP, Xu Y, Huq MS.
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Germany	624
Italy	232
Spain	122

Příklad povolení v USA

Official Use Only – Security Related Information

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Official Use Only – Security Related Information



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF RADIATION PROTECTION
RADIOACTIVE MATERIALS LICENSE



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF RADIATION PROTECTION
RADIOACTIVE MATERIALS LICENSE

Page 4 of 4 Pages
License No. PA – 0190A
Amendment No. 2

Pursuant to the Radiation Protection Act, the Act of June 22, 1961 (P.L. 1270), and the Regulations, Article V, Radiological Health of the Act of June 22, 1961 (P.L. 1270), this license is granted at the places designated below. This license is issued by the Department of Environmental Protection now or hereafter.

Licensee

1. University of Pittsburgh
2. Radiation Safety Office
G-7 Parran Hall/GSPH
130 DeSoto Street
Pittsburgh, PA 15261

6. Byproduct, source, and/or special nuclear material

- | | |
|-----------------------------------------|----|
| A. Cobalt 60 permitted by 10 CFR 35.600 | A. |
| B. Cobalt 60 permitted by 10 CFR 35.600 | B. |
| C. Cobalt 60 permitted by 10 CFR 35.600 | C. |

9. Authorized use:

- A. For medical use permitted by 10 CFR 35.600, Gamma System Model 23016 Type as necessary for replacement of the source.
- B. For medical use permitted by 10 CFR 35.600, Gamma System Model 24001 Type as necessary for replacement of the source.
- C. For medical use permitted by 10 CFR 35.600, Gamma System Model Perfexion as necessary for replacement of the source.

10. Licensed material may be used or stored at the following location:
Hospital, Room G-102 for Model 23016
Lothrop Street, Pittsburgh, PA. 15261

11. The Radiation Safety Officer for this license is:

12. Licensed Material is only authorized for use at the following location:

A. Individuals permitted to work as authorized by 10 CFR 35.13 and 35.14.

B. The following individuals are authorized:

Authorized Users

Melvin Deutsch, M.D.

John Flickinger, M.D.

Gregory Kubiek, M.D.

Susan Rafkal, M.D.

Yoshio Arai, M.D.

C. The following individuals are authorized medical personnel:

Authorized Medical Physicists

Greg Bednarz, Ph.D.

Jagdish Bhatnagar, Ph.D.

Jong Kim, Ph.D.

Mubina A. Quader, Ph.D.

Josef Novotny, Ph.D.

13. The licensee is authorized to transport licensed material in accordance with the provisions of 25 Pa Code Chapter 71, "Packaging of Radioactive Material" and the provisions of 10 CFR Part 71, "Packaging of Radioactive Material" incorporated by reference.

14. Notwithstanding the requirements set forth in this license, the licensee shall comply with the requirements for transactions involving nationally tracked sources by the dates imposed in that paragraph, and the licensee shall comply with the requirement to report any manufacture, transfer, receipt, or other activity otherwise allowed by this license by the close of the month following the date of the activity, as defined in 10 CFR 20.1003, refers to a source that is a Category 1 or Category 2 level of radioactive material and exceeds the Source Thresholds.

15. The licensee must comply with the initial inventory requirements for nationally tracked sources by the dates imposed in that paragraph, and the licensee shall comply with the requirement to report any manufacture, transfer, receipt, or other activity otherwise allowed by this license by the close of the month following the date of the activity, as defined in 10 CFR 20.1003, refers to a source that is a Category 1 or Category 2 level of radioactive material and exceeds the Source Thresholds.

16. The licensee shall comply with the requirements described in the Department's Order Modifying Licenses to Impose Increased Controls and Imposing Fingerprinting Requirements and Criminal History Records Check Requirements for Unescorted Access to Certain Radioactive Material, dated March 31, 2008 (IC Order). The licensee shall complete implementation of the requirements in the IC Order by the first day that radionuclides listed in Table 1 of the IC Order are possessed at or above the limits specified in the table. All measures implemented or actions taken in response to the requirements in the IC Order shall be maintained until the Department orders otherwise or until the Department explicitly modifies its regulations to reflect increased controls, and states in modifying its regulations that the revisions are to supercede the IC Order. The licensee shall notify the Pennsylvania Department of Environmental Protection's Bureau of Radiation Protection when they have achieved full compliance with the requirements described in the IC Order. The notification shall be made within twenty-five (25) days after full compliance has been achieved. This notification shall include a certification that the Trustworthiness and Reliability (T&R) Official (and any subsequent T&R Official) is themselves deemed trustworthy and reliable by the Licensee as required in D.2 and D.4 and Attachment C of the Order. The licensee shall notify the Director of the Bureau of Radiation Protection within 24 hours if the results from a criminal history records check indicate that an individual is identified on the FBI's Terrorist Screening Data Base.

17. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents including any enclosures, listed below. This license condition applies only to those procedures that are required to be submitted in accordance with the regulations. Additionally, this license condition does not limit the licensee's ability to make changes to the radiation protection program as provided for in 10 CFR 35.26. The Department of Environmental Protection's (DEP) regulations shall govern unless the statements, representations and procedures in the licensee's application and correspondence are more restrictive than the regulations.

- A. Application dated August 30, 1994 (NRC)
- B. Letter dated March 3, 2005 (NRC)
- C. Letter dated July 16, 2007 (NRC)
- D. Letter dated July 27, 2007 (NRC)
- E. Letter dated August 28, 2007 (NRC)
- F. Letter dated September 17, 2007 (NRC)
- G. Letter dated October 17, 2007 (NRC)

For the Pennsylvania Department of Environmental Protection

John S. Chippo
Bureau of Radiation Protection
P. O. Box 8469
Harrisburg, PA 17105-8469

Date: April 12, 2010

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Dozimetrické audit, inspekce, interní audit apod. v USA

Dozimetrický audit po primární kalibraci svazku není vyžadován pokud není oddělení součástí RTOG studie

Inspekce probíhají v mnohem menší míře než v ČR

Každé 3 měsíce krátký interní audit prováděný „Radiation safety officer“

Kontrola jednotlivých pracovišť prostřednictvím „senior physicist“

Pravidelné schůze všech radiologických fyziků, kde jsou probírány problémy na pracovišti a radiologické události

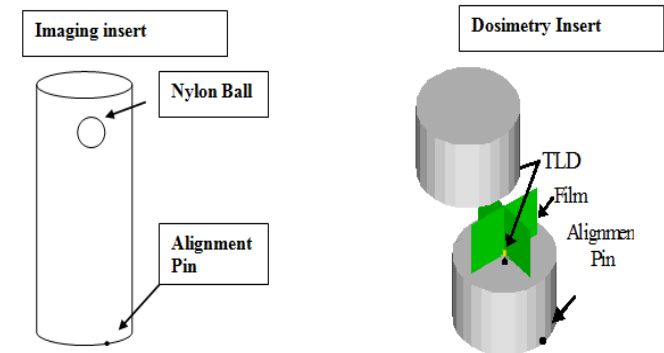
V případě urgentní situace – „conference call“



Nezávislý audit od RPC

- Kontrola celého řetězce:
 - CT zobrazení
 - Zakreslení objemu
 - Výpočet dávky
 - Zobrazovacího systému na ozařovači
 - Registrace obrazu
 - Polohování stolu
 - Dodání dávky

Stereotactic Radiosurgery Head Phantom



Různé fantomy pro různé anatomické oblasti



Thorax-Lung Phantom

Pelvic-Prostate Phantom



Pacient

Většinou velmi dobře informován až „vzdělán“ o svém onemocnění

Očekává stoprocentně kvalitní servis a komunikaci

Pacienti z celého světa – často nutná přítomnost tlumočnicka

Mnohem častější používání tlumících prostředků a celkové anestezie do pozdějšího věku u dětí

Je léčen „konkrétním lékařem“ a nikoliv „týmem“

Je placíím pacientem a tudíž nemusí dávat žádné „úplatky“



Plat a benefity radiologického fyzika v USA

Základní roční plat plus eventuální roční bonus

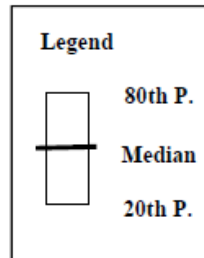
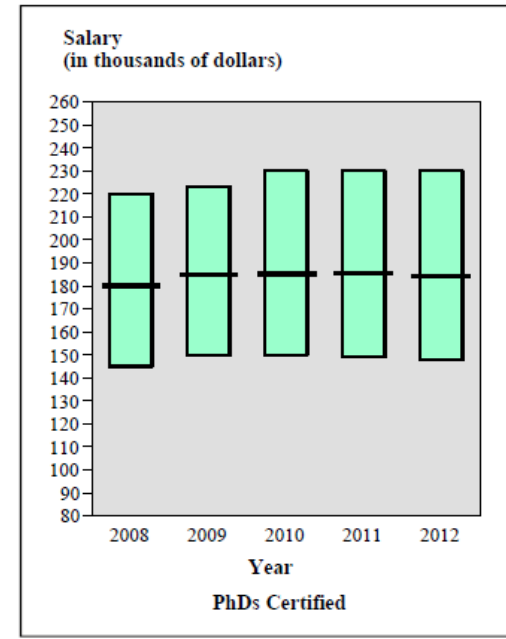
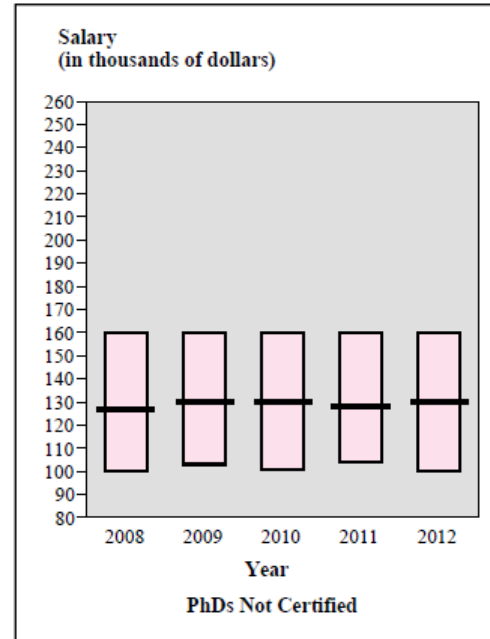
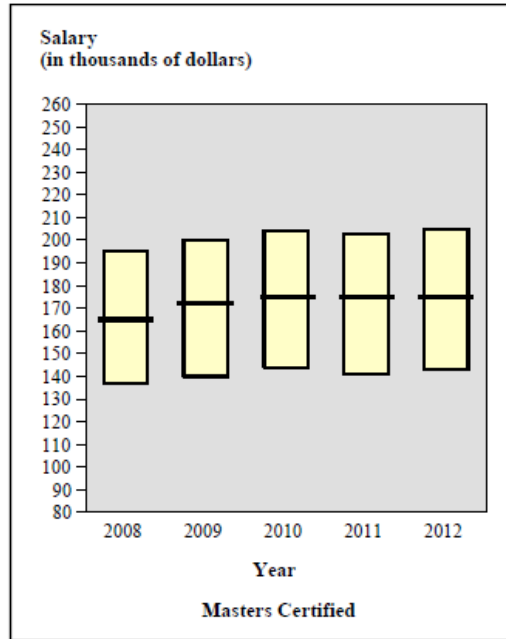
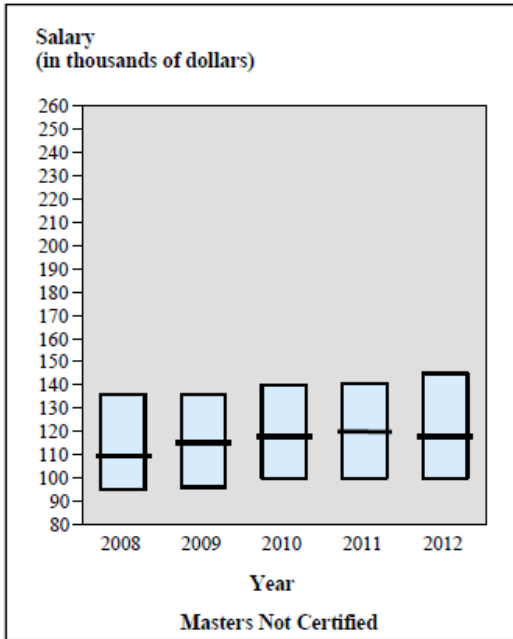
Dovolená a nemocenská (dohromady cca 4 týdny)

Výhodný program zdravotního pojištění

Důchodové spořicí programy

Další benefity jako např. platba školného pro děti

Plat radiologického fyzika v USA



Srovnání USA a ČR

Dle mé zkušenosti lze konstatovat, že úroveň zdravotní péče – vlastního výkonu v ČR je na velmi vysoké úrovni srovnatelné s USA

Rovněž úroveň radiologické fyziky v ČR je na velmi vysoké úrovni srovnatelné s USA

V USA je podstatně lepší komunikace s pacientem

Pracovní náplň radiologického fyzika v USA je méně soustředěna na rutinu a papírování a více na odbornou a vědeckou činnost

Srovnání USA a ČR

V USA je dění na oddělení dynamičtější – častější personální změny i výměna technologií

V USA je práce v medicíně velmi často motivována finanční odměnou a méně pečovatelskou či vědeckou motivací

DĚKUJI ZA POZORNOST!

