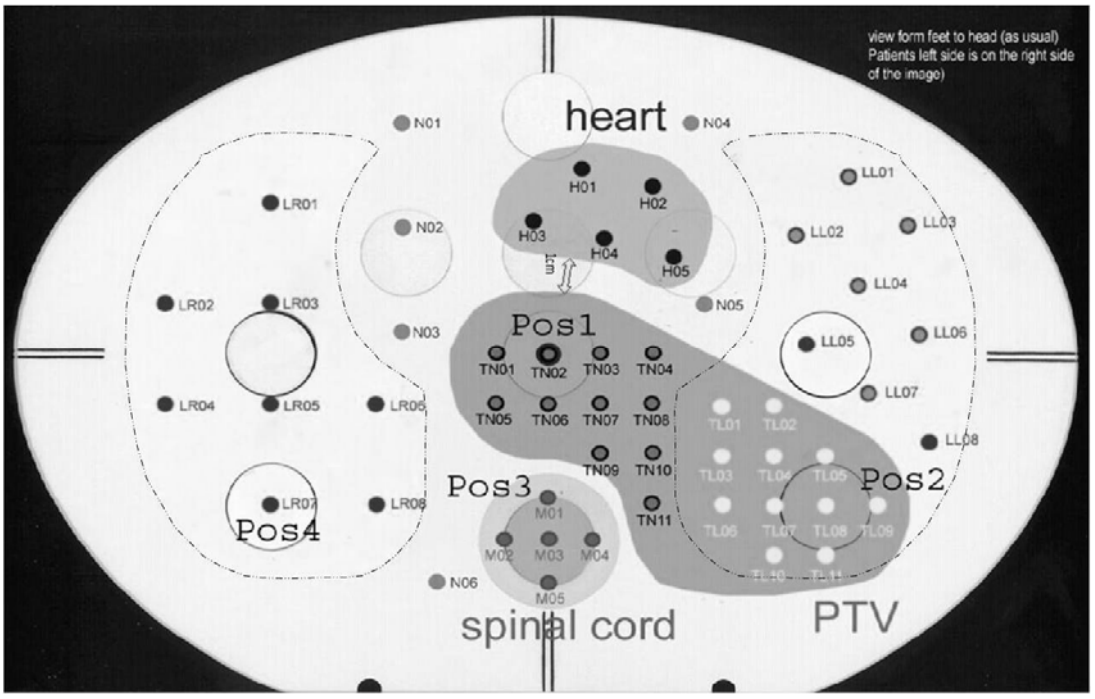
Schweizerische Gesellschaft für Strahlenbiologie und Medizinische Physik
Société Suisse de Radiobiologie et de Physique Médicale
Società Svizzera di Radiobiologia e di Fisica Medica

SGSMP
SSRPM
SSRFM



BULLETIN
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Nr. 68 April 2009

Online Bulletin: http://www.sgsmp.ch

BULLETIN Nr. 68

(April 2009)

Titelbild: Results of the IMRT dosimetry intercomparison 2008, see page 16

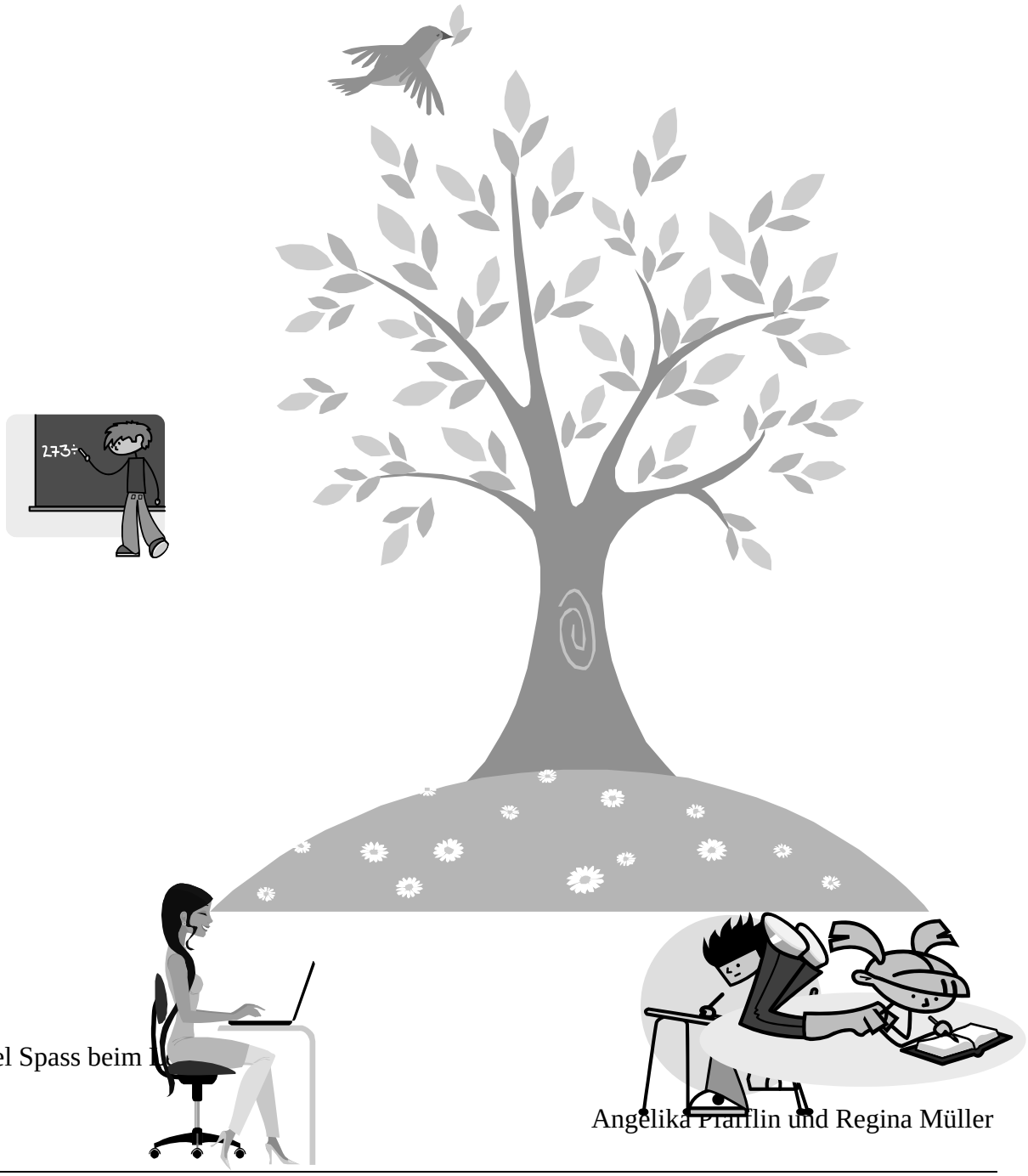
Editorial

Liebe Kolleginnen und Kollegen

Was ist eigentlich ein Redaktionsschluss?
… der richtige Zeitpunkt um mit dem Schreiben eines eigenen Beitrages zu beginnen!

Das braucht seine Zeit – schreiben ist eine kreative Angelegenheit! Und so ist es auch diesmal wieder Anfang Mai geworden bis Ihr dieses Bulletin in Händen haltet.

Selbstverständlich ist auch dieses Bulletin wieder eine ansehnliche Gemeinschaftsleistung vieler Menschen geworden: Mitglieder und Nichtmitglieder. Herzlichen Dank!



Viel Spass beim L

Angelika Plaffin und Regina Müller

Dear Colleagues, dear Friends

Here we are with the spring edition of our bulletin: I hope you will find lot of interesting materials for your evening or train readings and some hint for your daily activities.

In an excess of visibility, the Board decided to update the official photograph and to add few words of comments to make us "speaking". It is not well animated as an Harry Potter's world photo… but it is nice enough. Be sure, the Board is taking care of the society!

More serious, and more important, is the appointment of a new Vice President. I personally wish to Peter all the best in his new position that, I'm sure, will be heavy and tough… but he has the character and the sympathetic attitude to serve SGSMP in a truly productive way.

We also decided to refresh our minds, with an historical overview of the previous Boards, showing how long is our history but showing also the increased number of members, meaning that the society both has grown continuously and the duties increased similarly. We have still a lot to do but we should be well equipped to face the future.

I do not want to consume too much space this time with political considerations, we are just trying to work on a project between SGSMP and SPAMP to settle all possible open issues and to reach a fully satisfactory status. We will keep you posted on the project, so stay tuned.

Other important matter of consideration, among the current dossier list, is the discussion with BAG and other authorities on the necessity or not for a mandatory In Vivo Dosimetry in Switzerland. We exploited an electronic questionnaire and the results were reported to BAG. The common feeling was that it is doubtful if in vivo dosimetry will eliminate completely the risk of severe accidents and if the methods available today are accurate and sufficient to precisely determine the level or errors we would like to detect. Also in this case the discussion is quite open.

From the scientific point of view, I am really happy to read in this bulletin the report from the IMRT dosimetry intercomparison performed mostly by our colleagues in St. Gallen with the cooperation of many centers through the country. This is the first report from the SGSMP research grant project, and I would consider it as a full success. We are now waiting for the future projects and for the relative reports. A door was opened and now we have to use the path it disclosed.

Enjoy your Bulletin

Luca Cozzi, Bellinzona

Wolf Seelentag: Without my father (a radiation oncologist) I would likely never have heard about "medical physics" during my education at Berlin Technical University. So, after my diploma, I packed my household effects into the car and drove to England. At the Royal Marsden Hospital / Institute of Cancer Research (Sutton, Surrey) I did my PhD with Jack W. Boag (which already dates me a bit) on silverless radiological imaging. During my time there Godfrey Hounsfield himself installed the worldwide first clinical CT scanner in Sutton, and Paul Lauterbur gave a talk on zeugmatography (today better known as MR imaging). It was an interesting time - but I still returned to the continent - first to the Secondary Standard Dosimetry Laboratory at GSF (München-Neuherberg), where I measured x-ray spectra with high resolution. One evening I got a phone call from Wolfgang Horst, inviting me to come to Zürich (USZ). Three years later the family (by now) moved to St.Gallen, with Urs Lütolf - and unlike him I stayed in St.Gallen. Having been around in Europe quite a bit, and as a "European by heart", it will not be surprising that I also got involved in EFOMP (amongst other societies), serving as Secretary General for four years, with Karl Arne Jessen and Fridtjof Nüsslin being "my" presidents. Today my favourite "pastime" is being president of the SSRMP Certification Commission.

Daniel Vetterli, Biel: Meine Arbeit als Medizinphysiker am Radio-Onkologiezentrum in Biel ist sehr vielseitig und ich schätze meine Unabhängigkeit und die Möglichkeit den Betrieb mitgestalten zu können. Dank dem Verständnis der Geschäftsleitung kann ich meine Tätigkeit als Mitglied des Vorstandes der SGSMP ausüben. Hier gefällt mir, mit meinen Kollegen zusammen interessante Themen, die unseren Beruf betreffen, diskutieren zu können, aber auch zum Funktionieren unserer Gesellschaft beitragen zu können. Als Ausgleich zum Beruf geniesse ich zusammen mit meiner Frau die Nähe zu den Bergen, wo wir uns im Winter beim Langlaufen und im Sommer bei ausgedehnten Wanderungen erholen.

Frédéric Corminbœuf, Bern: Frédéric represents the board of spamp. He likes nuclear medicine and children ☺.

In 2001, **Werner Roser** replaced Horst Nemec in the SGSMP board. At that time, he acted as editor of our Society's Bulletin (together with Roman Menz). Since 2003 he is SGSMP's treasurer. Being originally an MR physicist, he has been working since 1997 at Paul Scherrer Institute, where he is currently dealing with regulatory and safety related documents concerning the proton therapy installations and a new electron accelerator facility for research purposes. He'll soon be father of four children, who keep him on the go.

Markus Notter, La Chaux-de-Fonds: radio-oncologue depuis 1984. Il est actuellement Médecin chef du Service de Radiothérapie à La Chaux-de-Fonds. Il utilise la radiothérapie conformationnelle depuis plus de 15 ans, la simulation virtuelle depuis plus de 10 ans et l'IGRT en routine depuis septembre 2005. Ces autres spécialités sont les traitements des cancers cutanés, les irradiations des affections non-malins et l'application clinique de l'hyperthermie depuis 1984. 1988 il a établit comme un des premiers centres en monde l'hyperthermie profonde à l'hôpital cantonal de Aarau.

Marc Pachoud, Lausanne: I have never heard of medical physics before starting my Phd in 1998 at the IRA (Lausanne). I have finished my thesis in 2003 and have received my SSRPM certification at the end of 2003. After my thesis I have worked as a research engineer for the Bosch Company in the field of automotive. We have developed some visual systems mounted in cars (night visions and head-up displays systems) which help the driver during his driving task; nothing to do with radiotherapy but very interesting.
In 2006, I was engaged by the IRA as a medical physicist in the radiotherapy group. I have a little daughter (19 months) and my favourite hobbies are alpinism, climbing and skiing.

Luca Cozzi – our travelling president – we just wonder how he manages to participate on our board meetings – and we are lucky that his family allows him to work for us ☺.

Peter Manser, Bern: Peter is our newest member in the board. For further information please have a look on the next page ☺.

Jean-François Germond, La Chaux-de-Fonds: Our French speaking senior brings also a lot of practical and scientific experience. He still fights for having the statutes of our society in French ☺

Angelika Pfäfflin engagiert sich im Vorstand der SGSMP, weil sie es wichtig findet, über den eigenen Tellerrand hinauszuschauen. Her language skills are available but could be better. Le problème c'est le Français ☺. Sie macht – zusammen mit Regina Müller – unser Bulletin, mittlerweile seit 5 Jahren. Are there any colleagues who could imagine to enlarge our little team? Notamment parlant Français? O Italiano? ☺ ☺ ☺… just email : medphys.pfaefflin@bluewin.ch

Peter Manser, New SSRMP-Vice President

This is not my first article in the bulletin of SSRMP, but it is my first article as vice president of SSRMP where I want to give a picture about me and the topics I want to address as board member. But first of all, I would like to thank all of you for the election at the last general assembly in Chur and hence for giving me the opportunity to serving in the board of SSRMP.

I have studied physics at ETH Zurich and after graduation in 1998 I was research assistant at the Institute for Biomedical Engineering at ETH and University of Zurich and received my doctoral degree in 2003. Since 2003, I am working as a medical physicist at the Division of Medical Radiation Physics at Inselspital and University of Bern. In this position, I am working in different fields of clinical, scientific, and educational activities. In addition, during the past ten years, I was involved in the organization of the MAS in Medical Physics at ETH (formerly known as the Nachdiplomstudium) where I saw the problem of recruiting physicists into medical physics also from the student's point of view.

It is my vision that SSRMP continues to maintain an important role in medical physics. I feel obliged to the aims of SSRMP as stated in the mission statements. Consequently, I want to assist and cultivate profound science and to establish well-attended scientific meetings which serve as a platform for research, discussions and networking for the entire community of medical physics. I am strongly convinced that we have to address the problem of recruiting young physicists by combining high-level education, distinguished research activities and appropriate and attractive job positions.

I am very honored for being involved with such a committed organization as SSRMP was and still is. I look forward to the duties I will face in the SSRMP board and to working closely together with all of you.

Peter Manser, Bern

Vorstände der SGSMP 1964 - 2009

(bzw. SGS 1964 – 1980, SGSP 1980 – 1988)

1964 – 1968	Prof. Dr. Hedwig Fritz-Niggli, Zürich (Präsidentin) Prof. Dr. J.-H. Müller, Zürich Prof. Dr. Hugo Aebi, Bern Prof. Dr. Gerhard Wagner, Bern Prof. Dr. Pierre Lerch, Lausanne
1968 – 1976	Prof. Dr. Walter Minder, Bern (Präsident) Prof. Dr. Hedwig Fritz-Niggli, Zürich Prof. Dr. Herbert Lüthy, Basel Prof. Dr. Pierre Lerch, Lausanne Dr. Hansrudolf Renfer, Bern
1976 – 1979	Prof. Dr. Pierre Lerch, Lausanne (Präsident) Prof. Dr. Hedwig Fritz-Niggli, Zürich Prof. Dr. Walter Minder, Bern Prof. Dr. Pierre Lerch, Lausanne Prof. Dr. Herbert Lüthy, Basel Dr. Hansrudolf Renfer, Bern
1979 – 1983	Prof. Dr. Guelfo Poretti, Bern (Präsident) Dr. Hansrudolf Renfer, Bern Prof. Dr. Walter Minder, Bern Dr. Pascal Schweizer, Zürich PD Dr. Jakob Roth, Basel PD Dr. Jean-François Valley, Lausanne
1983 – 1987	Dr. Pascal Schweizer, Zürich (Präsident) Dr. Norbert Schwegler, Aarau PD Dr. Jakob Roth, Basel PD Dr. Jean-François Valley, Lausanne Dr. Werner Burkart, Villigen-PSI Peter Haefeli, Winterthur Dr. Roberto Mini, Bern
1987 – 1991	Prof. Dr. Jakob Roth, Basel (Präsident) Dr. Pascal Schweizer, Zürich PD Dr. Jean-François Valley, Lausanne PD Dr. Werner Burkart, Villigen-PSI Peter Haefeli, Winterthur Dr. Ernst Born, Bern Dr. Peter Frey, Genf/Zürich
1991 – 1995	PD Dr. Christian Michel, Zürich (Präsident) Dr. Guido Garavaglia, Bellinzona Dr. Pascal Schweizer, Zürich Dr. Ernst Born, Bern Prof. Dr. Jakob Roth, Basel (bis 1993) PD Dr. Jean-François Valley, Lausanne (bis 1993) Peter Haefeli, Winterthur (bis 1993) Dr. Peter Frey, Zürich (bis 1993) Dr. Horst W. Nemec, Basel (ab 1993) PD Dr. Jean-François Germond, La Chaux-de-Fonds (ab 1993) Dr. Wolfhart W. Seelentag, St. Gallen (ab 1993) Dr. Alfred Willi, Chur (ab 1993)

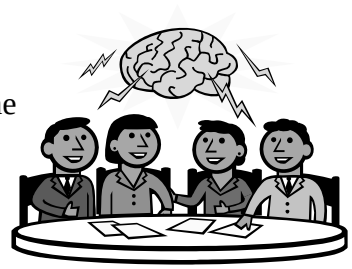
1995 – 1999	PD Dr. Jean-François Germond, La Chaux-de-Fonds (Präsident) PD Dr. Christian Michel, Zürich Dr. Pascal Schweizer, Zürich Dr. Horst W. Nemec, Basel Dr. Wolfhart W. Seelentag, St. Gallen Dr. Alfred Willi, Chur Dr. Léon André, Bern Regina Seiler, Luzern
1999 – 2003	Dr. Wolfhart W. Seelentag, St. Gallen (Präsident) PD Dr. Jean-François Germond, La Chaux-de-Fonds Dr. Roberto Mini, Bern Regina Seiler, Luzern Dr. Philippe Coucke, Lausanne (bis 2001) Dr. Horst W. Nemec, Basel (bis 2001) PD Dr. Nigel Crompton, Villigen-PSI (bis 2002) Dr. Mahmut Ozsahin, Lausanne (ab 2001) Dr. Werner Roser, Villigen-PSI (ab 2001) Dr. Léon André, Bern (ab 2002) Dr. Peter Pemler, Zürich (ab 2002) ex officio SBMP
2003 – 2007	Dr. Léon André, Bern (Präsident) Dr. Wolfhart W. Seelentag, St. Gallen PD Dr. Jean-François Germond, La Chaux-de-Fonds Dr. Werner Roser, Villigen-PSI Dr. Daniel Vetterli, Bern Angelika Pfäfflin, Basel Dr. Mahmut Ozsahin, Lausanne (bis 2005) Dr. Peter Pemler, Zürich (bis 2006) PD Dr. Daniel Aebersold, Bern (ab 2005) PD Dr. Luca Cozzi, Bellinzona (ab 2006) Dr. Frédéric Corminboeuf, Bern (ab 2006) ex officio SBMP
2007 –	PD Dr. Luca Cozzi, Bellinzona (Präsident) Dr. Daniel Vetterli, Biel Dr. Wolfhart W. Seelentag, St. Gallen PD Dr. Jean-François Germond, La Chaux-de-Fonds Dr. Werner Roser, Villigen Angelika Pfäfflin, Basel Dr. Marc Pachoud, Lausanne Dr. Markus Notter, La Chaux-de-Fonds Dr. Frédéric Corminboeuf, Bern, ex officio SBMP Dr. Léon André, Bern (bis 2008) Dr. Peter Manser, Bern (ab 2008)

Stand: Februar 2009

(Die Zusammenstellung stützt sich für die Angaben der Jahre 1964 – 1989 auf die „SGSMP-Jubiläumsbroschüre 1964 – 1989“ und für die Jahre 1981 – 2008 auf die SGSMP-Bulletins, die freundlicherweise Angelika Pfäfflin zur Verfügung stellte).

Jakob Roth, Arisdorf

Annual report 2008 of the Applied Medical Physics working group



The working group has held two meetings in 2008: on the 3rd of June and the 11th of December.

1. Talks

The following subjects were presented during these meetings:

- Setting-up of a METAS working group: "Swiss PET intercomparison for evaluation of SUV"
  D. Twerenbolt presented a project which started when the Swiss Society of Nuclear Medicine asked METAS to investigate the compatibility of SUV data around Switzerland. After having presented the different outcomes of the project, D. Twerenbolt concluded that METAS would probably not pilot the working group.
- TPS help desk: behind the scene
  R. Seiler showed the worst things that she saw when she was at the help desk of a well known company. She mentioned that these examples were a minority. She covered the Europe - Middle East – Africa region for almost 7 years. Major activities in the help desk were: Assistance, beam data analysis, evaluation of "strange behavior".

2. EQUAL- DOSE project on independent MU calculation

AMP WG received a mandate from the SSRMP board to evaluate the potentials of the ESTRO-EQUAL TPS proofing system and, if possible, come back with a conclusive report answering the following main questions":

a) is there a potential interest for SGSMP to join a national project with this system?
b) if yes: could you write a project proposal? Eventually in the framework of CoQuaSyp or other similar initiatives?
c) is there a potential for "individual" usage of this system that SGSMP should support? In case of yes in which direction?

During the meeting, different issues of the project have been discussed. In brief, the following conclusions were accepted by all the present members:

- EQUAL-DOSE is a for-profit organization and a billing system will be set up soon;
- There is local problems for the installation and the use of the software, but not everywhere;
- Point dose is not what is needed for SSRMP purposes;
- The calculation algorithm is not "open source".

Concerning the questions asked by the SSRMP board, the AMP WG decided to answer as follows:

a) is there a potential interest for SGSMP to join a national project with this system? NO
b) if yes: could you define a proposal of a project? Eventually in the framework of CoQuaSyp or other similar initiatives? –
c) is there a potential for "individual" usage of this system that SGSMP should support? In case of yes in which direction? NO

These conclusions were forwarded to the SSRMP board.

3. Sub-working groups activities

- **Stereotaxy** (S. Scheib): S. Scheib stepped down from the WG's chair position. Many thanks to him for having lead this group. Andreas Mack will chair the group in the future.

- **TPS QA** (P.-A. Tercier): The WG did not have a meeting during 2008. The WG aims to work on the update of Recommendation N° 7.
- **PET/CT** (F. Verdun): A draft for a recommendation has been evaluated.
- **CIRS** (L. André): The first version of CIRS has been sent to the centers.
- **IGRT** (J.-F. Germond): There has been a first meeting where J.-F. Germond was elected as president of the WG. A first draft has been discussed.
- **Standardization in medical physics** (W. Roser): The WG is working by e-mail. Documents are sent directly to the interested people. The situation of the different documents is listed in http://www.sgsmp.ch/wg-stand.pdf.
- **Article 74** (F. Verdun): The aim of the WG is to propose a recommendation concerning the number of medical physicists needed for nuclear medicine and radiography. A first draft has been discussed.

4. Intercomparison 2008

The TLD intercomparison 2008 was discussed in the group. This was the first IMRT intercomparison organized in Switzerland. Partial results were published in the Bulletin 2/2008 and a report will be issued in 2009. As every year, the intercomparison was perfectly organized by the St. Gallen group. The AMP particularly acknowledged H. Schiefer for his work.

5. Continuing education 2008 and 2009

The 2008 continuing education day took place in Bern the 29th of September. The subject was PET/CT and it was very well organized by F. Corminboeuf to whom we express our appreciation for his work.
In 2009, H. Roser will organize the continuing education on MRI which will take place in Basel on the 15th of May. Many thanks for having accepted to organize it.

6. Varia

As usual, these meetings were an opportunity for some fruitful discussions. The following discussions are examples among others.
L. André presents the question of in-vivo dosimetry, since the BAG raised the question during the SSRMP-SBMP-BAG meeting. A questionnaire has been distributed, for consultation purpose. A report will be issued in 2009.
G. Lutters proposed that the SSRMP-SBMP setup an educational program for young medical physicists. The question will be discussed by the two boards.

These examples show the importance of AMP meetings. They are the places were important medical physics related discussions with BAG and METAS representatives happen. It is also during AMP meetings that SSRMP intercomparisons and continuing education days are shaped. Finally, the AMP decides on the SSRMP recommendations before its board final acceptance.
AMP is open to any member of SSRMP interested in applied medical physics issues.

I can not finish that report without mentioning the saddest news of the year for Swiss medical physics. Bernard Davis died from cancer on 26th of September 2008. We will miss him as a colleague and a friend.

Raphaël Moeckli, chairman, Lausanne

Win a free SGSMP membership in 2010…

… and the winner is: **Guntram Kunz** from Zürich!

As in the previous years, all ordinary members of SGSMP were invited to pay their actual membership fee until January 31st, in order to win a free membership for 2010.

175 out of 227 ordinary members (77 %) paid in due time – that's an absolute record! However, 26 of the 175 did not qualify for the competition, since they paid as cash at a post office counter. From the remaining 139 candidates, the winner was selected by use of the random number function of my old pocket calculator under the supervision of medical physicist Alessandra Bolsi, PSI.

We congratulate Guntram Kunz from Zürich, who is the happy winner of a free SGSMP membership for 2010. Guntram was working in Zürich University Hospital since 2001 and he is now part of the renewed Triemli staff. More details will follow in the personalia rubric of the next SGSMP bulletin.

Werner Roser, Villigen PSI

Z u m L e s e n e m p f o h l e n

Ramón Ribes, Pablo R. Ros**: „Radiological English",**
Springer, 2007
ISBN 3540293280, 9783540293286
324 Seiten
Preis: ca. 45CHF

Karoly Simonyi **: „Kulturgeschichte der Physik"**
3. überarb. u. erw. Auflage, Harri Deutsch Verlag, 2001
ISBN: 978-3-8171-1651-5
601 Seiten
Preis ca. 130 CHF

Richard P. Feynman: **„Sie belieben wohl zu scherzen, Mr. Feynman!"**
Piper, München 1987
Titel der amerikanischen Originalausgabe: „Surely you're Joking, Mr. Feynman!" W.W. Norton, New York 1985
ISBN-978-3-492-25155-6
463 Seiten
Preis ca. 19 CHF

Chers membres de l'APSM,

Depuis notre congrès de Coire, le comité s'est réuni deux fois et s'est réparti les différents projets que nous désirons réaliser. La formation du comité est la suivante :

Président :	Frédéric Corminboeuf, Berne
Secrétaire :	Jean-Yves Ray, Sion
Caissier :	Marco Malthaner, Berne
Relation public :	Léon André, Berne
Position du physicien médical :	Stephan Klöck, Zürich
Education et certification :	Hans Roser, Bâle

D'autres parts, deux projets vont être réalisés cette année. Premièrement l'organisation d'une table ronde avec les différents acteurs de la physique médicale. Afin d'éviter des malentendus durant les discussions, nous recherchons actuellement un modérateur qui sera chargé de conduire les débats. En collaboration avec la SSRPM, nous recherchons une personnalité largement acceptée par la communauté des physiciens médicaux. L'objectif est d'organiser cette table ronde mi-juin afin que le comité ait le temps d'analyser les résultats de ces discussions et de vous ensuite informer lors de notre prochaine assemblée générale.

Le second projet dont vous serez les acteurs principaux sera l'envoi fin avril d'un questionnaire concernant la position de la physique médicale en Suisse. Angelika Pfäfflin et Stephan Klöck ont préparé une série de questions afin de mieux cerner et comprendre la situation de notre profession.

Finalement un autre grand défi nous attend : la redéfinition de la formation en radioprotection du physicien médical. En effet, selon l'ordonnance sur la formation en radioprotection, chaque physicien médical doit suivre 3 semaines de cours. Des contacts avec les institutions donnant des cours ont été pris et des discussions sur les différents scénarii possibles vont avoir lieu.

Comme vous pouvez le constater le comité n'a pas chômé et nous espérons que vous engagerez dans le cadre des différents projets que nous avons démarré.

Comme toujours, le comité reste à votre disposition pour répondre à vos questions et différentes remarques, alors n'hésitez pas à nous contacter.

Frédéric Corminboeuf, Berne
Président APSPM

There is nothing wrong with change, if it is in the right direction. (Winston Churchill)

Liebe SBMP-Mitglieder,

Seit unserer Jahrestagung in Chur hat sich der Vorstand zweimal getroffen und hat dabei die verschiedenen Projekte, die umgesetzt werden sollen, verteilt. Die Ressorts innerhalb des Vorstands teilen sich folgendermassen auf:

Präsident:	Frédéric Corminboeuf, Bern
Sekretär:	Jean-Yves Ray, Sion
Kassierer:	Marco Malthaner, Bern
Öffentlichkeitsarbeit:	Léon André, Bern
Position des Medizin-Physikers:	Stephan Klöck, Zürich
Ausbildung und Fachanerkennung:	Hans W. Roser, Basel

Es ist vorgesehen, vorab zwei Projekte in diesem Jahr zu verwirklichen. Erstens die Organisation eines "Round Table" mit den verschiedenen Beteiligten aus der Medizin-Physik. Um Missverständnisse während den geplanten Diskussionen zu vermeiden, suchen wir momentan noch einen Moderator, der beauftragt werden soll, die Diskussion zu führen und der allgemein akzeptiert werden kann. Aus diesem Grund suchen wir momentan einen diesbezüglichen Kompromiss mit der SGSMP. Das Ziel unseres Verbands besteht darin, dieses "Round Table"-Gespräch Mitte Juni zu organisieren, damit der Vorstand genügend Zeit hat, die Ergebnisse der Diskussionen zu analysieren und Sie dann anlässlich unserer nächsten Hauptversammlung zu informieren.

Das zweite Projekt, bei dem Sie als Hauptbeteiligte auftreten werden, wird durch den Versand eines Fragebogens über die Position der Medizin-Physik in der Schweiz Ende April gestartet werden. Stephan Klöck und Angelika Pfäfflin haben einen Fragebogen mit diversen Fragen ausgearbeitet, um die Situation unseres Berufes etwas einzukreisen und zu erfassen.

Schließlich wartet als eine andere grosse Herausforderung die Neudefinition der Ausbildung im Strahlenschutz für den Medizin-Physiker auf uns. Nach der „Verordnung über die Ausbildungen und die erlaubten Tätigkeiten im Strahlenschutz“ müsste eigentlich jeder Medizin-Physiker einen dreiwöchigen Kurs in Strahlenschutz besuchen. Es wurden Kontakte mit den Institutionen, die Kurse im Gebiet des Strahlenschutzes anbieten, aufgenommen und es werden entsprechende Diskussionen über die verschiedenen möglichen Szenarien aufgenommen werden.

Wie Sie feststellen können, ist der Vorstand nicht tatenlos gewesen und wir hoffen, dass Sie sich in den verschiedenen Projekten, die wir gestartet haben, engagieren werden.

Wie immer steht der Vorstand zur Ihrer Verfügung, um Fragen zu beantworten oder Bemerkungen entgegen zu nehmen. Zögern Sie also nicht, uns zu kontaktieren.

SBMP APSPM APSFM

Frédéric Corminboeuf, Bern
Präsident des SBMP

There is nothing wrong with change, if it is in the right direction. (Winston Churchill)

Die "Großen Drei" auf der Potsdamer Konferenz
v.l.n.r.: Winston Churchill, Harry S. Truman, Josef W. Stalin
Potsdam, Juli 1945,
Photographie Bundesbildstelle, Bonn

Angelika Pfäfflin, Basel

President's report 2008

Dear SPAMP members,

last year during my report I expressed two aims that SPAMP board wanted to achieve.

The first one was the definition of a communication plan in case of an incident and the second was the study of the situation of the medical physics in Switzerland. To fulfil these goals I expressed that we needed your help because the board could not achieve these points alone. It is why the board proposed to create two new commissions.

Concerning the first commission only one member has come forward and I think it is not enough to start such an important work. That is why this project has not yet begun. I remind you that the aim is to be ready to act and communicate if an incident would happen in Switzerland and avoid being in the same situation as in France.
The second one was to study the present situation of the medical physics in Switzerland. For this com-mission 2 members and 1 board member have got involved. Otherwise Jean-Yves Ray proposed some strategic questions for SPAMP, intended to be debated within the members. Those were developed around a unique society for medical physicists including professional and scientific aspects. That project did not reach a majority within SPAMP and SSRPM boards and showed the remanent guardianship of SSRMP over SPAMP. Nevertheless, it stimulated the discussion and further thoughts for the commission on the position of the medical physics. That is why this commission has started to think about a survey to be sent to all medical physicists from Switzerland.

As every two years, Stephan Kloeck organised our salary survey and despite several reminders through our mailing list your response rate was not very satisfactory. Only 51 questionnaires were sent back. I remind you that the salary survey is an important tool to ameliorate the position of medical physicists in the clinics. As an example of consequence of the salary survey is that SPAMP board was also requested by some members to call attention to the salary situation of medical physicists by university hospital. The SPAMP board took prompt action by writing a letter to the directors of the university hospitals as well as the chiefs of their department of radiation oncology. That action was discussed by the chiefs of radiation oncology later on.

The unexpected positive results of this letter is that the chiefs of radiation oncology require

1. Medical physicist has to be classified as university graduates according to their medical colleagues.
2. They support therefore the demand of the representatives of medical physics without reservation that public hospitals have to create position for training junior medical physicists in order to make the profession more attractive.

These results are also a consequence of the pre-meeting in Aarau in 2007 where SASRO stated that radiation-oncology can only develop with the help of a strong position of medical physics in Switzerland. Moreover, I have also to thank the medical physicists, Jean-Yves Ray, Tony Lomax and Daniel Vetterli, who are doing an intensive lobbying work inside the SASRO board to promote the position of our profession.

The last point I want to notify is the improvement of the attractiveness of SPAMP. This task is a jointly work of all members of the board and I want to thank all the team for the excellent work. Pierre-Alain Tercier steps down today from the board. Thanks to his contributions. Thanks to all we will meet 13 new members.

The board has tentatively defined some news goals for the period 2008/2009. However, as two new members will join the board soon, these aims may be refined with their inputs.

Position of medical physicist is clearly where our effort must go. First the commission will send you during the period a survey about the situation of medical physics in Switzerland. Please take some time to answer and to give us your opinion. It is a very important work to have clear view of the present situation. Moreover, we will also organise a conference of heads of medical physics in order to discuss SPAMP strategy about medical physics and also the action took by the board.

Although you've been regularly informed by the president's letter in the SSRMP Bulletin, we also remarked with the story of the letter to university hospital that our communication skills with our members had some deficiencies. It is why SPAMP board wants to establish again a regularly communication with our members via newsletters and mailing list and also via the conference of heads of medical physics. I think we can also optimise our website and make it livelier.

To conclude I want to accentuate that the future of our profession will be built now. So be a part of it and not only observers.

Frédéric Corminboeuf, Bern
President SPAMP

Results of the

IMRT dosimetry intercomparison 2008

I Introduction

An issue often discussed in radiotherapy is the ability of the planning systems to take into account inhomogeneities, especially in the thorax region. For IMRT, dose calculation problems can be enhanced due to partly very small field segments. So a national intercomparison considering this problem is appropriate to check the ability of the calculation algorithms used in the own clinic and to raise a discussion which helps to sensitize the participants to this topic. Until now, no intercomparisons were available to test this issue. Consequently, it has been decided to perform a national intercomparison in Switzerland dealing with IMRT in the thorax region. The intercomparison has been organized by the team of the Cantonal Hospital of St.Gallen.

Ahead of the IMRT dosimetry intercomparison, a pilot study with six participants has been conducted in order to test the reliability of the film and the TLD dosimetry in the phantom environment. The results are presented in the Bulletin 2/2008 [1] of our society.

Some institutions tested more than one algorithm or tested an algorithm in a situation which they knew as essentially inadequate.

So, we want to stress that larger deviations <u>give no information</u> on the quality of the irradiation process achieved by an institution!

II Materials and methods

A. General

For the IMRT intercomparison of the SGSMP, the thorax phantom 002LFC (CIRS Inc.) has been used. A standard slice has been modified with drillings to accommodate the TLDs (Figure 1).

The CT scan has been carried out by the institutions themselves. The applied CT dose has been measured with additional TLDs, attached to the phantom surface.

TLD-100 discs (4.5 mm Ø x 0.9 mm; Harshaw Inc.) and a TLD reader model “5500” (Harshaw Inc.) have been used. The tempering procedure has been done in a PTW-TLDO oven (PTW Freiburg). Reference irradiations were performed using a “Theratron 60” cobalt unit (AECL of Canada).

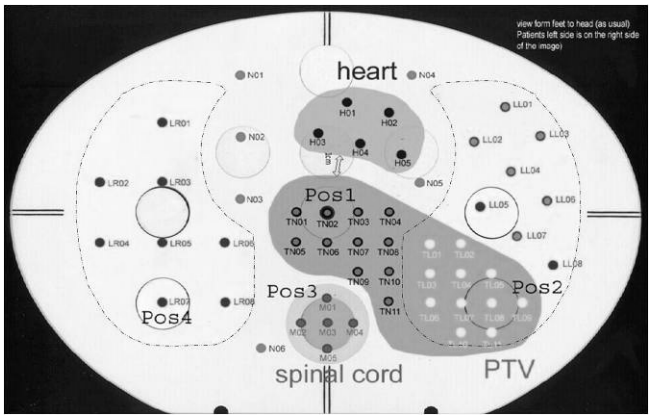


Fig. 1 Standard slices with drillings accommodating TLDs. Left: Used for the pilot study. Right: Used for the IMRT intercomparison

B. IMRT dosimetry intercomparison

The institutions carried out the ionisation chamber measurement with their own equipment. EDR2 films (Eastman Kodak Co.) have been developed (“Optimax 2010”, PROTEC GmbH) and scanned (“Diagnostic Pro”, Vidar Systems Corporation) by the physics team in St.Gallen. Additionally, a calibration film from the same batch was generated in St.Gallen.
All 23 institutions irradiating patients in Switzerland participated between July 2008 and February 2009. 24 machines have been tested. It has been suggested applying an IMRT technique, but other techniques were also accepted. Some institutions carried out the calculation with two different calculation algorithms (five) or participated twice in the intercomarison by applying different machines (one) or irradiation techniques (one). Altogether 30 plan-measurement combinations have been evaluated, which will be treated as independent in this study. Due to differing technical situations, some parameters were evaluated in less than 30 combinations. The applied calculation algorithms and irradiation techniques are shown in Table 2.

<u>Absolute dosimetry with TLDs</u>

A special slice (length: 6.3 cm) contains a cubic cavity in the "sternum" (see figure 2, right side). A “mini phantom” containing 8 TLDs can be placed in the cavity so that the depth of the TLDs is 10 cm. By applying a 10 cm square field (gantry angle: 0°, source to surface distance: 90 cm), the irradiation condition is comparable to a basic single field irradiation under standard conditions in water.

Fig. 2 Left: CIRS Thorax phantom with Perspex structure slices. Right: „mini phantom“, dedicated to check the absolute calibration

The institutions have calculated the dose $D_{s,P}$ to the TLDs in the phantom with the same algorithm as used for the treatment plan. Additionally, they have stated the dose under standard conditions in water, $D_{s,W}$, when applying the same number of monitor units. Ahead of the intercomparison, conversion factors $k_{P\rightarrow W}$ have been determined by measurements in St.Gallen: The same number of monitor units has been applied to TLDs in the phantom with the basic single field, as described above, and to TLDs in the water phantom under standard conditions. The conversion factors $k_{P\rightarrow W}$ is the ratio of these measurements. Similar irradiations have been repeated with an ionisation chamber. The conversion factors allow to calculate the dose under standard conditions in water, $D_{m,W}$, given the dose in the phantom under approximated standard conditions, $D_{m,P}$: $D_{m,W} = k_{P\rightarrow W} \times D_{m,P}$. For 6X, the conversion factor is 1.01. Thus, $D_{m,W}/D_{s,W}$ is a measure for the dose calibration of the machine and should be unity. $D_{m,P}/D_{s,P}$ does include the systematic errors which already arise in a homogeneous part of the phantom. Consequently, $(D_{m,P}/D_{s,P})^{-1}$ allows correcting the TLD measurements of the plan irradiation for systematic errors, originating from the planning process and the TLD measurement or the machine calibration. Due to technical reasons, for the TomoTherapy machine, measurements in the mini phantom have not been carried out.

Absolute dosimetry with an ionisation chamber

Slice 01 accommodates adapters for ionisation chamber measurements at different positions (see figure 1, Pos1 to Pos4). For Pos1, and analogous to the TLD measurements, conversion factors are available to calculate the dose expected in water under standard conditions. For 6X, the factor is 1.00. The same quantities can be checked as stated for the TLD measurements. This allows cross checking the TLD to the ionisation chamber measurements.

Contouring and calculation of the IMRT plan

Two identical Perspex slices form the longitudinal phantom ends (see figure 2, left side). They contain shapes needed for the contouring. All structures required for planning are placed symmetrically around the measurement plane. The PTV and the heart are 8 cm long, the other structures cover the entire phantom length. Hence, it can be expected that dose gradients in the longitudinal direction do not seriously affect the measurement accuracy. The transversal PTV area is about 70 cm^2. It covers parts of the left lung and parts of normal tissue (each containing 11 TLD measurement positions). Thus, the calculation algorithm can be reliably tested in both kinds of tissue. Other positions for TLDs outside the PTV are grouped in the right lung, the left lung (eight each), the spinal cord, and the heart (five each). Additional six TLD positions are distributed outside these structures. All together 54 different TLD positions have been evaluated. Each TLD measurement point consists of two TLD discs. The large number of absolute dosimeters allows a statistical analysis of the calculation accuracy in different parts of the phantom.
To avoid effects of air gaps between slices, the measurement planes are placed 5.0 cm off axis to the field isocentre.
The plan had to fulfill the following constraints: a) PTV: prescribed median Dose = 2.00 Gy. b) Spinal cord: < 75 % of the prescribed dose. c) Both lungs outside PTV: < 20 % of the lungs receive > 35 % of the prescribed dose. d) Heart: < 55 % of the prescribed dose.

Application of the IMRT plan and evaluation

Calculations have shown that the absorption properties of the phantom are invariant within 1 % in the longitudinal direction. So, measurements have been conducted in the same plane relative to the isocentre with TLDs, film and ionisation chambers (Pos1 to Pos4), but in different slices of the phantom (figure 3). This allows cross checking the measurements done in the same points relative to the isocentre.

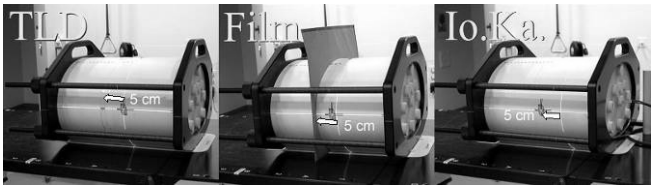


Fig. 3 Measurements in the CIRS thorax phantom with TLD, film and ionisation chamber.

Evaluation

The film measurements have been evaluated using the “Verisoft” software (PTW Freiburg). Due to file format inconsistencies, some DICOM dose distributions provided by the institutions could not be evaluated. We hope that the “Verisoft” version intended to be used in the next intercomparison is able to handle more formats then the actual one. The evaluation has been performed relatively by applying a scaling factor to the measured dose distribution. Since “Verisoft” does not support nu-

merical parameters which characterize the integral result of the gamma index evaluation and information about the outline of the phantom in the gamma index image is missing, it is difficult to do a meaningful evaluation. So the institutions are asked to interpret the results themselves.
For the evaluation, the algorithms used by the institutions are classified as "type a" and "type b" algorithms [2, 3]: "Type b" models are able to treat the electron transport in an approximate way as well as the secondary photon transport in the medium, accounting for density changes, sampled along the full three dimensions. "Type a" algorithms are 1D and primarily based on equivalent path length for inhomogeneity correction.

III Results

Structure volume measurements

Figure 4 shows the PTV volume measurements for 23 structures. 8 structures show a deviation larger than 2 % in respect to the median value (dotted line), one structure deviates for more than 5 %.

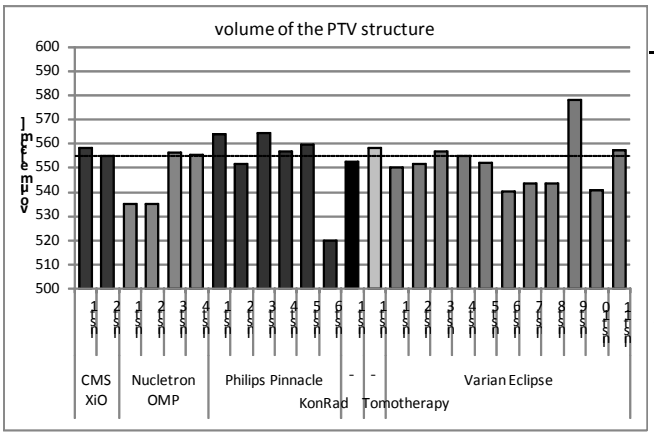


Fig. 4 volume measurements of the PTV structure (23 structures)

Some measurement values, especially for non PTV structures, support the assumption that the contoured structure length did not coincide with the length specified in the instructions which resulted in larger deviations. So a final interpretation has to be done by the institution itself.
It is generally accepted that the IMRT technique is more suitable to comply enhanced demands with the dose distribution than the 3D-CRT technique. Unexpectedly, the dose and percentage information stated by the institutions to describe the fulfillment of the constraints give no hint that static or dynamic IMRT techniques have advantages compared to the 3D-CRT technique. Also, in all groups of treatment techniques, large single outliers can be observed. Again, a final interpretation has to be done by the institution.

Check of the absolute dosimetry

Table 1 shows the mean ratios of the measured to the stated dose in the normal phantom tissue, $D_{m,P}/D_{s,P}$. $D_{m,W}/D_{s,W}$ describes the machine calibration. For this situation, no parameter shows a significant difference between "type a" (11 evaluations) and "type b" (17 evaluations) algorithms. The $D_{m,P}/D_{s,P}$ values for the TLD measurements are slightly higher than the ionisation chamber measurements. Different reasons can be considered: The angular orientation of the TLD disc and the phantom environment differs from the calibration conditions in water which can slightly influence the TLD sensitivity. Further measurements are scheduled on this topic. 16 from 28 TLD correction factors for systematic errors (57 %) are within 1.00 ± 0.01. The mean value is 1.005 ± 0.015, the mean absolute deviation from unity is 0.012 ± 0.010. The check of the machine calibration shows good results for both ion chamber and TLD measurements.

	$D_{m,P}/D_{s,P}$		$D_{m,W}/D_{s,W}$	
	ion. chamber	TLD	ion. chamber	TLD
"type a"	0.996 ± 0.006	1.012 ± 0.016	1.005 ± 0.006	1.000 ± 0.014
"type b"	0.987 ± 0.010	1.001 ± 0.013	1.008 ± 0.012	1.004 ± 0.014
all	0.990 ± 0.010	1.005 ± 0.015	1.007 ± 0.010	1.002 ± 0.014

Table 1 Results of the "mini phantom" measurements (28 evaluations)

TLD and ionisation chamber measurements at other positions

A measure for the accuracy of the applied inhomogeneity correction algorithms, independent from systematic deviations, is the difference between the values of $(D_m-D_s)/D_{prescribed}$ in the lung tissue and normal tissue within the PTV. Figure 5 shows an overview of the differences, separated for the ionisation chamber (Pos1 and Pos2) and TLD measurements. Both TLD and ionisation chamber measurements demonstrate the well known tendency of "type a" algorithms to overestimate the dose in the lung region.

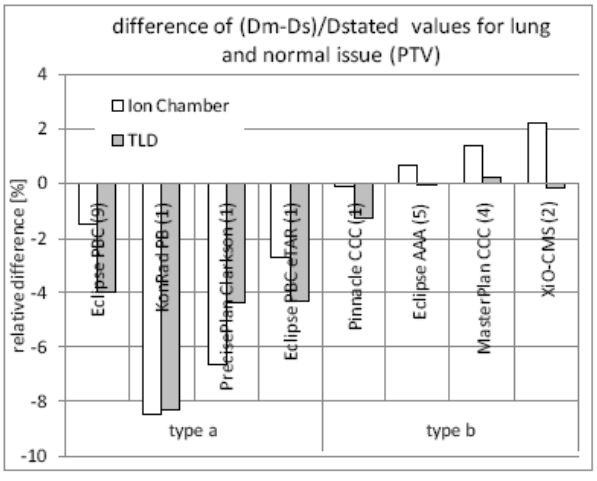


Fig. 5 Difference of the $(D_m-D_s)/D_{stated}$ values between the lung and normal tissue within the PTV

Mann-Whitney-tests for both measurement equipments prove unambiguously that "type b" algorithms are superior to "type a" algorithms in calculating the dose in the lung region ($p<0.001$). There is insufficient statistics to argue that the XiO CMS algorithm overcorrects for the lung tissue.
Table 2 shows statistics to the applied calculation algorithms and irradiation techniques.

		# of comp.			mean TLD msmt: $(D_m-D_s)/D_{prescribed}$ [%]						
	algorithm	3D-CRT	dyn. IMRT	static IMRT	PTV: Norm. t.	PTV: Lung t.	left lung	right lung	normal tissue	heart	spinal cord
„type a"	Eclipse PBC		7	2	-	-	-	-	-	-	-
	KonRad PB			1	-	-	-	-	-	-	-
	Prec.Plan int.			1	-	-	-	-	-	-	1.7
	Ecl. PBC	1			0.5	-	1.2	-	1.0	1.6	0.4
	mean "type a"	-	-	-	-	-	-	-	-	-	-
"type b"	Pinnacle CCC	2		4	0.8	-	0.8	0.1	0.7	0.5	-
	Eclipse AAA		4	1	-	-	-	-	-	-	-
	MasterPlan	3		1	1.8	2.1	0.0	1.2	0.7	0.4	1.5
	XiO-CMS			2	0.0	-	1.1	0.4	-	-	2.9
	Tomotherapy		1		-	-	0.8	-	-	0.4	-
	mean „type b"	-	-	-	*0.1*	-	*0.2*	*0.2*	*0.2*	*0.0*	*0.1*

Table 2. Left columns: Calculation type and irradiation technique statistics. Right columns: Mean results of the plan measurements for 30 evaluations (m=TLD measured; s=stated). 3D-CRT values are corrected for measurements in the high gradient area.

Regarding all TLD measurement groups, the mean absolute difference, related to the prescribed dose, is 3.0 ± 2.7 % for the "type a" and 1.9 ± 1.9 % for the "type b" algorithms. For regions outside the lungs, the figures are 2.2 ± 2.0 % and 1.9 ± 1.8 %. So, "type b" algorithms show no advantages in homogeneous regions compared with "type a" algorithms. The mean stated doses for the right lung, left lung, normal tissue, heart, spinal cord and structures are: 0.79, 1.06, 0.93, 0.77 and 1.18 Gy. This information helps to estimate the relative local difference between the TLD measured and stated doses.

IV Discussion and conclusion

Due to the limited number of participants, it is not possible to issue reliable statements on the properties of the single calculation algorithms. Nevertheless, there are some trends to observe: Generally, „Type b" algorithms take inhomogeneities better into account than "type a" algorithms. Some "type a" algorithms show deviations over 5 % in the PTV lung region, but there are still differences within the "type a" and the "type b" groups. Outside inhomogeneities, "type a" algorithms show in general good calculation results. This finding coincides with other statements [2, 3].

The intercomparison procedure has turned out to be feasible and yields convincing results. Although the effort for the participants is comparatively large, the feedback was mainly positive. In the future, the IMRT intercomparison will be repeated regularly with modified objectives.
The results of the intercomparison exceed the expectations. They suggest that cancer patients in Switzerland get a suitable radiation therapy in any of the centers offering this treatment modality.
Due to the reliability of all participants the intercomparison could be completed within the scheduled time frame.

We thank all institutions for their pleasing cooperation.

Hans Schiefer *Wolf Seelentag*

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Thank you, Hans Schiefer und Wolf Seelentag for your work for our society!

Luca Cozzi, President of

SGSMP
SSRPM
SSRFM

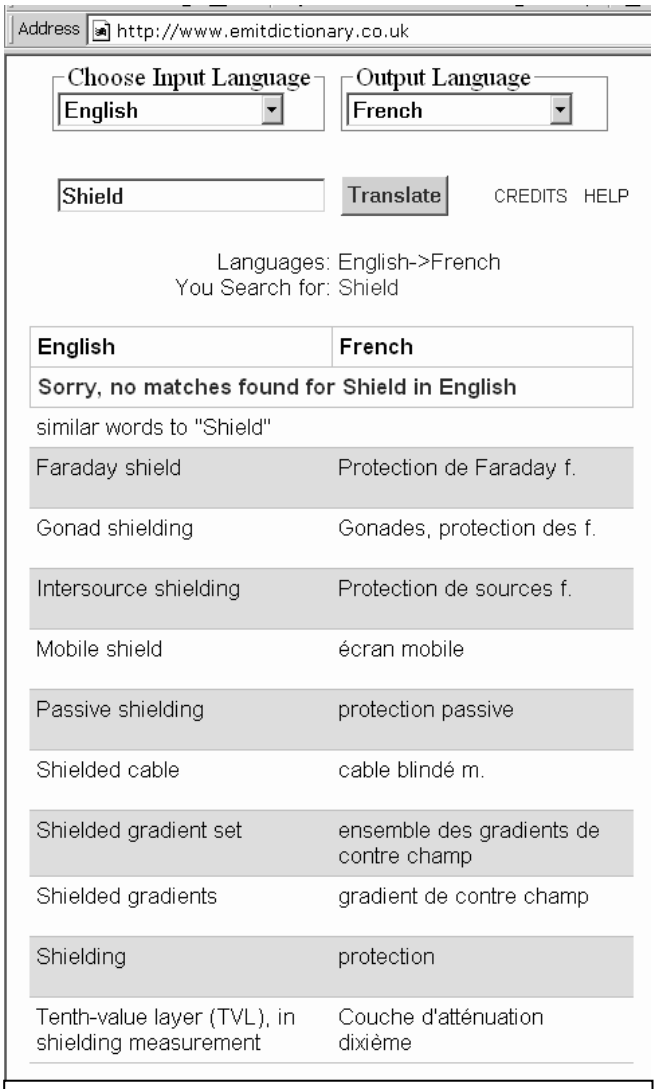
Das Schweizer Messer der Medizinischen Physik: EMITEL

Elektronisches Fach(-übersetz-)wörterbuch

www.emitdictionary.co.uk

Die Schweizer Medizinphysiker sind besonders gefordert in der Kommunikation untereinander durch die unterschiedlichen Sprachen in ihrem Land. Eigentlich hätte daher das Fachübersetzungswörterbuch zur Medinischen Physik, das ich hier vorstellen möchte, aus der Schweiz kommen müssen…

Es begann 2002 im EU-Projekt EMIT (European Medical Imaging Technology Training), das auf Englisch erstellte e-learning Materialien zu Ultraschall und MR-Tomographie auf CDs erarabeitet. Der Course Guide zu diesem Material wurde in verschiedene europäische Sprachen (Französisch, Deutsch, Italienisch, Schwedisch) übersetzt und als Hilfestellung für den Nutzer war ein elektronisches Fachwörterbuch gedacht. Zuvor waren im EMERALD (European Medical Radiation Learning Development) Projekt entsprechende Unterrichts- und Lern-CDs für die ionisierende Strahlung betreffenden Bereiche Strahlentherapie, nuklearmedizinische und radiologische Diagnostik zusammengestellt worden, deren Wortschatz dieses Wörterbuch auch umfassen sollte. Insgesamt sind jetzt rd. 4000 Begriffe in diesem Wörterbuch. Der Erfolg diese Projektes, das 2004 mit dem ersten Leonardo-da-Vinci Preis der EU ausgezeichnet wurde, dokumentiert sich darin, dass es mittlerweile auf 17 Sprachen gebracht hat. In 2008 ist eine Erweiterung auf insgesamt 21 geplant, darunter sogar Übersetzungen in Thai und Chinesisch!



English	French
Sorry, no matches found for Shield in English	
similar words to "Shield"	
Faraday shield	Protection de Faraday f.
Gonad shielding	Gonades, protection des f.
Intersource shielding	Protection de sources f.
Mobile shield	écran mobile
Passive shielding	protection passive
Shielded cable	cable blindé m.
Shielded gradient set	ensemble des gradients de contre champ
Shielded gradients	gradient de contre champ
Shielding	protection
Tenth-value layer (TVL), in shielding measurement	Couche d'atténuation dixième

Abb. 1: Webseite des EMITdictionary

Die Übersetzungen sind dabei jeweils aus dem Englischen in die Nationalsprache erfolgt, so dass Übersetzungen zwischen zwei Sprachen immer über diesen „Kreuzungspunkt“ intern erfolgen. Die Programmierung der Datenbank und der Webseite erfolgte übrigens in Bulgarien, dem Geburtsland des Koordinators Slavik Tabakov vom Kings College in London.

Wie gut ist nun die Übersetzung mit diesem Wörterbuch?

Sie wurde von Medizinphysikern in der jeweiligen Landessprache erstellt, allerdings bedeutet das nicht, dass diese mit dem praktischen Gebrauch im „Mutterland“ des Wörterbuchs, also England eingehend vertraut sind. Es werden sich auch sicher Begriffe finden werden, die auch in der Landessprache alltäglich mit dem englischen Terminus bezeichnet werden, aber für das Wörterbuch in die

jeweilige Sprache übertragen wurden. So gibt es z.B. eine deutsche DIN für Fachbegriffe, in der es eine „Lamellenblende“ gibt, landläufig aber vom MLC (MultiLeafCollimator) gesprochen wird. Als Mitübersetzer für das Deutsche habe ich also den DIN-Begriff eingebracht…
Die Suchfunktion versucht auch den Begriff als Wortteil zu suchen und gibt deren Übersetzungen in einer Liste an (siehe Abb. 1).
Momentan ist eine Erweiterung des Wörterbuchs in Form einer e-Enzyklopädie als Projekt EMÌTEL in Arbeit. Dabei sollen rund 3500 Begriffe aus dem Wörterbuch mit kurzen und einfach gehaltenen Erläuterungen (1-2 Seiten, möglichst mit Verweisen auf im Internet zugänglichen Dokumenten) ausgearbeitet werden. Der offizielle Start der zugehörigen Webseite ist für den WC2009 Kongress in München geplant. Hier wird EMITEL mit bereits existierenden Einträgen in anderen Enzyklopädien wie der Wikipedia konkurrieren müssen. Im Unterschied zu dieser sind die Einträge allerdings durch ein Begutachtungsverfahren gelaufen. Im Rahmen einer Konferenz im UNESCO Zentrum ITCP Abdus-Salam bei Triest konnten die Autoren und Gutachter sich Ende Oktober 2008 persönlich austauschen und Anregungen einbringen. Insbesondere in Ländern, in denen die Medizinphysikalische Infrastruktur noch im Aufbau befindlich ist, haben die e-learning Materialien EMERALD und EMIT großen Anklang gefunden. Der e-Enzyklopädie EMITEL ist es auch zu wünschen, dass es so vielseitig genutzt wird wie ein Schweizer Offiziersmesser!

Markus Buchgeister, Tübingen

Thoughts on accidents in radiotherapy and mandatory routine *In Vivo* Dosimetry

Following highly publicised recent accidents both in the UK and in France reports have been published by professional bodies analysing the nature of errors occurring in radiotherapy, the prerequisites for the safe delivery of treatments and recommending ways of detecting and preventing errors. As a result in France now *in vivo* dosimetry (IVD) is mandatory and in the UK there are an on-going debates (IPEM conference in Bath 2008, UKRO congress in Cardiff 2009) on the issue following a government publication stating that IVD should be made routine clinical practice [1]. Two articles published in the British Journal of Radiology presented the pro and cons of making IVD mandatory. Harrison and Morgan [2] cautioned on the time, cost and effectiveness of routine use of IVD, emphasising that IVD methods have to be robust enough to be useful in complex modern radiotherapy treatment techniques and that there is the danger that one compares accurate calculations with less accurate measurements. Of course with IVD it is not only the calculated dose that is checked. If implemented correctly Williams and McKenzie [3] claim that with IVD one checks the final outcome of a patient’s treatment. They carried out a break down of the resources and costs involved in commissioning, implementing and maintaining a routine IVD QA program and concluded that IVD is a cost-effective technique. So, the arguments against routine IVD are not about resources or money (by the way: did you know that the statistical life value for human life used by governments and global companies is between CHF 1.7 million and CHF 16.5 million?! [4]).

Amongst radiotherapy physicists the deliberation on the role and merits of routine IVD is certainly not new [5-9]. In their critical review Essers and Minjheer [6] concluded that patient dose verification should be an essential part of a Quality Assurance (QA) program in radiotherapy and IVD plays a complementary role to treatment-plan double-checking. From a review on results from clinical studies they concluded that routine IVD for each patient is probably not required but they recommended IVD

to have a role in the introduction of new treatment techniques and for specific patient groups in order to evaluate and minimise systematic errors.

Over the past fifteen years we have witnessed great advances in radiotherapy technology and radiotherapy delivery techniques. However, despite these, errors continue to occur and patients have been mistreated and following these several extensive reports have been written by national and international organisations [10-12]. The most recent accidents in radiotherapy involved treatments based on modern technology. The errors had nothing to do with the technology itself but have been the result of poor understanding and inappropriate use of this, or inadequate training of staff or the lack of adequate qualified personnel in clinics, or poor communication between staff groups or inappropriate working procedures or a combination of all these reasons. The message is clear. To avoid errors and accidents and ensure safety in radiotherapy treatments one needs to address issues on training, communication and documentation. To briefly expand on these three points:

- Adequate personnel trained at high standard and good understanding of the tools used for treatment is essential.
- Furthermore to retain experienced staff and continuity in the quality of service, employers and managers need to be forward thinking and ensure that the job and the workplace remain attractive enough. Guidelines for education and training and on staffing levels are available (for example by ESTRO and EFOMP).
- Radiotherapy is the result of an effort by a multidisciplinary group of skilled professionals, all of who play an important role in its delivery. Effective communication between staff groups is crucial. This can be facilitated through the implementation and subsequent maintenance of work procedures and documentation (a quality system), which can ensure the safety and continuing improvement of service.
- Staff groups need to continuously review and improve their ways of working. Klein et al studied the dosimetric impact of the errors in their clinic and as a result reviewed their work practices [13]. Reviewing work practices becomes especially important with the introduction of new technology. One simple example: independent check on the MU is typically what most clinics carry out. But nowadays one has to re-think exactly what is the purpose of this check and where it fits in the radiotherapy chain. Does it serve to check the very sophisticated dose calculation algorithms of the modern treatment planning system or should it actually be a check of the MU as calculated using the treatment field parameters exported to and used by the treatment machine?
- Independent second checks by different individuals need to be in place on all parts of the radiotherapy chain. IVD complements this and should be encouraged, but making this mandatory, without addressing the primary reasons why errors occur, will not help avoid accidents. Its more likely that it will add confusion in the interpretation of measurements and unnecessarily increase the workload for the majority of standard radiotherapy treatments [6]. For those who wish to introduce IVD in their clinic there are recommendations available (e.g [14-16]); the most recent will be published this year by the IAEA [16]. Also, the results from a recent survey on IVD in Switzerland are included in this issue of the Bulletin.
- Sharing experiences on the use of equipment and potential pitfalls between cancer centres will aid understanding, prompt the review of local practises and avoid repeating the same mistakes. The Radiation Oncology Safety Information System in Switzerland (www.rosis.ch) is now live and provides the perfect platform for anonymously reporting accidents and errors.

The ultimate check on a patient's treatment is to compare the planned dose distribution to that actually received by the patient. Most patients nowadays are treated or will be treated under complex irradiation geometries. Under these geometries point dose measurements using detector systems with inherent limitations due to their design are not ideal and highly prone to misinterpretation. Electronic portal-imaging devices (EPID) or on-board megavoltage CT are used for patient positioning through image guidance. Although research has been carried out with these systems to calculate the dose received by the patient, this is not a product readily available on commercial systems. It is the research and development of 3D *in vivo* dosimetry methods that should be strongly encouraged and requested from the manufacturers of expensive radiation therapy equipment.

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Lessons learnt from accidents in radiotherapy

Lack of training **Miscommunication** **Lack of documentation**

*When a **radiation technologist** makes a mistake it usually will affect **a patient** for **one fraction.***
*When a **radiation oncologist** makes a mistake, it usually will affect **a patient** for **all fractions.***
*When a **radiation physicist** makes a mistake, it usually will affect **all patients** for **all fractions** …*

Angelika Pfäfflin, Basel & Mania Aspradakis, Chur

Umfrage über In-vivo-Dosimetrie

Das Sprichwort sagt: „Was dem einen recht ist, solle dem anderen billig sein.“ In Frankreich ist man offenbar zum Schluss gekommen, dass die Wahrscheinlichkeit für künftige Unfälle bei Bestrahlungen vermindert werden könnte, wenn die In-vivo-Dosimetrie vom Gesetz vorgeschrieben wird. Die Verantwortlichen im BAG taten gut daran, sich die Frage zu stellen, ob diese Massnahme auch für die Schweiz angezeigt sei. Dies wurde auch in der regelmässigen Sitzung SGSMP – SBMP – BAG besprochen und schlussendlich entschieden, die Situation in der Schweiz durch eine Umfrage zu ergründen.

Auch wenn die Zahlen für Frankreich nicht erhoben wurden, lässt die Auswertung der Umfrage vermuten, dass die Situation mit Frankreich nicht zu vergleichen ist, indem man hierzulande sowohl von der Administration, wie auch von den RO-Mitarbeitern her bereit ist, viel Geld und Man- respektive Womenpower in die Qualitätssicherung zu investieren.

Von den 25 Radio-Onkologien in der Schweiz haben sich 19 an der Umfrage beteilig. In diesen sind 43 Beschleuniger, 1 Cobalt-Gerät und 10 Röntgen-Therapiegeräte im Einsatz und an 15 dieser Institute werden auch Bestrahlungen mit HDR-Geräten durchgeführt. An 18 Instituten (95 %) ist ein Verifikations-System installiert und 41 Beschleuniger (95 %) sind mit einem EPID ausgerüstet. An allen Instituten werden zumindest bei jeder Neu- und jeder Umstellung und danach in regelmässigen Abständen die Feldeinstellungen mit Bildaufnahmen verifiziert. Bei 8 % der Bestrahlungen werden sogar bei allen Fraktionen Bilder gemacht. 18 Institute haben angegeben, dass bei ihnen jede Dosisberechnung durch eine unabhängige Rechnung überprüft wird. In weiten Physik-Kreisen ist man sich einig, dass dies ein Institut zu wenig ist. Die Idee des BAG, eine adäquate Qualitätssicherung im Gesetz vorzuschreiben, wird von einer Mehrheit der Medizinphysiker durchaus unterstützt.

An 6 Instituten werden regelmässig In-vivo-Dosimetrie -Messungen bei Patienten-Bestrahlungen durchgeführt. Fünf Institute berichten von fehlerhaften Bestrahlungsvorbereitungen, die durch In-vivo-Dosimetrie gefunden wurden, aber an keinem Institut waren es mehr als 2 Fälle pro Jahr und in keinem Fall wurde eine voraussichtliche Schädigung eines Patienten verhindert. Viele Medizinphysiker/-innen erachten die In-vivo-Dosimetrie in manchen Fällen als nützliche Ergänzung zu anderen Qualitäts-Sicherungsmassnahmen.

Gross sind aber die Vorbehalte gegen eine gesetzliche Vorschrift der In-vivo-Dosimetrie. Von den 33 Medizinphysiker/-innen, die geantwortet haben, haben nur zwei (und einer explizit halbherzig) angegeben, sie würden ein Obligatorium unterstützen. Die Gründe für die Ablehnung sind vielfältig und reichen von „ungenügende Genauigkeit und Anwendbarkeit“ bis „ineffizient“. Der Aufwand für eine gute In-vivo-Dosimetrie wird als erheblich eingestuft und das häufigste Gegenargument gegen die gesetzliche Vorschrift ist die Angst, dass effizientere Qualitätssicherungsmassnahmen abgebaut werden müssten, um einer Vorschrift nachzukommen. In diesem Sinne könnte sich die Nachahmung des französischen Vorbildes nicht als „billig“ erweisen, sondern im Gegenteil in manchen Fällen „teuer zu stehen kommen“.

Die vollständige Auswertung der Umfrage findet man unter:

www.sgsmp.ch/umfragen/in_vivo.pdf

Léon André, Bern

Work experience for Matura students

at KSA

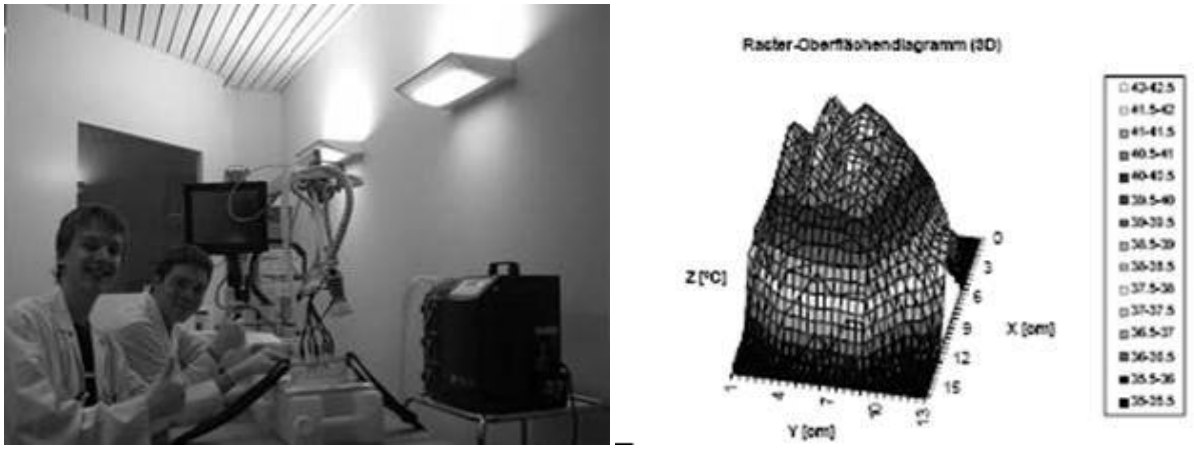
The Alte Kantonsschule Aarau offers a special NAWIMAT (Naturwissenschafts-Matura) programme for students with a particular interest in science and technology. In their third year the students spend four weeks in an external organisation acquiring practical experience. For this the students have to forgo two weeks school holiday, their school camp and school outing. In return they hope to get some insight into a working environment and some hands on practical experience. During the winter semester we offered three students such a work experience. To round off the practical the students produced an 18 page report. Some excerpts from this report have been reproduced below.

In den vier Wochen am Kantonsspital Aarau beschäftigten wir uns mit den Abläufen und Behandlungsmethoden der Radioonkologie. Die Belegschaft setzt sich aus Physikern, Ärzten und MTRAs zusammen. So wurde auch unser Praktikum in diese Bereiche aufgeteilt. Als eigenes Projekt führten wir Messungen an dem Spiral-8-Applikator, der bei der Hyperthermie eingesetzt wird, durch und bestimmten damit seine zweidimensionale Wärmeverteilung. Es war uns sehr wichtig unser Projekt und unsere Tätigkeit mittels der Schlusspräsentation vor der ganzen Radioonkologie-Abteilung erfolgreich zu präsentieren.

The work experience was divided into two areas: firstly, the patient route through the department (spending time in each part of the radiation oncology department, private study into how a linac works, clinical and physical background to hyperthermia– with plenty of questions) and secondly a experimental project. We decided to give the students a project in the field of hyperthermia. This got around the problem of radiation protection for underage workers, which would have been involved in any linac-based project, as well as the unfriendly working hours and continual supervision that would have been necessary.
In the first week (being at a relatively early stage in their academic careers), we gave the students a detailed timetable of visits to machines and structured reading/questions, supervised practical work, but as the month progressed the students were happy to take a more independent approach.

Der Weg des Patienten:
Wir hatten die Möglichkeit jede Station, die ein Patient in der Klinik durchläuft zu betrachten und Fragen zu stellen. So wussten wir immer, wenn wir an einer Maschine waren, welchen Weg die Patientendaten bis dahin schon zurückgelegt hatten. Unser Eindruck zu den verschieden Stationen:
***Patientengespräch -** Bei einem Patientengespräch dabei zu sein hat uns beiden sehr gut getan. Ohne dieses Gespräch hätten wir stärker abstrahiert und vielleicht sogar den Bezug zu den Patienten verloren. Denn die ganze Arbeit findet nur noch an ihren Röntgenbildern statt.*
***Computertomographie (CT) -** Der Mensch wurde perfekt vermessen und bekam als Erinnerung daran Koordinatenpunkte auf die Haut tätowiert. Es war eine neuartige Vorstellung für uns. Es zeigte uns wie stark die Medizin und Physik in der Radioonkologie miteinander verknüpft sind.*
***Planung -** Die Planung hat uns fasziniert, denn man operiert den Patienten am Computer.*
***Behandlung -** Der Anblick eines Beschleunigers war für uns am Anfang etwas sehr Verwirrendes. Einerseits stand er gross und fassbar vor uns, andererseits war uns unverständlich wie er funktionieren sollte. Es schien uns als hätte das Kantonsspital andere Elektronen, als wir sie bis anhin kannten. Wir fragten hartnäckig und bekamen dann auch unsere Antworten.*

The project work involved measuring the temperature distribution in a phantom under one of our hyperthermia applicators with the help of newly acquired thermal mapping software, exporting the data and then displaying the results in meaningful graphics. We tried to allow the students a maximum freedom to design their own setup for the measurements. By choosing a star shaped measurement grid and appreciating the problems associated with displaying such measurements graphically, the students certainly learnt the usefulness of the cartesian coordinate system (and even opted to redo their measurements).



Students from Alte Kantonsschule Aarau happily at work, and some project results.

Persönliche Bilanz (Studenten):
Wir haben in diesem Praktikum sehr viel gelernt, haben Eindrücke gesammelt und wurden bestärkt, weiterhin eine wissenschaftliche Richtung einzuschlagen. Das Praktikum war zeitintensiv und auch anstrengend, da man oft von Patienten oder Ärzten umgeben ist, die beide eine gewisse Haltung erwarten.
Die ganze Abteilung stand uns offen und uns wurde alles erklärt, was wir wissen wollten. Wir konnten uns sehr gut eingliedern und gehörten während diesen vier Wochen zur Belegschaft der Radio-Onkologie. Wir durften auch an Weiterbildungen, Rapporten, und Vorträgen teilnehmen. Es bestand ein allgemeines Interesse an unserer Arbeit und wir wurden oft nach unserem Stand gefragt. Jeder nahm sich die Zeit, uns zu helfen. Mit unserem Projekt kam auch der Ehrgeiz möglichst viel zu verstehen und wir lernten so sehr viel. Wichtig war auch die Möglichkeit unsere Arbeiten selbst zu wählen und uns die Zeit selber einzuteilen.
Die abschliessende Präsentation war rückblickend eine sehr gute Erfahrung und wir konnten uns mit einem gewissen Erfolgsgefühl verabschieden.

And from our side:
For our part, we should perhaps admit to having underestimated the amount of time required to organise a hopefully interesting and rewarding month of work experience for such relatively young students. However, we thoroughly enjoyed having the students with us. They were wonderfully enthusiastic, even when their data got lost many times (hazards of a new software release) and often caused us too, to think exactly how and why electrons, photons, cells … do what they do. And not least, they did provide us with some clinically useful carefully and exactly measured temperature distributions.

Nicci Lomax & Gerd Lutters, Aarau

Anleitung für den Bau eines Linearbeschleunigers in einer Gruppe von Fachkolleginnen und Fachkollegen, die nicht Medizinphysiker sind ☺

1. Sortiere Begriffe und Bilder zusammen.
2. Ordne die Bauteile des Linearbeschleunigers in der Reihenfolge, dass am Ende eine Bestrahlung möglich ist
3. Präsentiere Deinen Linearbeschleuniger
4. Das Ganze eignet sich zur Gruppenarbeit!
5. Abschliessende Erklärungen sind unerlässlich ☺

Umlenkmagnet

Gun

Keilfilter

Magnetron

Primärkollimator

Ausgleichsfilter

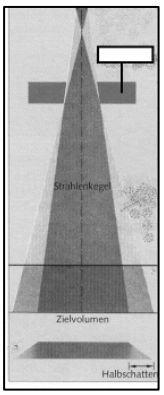
Target

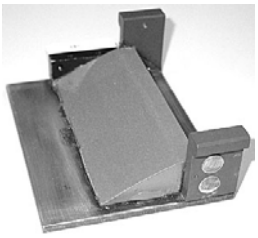
Ionisationskammer

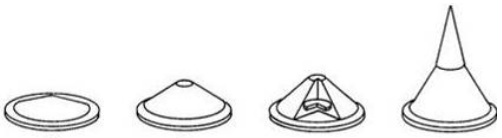
Multileaf-Kollimator

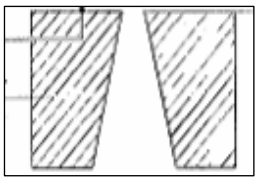
Blenden

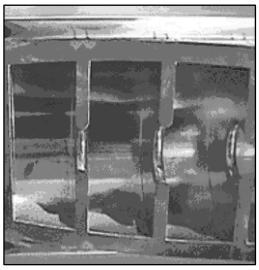
Beschleunigungsrohr

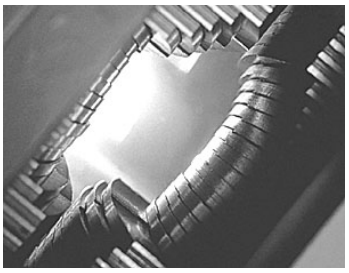


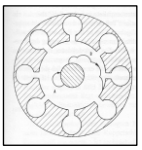


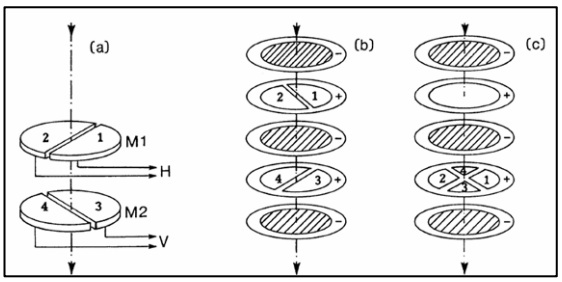


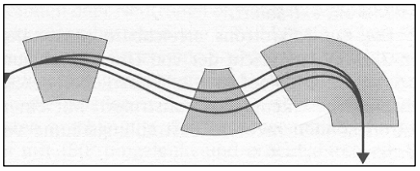












Viel Spass beim Ausprobieren wünschen
Peter Gygax & Angelika Pfäfflin, Basel

PSI Winter School '09

The recent PSI Winter School '09 (Jan. 25-28) was the just second after its debut in 2008. Even though not explicitly mentioned in the title, I'm sure all of you would have guessed right, the course was dedicated to radiation oncology using protons (p^+). As you will also know, it is the privilege of Paul Scherrer Institute to have its Centre for Proton Therapy (CPT) acknowledged world-wide for outstanding expertise in the proton therapy field, especially concerning the 'spot scanning' technique with a proton 'pencil' beam. The winter school mainly was held at the Park-Hotel in Bad Zurzach (AG), and in part at PSI's CPT in Villigen (AG). About 40 participants (having registered for 800 EUR p. p.) from academic, clinic, or industry, mainly from central Europe, some from the U.S., could enjoy some highly interesting four days with many lectures and discussions. PSI's motivation to repeatedly organise such course was explicated by Martin Jermann, Vice-Director of PSI, during his opening remarks: it is just the growing need of proton therapy-qualified personnel. I.e., PSI obviously has decided to actively promote the technology and to spread know-how from own pioneering work. Not surprisingly, the majority of attendees came from institutions or companies currently being involved in particle therapy facility projects.

To make a long story short: Congratulations, Eugen Hug, Director of the CPT and holder of the proton-radiotherapy chair at University Hospital Zurich, and also congratulations to the whole organising committee consisting of Antony Lomax, Eros Pedroni, Beate Timmermann, and Gudrun Goitein! With their carefully balanced programme (w.r.t. physics/technology vs. medical indications/outcome), consisting of modules like

- Basic Sciences (p^+: clinical concept; physics; biology)
- Generating, modulating, controlling and checking proton therapy (cyclotron & beamline; active 'pencil' beam scanning; dosimetry)
- Clinical outcomes (p^+: skull base tumours; paediatric tumours; ocular tumours)
- Limiting the partial uncertainties in proton therapy (patient positioning; p^+ delivery; p^+-RBE 1.1; p^+-induced second malignancies)
- Treatment planning (p^+ 'pencil' beam scanning)
- A series of more practice-related workshops (incl. quality assurance and treatment planning)
- Protons in the clinic (treatment-related toxicities)
- Protons in the future (indications; technologies; particles vs. photons)
- Round table discussion on any open question concerning p^+ therapy

they have achieved an optimum for a four-days winter school timetable!

Concerning the speakers, here are *my personal* favourites:
Michael Goitein, because of his clarity and the high didactic level in his lesson. The attendees could feel honoured to find him in the faculty list. For those of you who still have not had a look in his book from 2007 "Radiation oncology: A physicist's-eye view", this is another recommendation for you as SSRMP Bulletin reader.
Beate Timmermann and Antony Lomax, because both are perfect to get the audience completely focussed on their respective topics (paediatric tumours: post-treatment observation and late effects; treatment planning: spread-out Bragg peak, IMPT, etc.).
And, of course, Eugen Hug, since he was omnipresent with a lot of presentations, so he impressed with his descriptiveness to explain his various clinical topics, and his readiness to exhaustively answer questions.

As you easily see, my intention was not to give a kind of complete review (I indeed have skipped here speakers, like e.g. Eros Pedroni, Gudrun Goitein, Uwe Schneider, et alii) of this highly recommendable teaching course. What I wanted is to raise your attention and to keep you curious, since I was told, the course will be repeated in January 2010! And don't worry, even if your institution has no particle therapy ambitions at all: If you just want to get the most systematic introduction to 'protons', it is definitely worthwhile to get in touch with Ursula Ludgate at CPT under 056-3105828 or to look at winterschool.web.psi.ch in order to register for the PSI Winter School '10 (Jan. 30 – Feb. 3, 2010).

My conclusion: Of course, this winter school by no means can replace own experiences in clinical proton therapy. This relates to almost all technical and clinical aspects of this evolving radio-oncological field and may especially hold true for treatment prescriptions, since the benefits for the patients achievable using proton therapy should be exploited as far as reasonably possible. Winter school attendees get a comprehensive overview, and in particular may get sensitised on what practical aspects need to get paid more attention to as soon as clinical treatment is going to begin. The people at the Rinecker Proton Therapy Center (RPTC Munich), by the way, on their first gantry recently (March 16) have started the long awaited clinical application of proton radiation therapy (using an own implementation of the 'spot scanning' technology).

Winter school participants enjoying the social programme in a lively atmosphere at Whisky Castle Elfingen (Photo: U. Ludgate)

Ulf-Dietrich Braumann, Leipzig, Basel & Munich

PERSONALIA

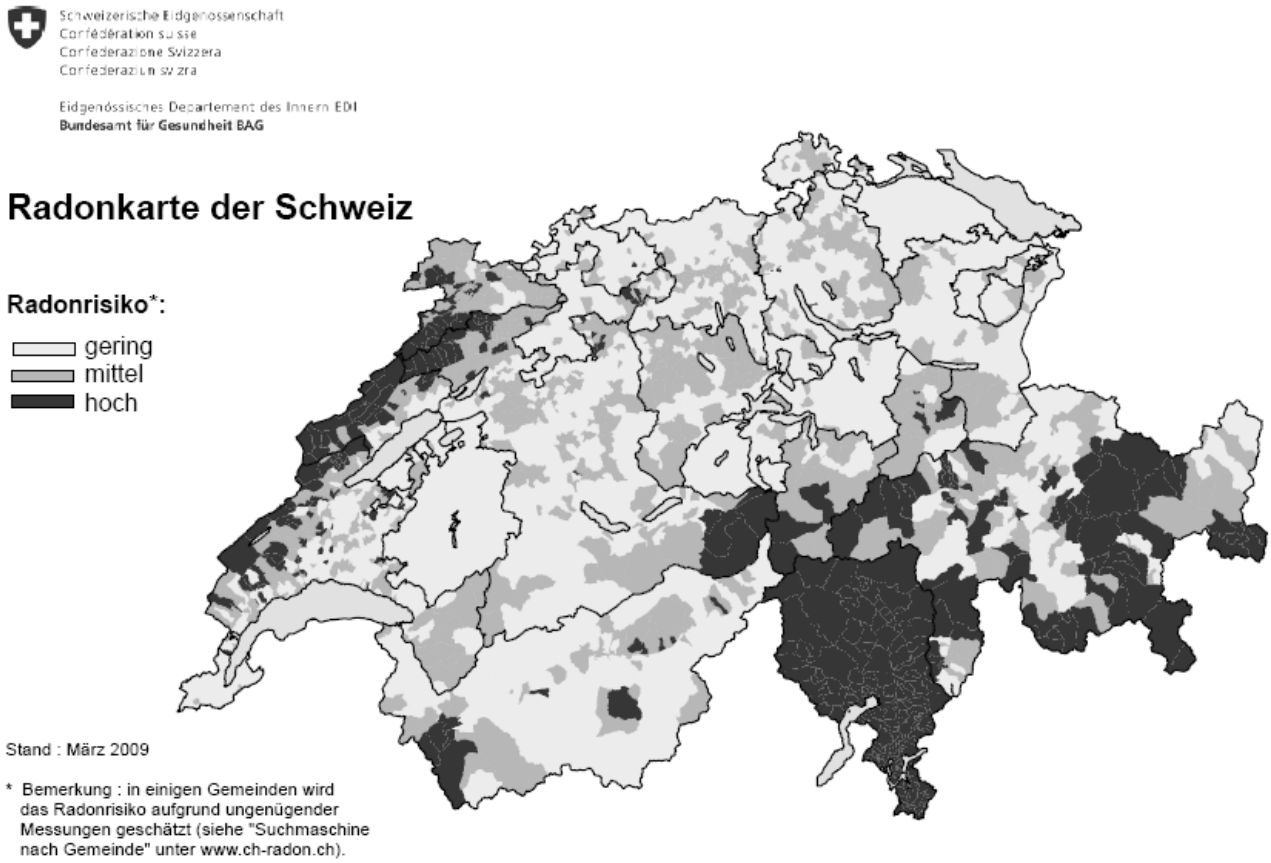
Frau **Dr. rer. nat. Anja-Carina Schulte** ist seit dem 1. März 2008 als Medizinphysikerin in der *Abteilung für Medizinische Physik* an der Uniklinik für Radio-Onkologie am Inselspital Bern beschäftigt. Nach langjähriger wissenschaftlicher Tätigkeit mit den Schwerpunkten funktionelle MR-Gehirnbildgebung und MR-Angiografie in der *Sektion Medizinische Physik* der Uniklinik in Freiburg i. Brsg. bei Prof. Dr. Jürgen Hennig und später am Biozentrum der Universität Basel bei Prof. Dr. Joachim Seelig, begann sie 2005 Ihre Ausbildung zur Medizinphysikerin in der Nuklearmedizin an der Charité in Berlin. Frau Dr. Schulte war zuletzt an der Uniklinik für Strahlentherapie in Ulm tätig und betreut nun zu 50% das Radio-Onkologiezentrum Biel-Seeland.
Ferner ist Anja-Carina Schulte als Urlaubsvertretung von Dr. Karl-Heinz Grosser, dem leitenden Physiker im Claraspital Basel, während dessen Abwesenheiten tätig.

From the 2nd of March 2009, **Dr. Pascal Favre-Bulle** (right on the picture) is working at the Radio-Onkologie Zentrum Biel with Dr Daniel Vetterli (center, team leader) and Dr Anja-Carina Schulte (left). Dr Favre-Bulle was trained as a medical physicist at the Hôpital Neuchâtelois (La Chaux-de-Fonds) and received the SGSMP certificate (Fachanerkennung) in 2007. In his diploma thesis, he specialized in the field of dose delivery to the patient by the kV cone beam CT used in IGRT. He holds a PhD from the University of Geneva, a diploma of physicist from the University of Neuchâtel and a diploma of Engineer in electronics.

PERSONALIA

Ab 1. April verstärkt **Melissa Raffael** das Team der Physik in der Radiononkologie am KSA. Sie vertritt **Edyta Fujak** während ihres Mutterschaftsurlaubs. Ihre Tochter **Paulina** kam im Februar zur Welt. Alle Mitarbeiterinnen und Mitarbeiter der Radioonkologie gratulieren den Eltern herzlich und wünschen der neuen Erdenbürgerin Glück und Gesundheit.

Béatrice Reiner arbeitet seit Anfang April am St. James Teaching Hospital in Leeds. Wir freuen uns auf künftige Beiträge aus Grossbritanien ☺.



Quelle: http://www.bag.admin.ch/themen/strahlung/00046/01561/index.html?lang=de

– Pressespiegel –

Anmerkung der Redaktion: Hier finden sich interessante Artikel, die an anderer Stelle bereits erschienen sind.

Patient and Surgeon Radiation Exposure: Comparison of Standard and Mini-C-Arm Fluoroscopy

Investigation performed at the Department of Orthopaedics and Rehabilitation, University of Rochester Medical Center, Rochester, New York

Background: Use of c-arm fluoroscopy is common in the operating room, outpatient clinic, and emergency department. Consequently, there is a concern regarding radiation exposure. Mini-c-arm fluoroscopes have gained popularity; however, few studies have quantified exposure during mini-c-arm imaging of a body part larger than a hand or wrist. The purpose of this study was to measure radiation exposure sustained by the patient and surgeon during the use of large and mini-c-arm fluoroscopy of an ankle specimen.

Methods: Standard and mini-c-arm fluoroscopes were used to image a cadaver ankle specimen, which was suspended on an adjustable platform. Dosimeters were mounted at specific positions and angulations to detect direct and scatter radiation. Testing was conducted under various scenarios that altered the proximity of the specimen and the radiation source. We attempted to capture a range of exposure data under conditions ranging from a best to a worst-case scenario, as one may encounter in a procedural setting.

Results: With all configurations tested, measurable exposure during use of the large-c-arm fluoroscope was considerably higher than that during use of the mini-c-arm fluoroscope. Patient and surgeon exposure was notably amplified when the specimen was positioned closer to the x-ray source. The exposure values that we measured during ankle fluoroscopy were consistently higher than the exposure values that have been recorded previously during hand or wrist imaging.

Conclusions: Exposure of the patient and surgeon to radiation depends on the tissue density and the shape of the imaged extremity. Elevated exposure levels can be expected when larger body parts are imaged or when the extremity is positioned closer to the x-ray source. When it is possible to satisfactorily image an extremity with use of the mini c-arm, it should be chosen over its larger counterpart.

Clinical Relevance: Orthopaedists should exercise caution, and consistently follow radiation safety guidelines, when using c-arm fluoroscopes because there is a real risk of radiation exposure.

Source: *Journal of Bone and Joint Surgery (Vol. 91, pp. 297-304)*

New data on cancer survival in Europe show more patients are cured

New data and analyses from a long-running study of cancer survival in Europe have shown that the number of people actually cured of cancer – rather than just surviving for at least five years after diagnosis – is rising steadily.

A special issue of the *European Journal of Cancer* [1] containing reports from the EUROCARE-4 Working Group, includes, for the first time, an estimate of the proportions of patients who are cured of their cancer in Europe and who, therefore, have a life expectancy equal to that of the rest of the population. The analysis divides patients into two groups – the proportion who may be considered cured of their disease and who are likely to die of something else, and those who will die of their cancer.
The study compared two periods – 1988-1990 and 1997-1999 – and found the proportion of patients estimated to be cured of lung, stomach and colorectal cancers increased from 6% to 8%, from 15% to 18% and from 42% to 49%, respectively.
Dr Riccardo Capocaccia of the National Centre for Epidemiology, Surveillance and Health Promotion (Rome, Italy), who is the guest editor of the EUROCARE-4 special issue, said: "Increases between 1988-1990 and 1997-1999 in the estimated proportion of European patients cured of lung, stomach and colorectal cancers are noteworthy. The proportion cured is not affected by 'lead time' (earlier diagnosis without improvement in life expectancy), so these trends suggest genuine progress in cancer control."

[…] Professor Alexander M.M. Eggermont, president of ECCO – the European CanCer Organisation, welcomed the latest data from EUROCARE-4. "Europe is changing, with more countries joining the EU, and cancer medicine is also changing and improving. This means that more people have higher expectations of the medical profession. We must do our best to meet these expectations and help both patients and colleagues by disseminating information about better diagnostics, treatments and cures as widely as possible across the whole of Europe, and, indeed, the world. This will be achieved by collaboration and communication, and future EUROCARE studies will, no doubt, chart how successful we have been. Cancer registries play a vital role here, and I would urge all countries to protect and develop them so that information on cancer incidence and survival becomes ever more accurate."

Source: *European Journal of Cancer*, Vol 45, issue 6 (April 2009), pages 901-1094. “Survival of cancer patients in Europe, 1995-2002: The EUROCARE 4 Study.”

Mit Protonen gegen den Krebs

Die Spezialklinik zwischen Isarkanal und Schäftlarnstraße war längst fertig gebaut und ausgestattet, die Inbetriebnahme immer wieder angekündigt, doch die Eröffnung ließ auf sich warten. Mehrere Jahre lang. Doch nun ist es soweit: Das „Rinecker Proton Therapy Center“ (RPTC) meldet die „erfolgreiche Behandlung des ersten Patienten am 16. März“. […]

Rinecker indes ließ seit dem ersten Spatenstich 2001 nicht locker, um das von ihm favorisierte Heilverfahren zu etablieren, vielen Widerständen zum Trotz. So blockierte ein jahrelanger Streit mit einer Technologiefirma die Fertigstellung. Dann dauerten die umfangreichen Abnahmetests, die für die Genehmigung nötig sind, länger als erwartet. Doch nun liegen offenbar alle Zulassungen vor. 4000 Patienten können pro Jahr an den fünf High-Tech-Plätzen im nach eigenen Angaben ersten großen, klinischen Protonenzentrum Europas behandelt werden. AOK und Betriebskrankenkassen wollen die Therapiekosten von derzeit rund 17 500 Euro bezahlen.

Quelle: www.sueddeutsche.de, 20.03.09

The NEW ENGLAND JOURNAL of MEDICINE

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Editoral: Screening for Prostate Cancer — The Controversy That Refuses to Die by Michael J. Barry, M.D.

[…] The first reports from two large, randomized trials that many observers hoped would settle the controversy appear in this issue of the *Journal.* In the U.S. Prostate, Lung, Colorectal, and Ovarian (PLCO) Cancer Screening Trial, Andriole et al. report no mortality benefit from combined screening with PSA testing and digital rectal examination during a median follow-up of 11 years.8 In the European Randomized Study of Screening for Prostate Cancer (ERSPC) trial, Schröder et al. report that PSA screening without digital rectal examination was associated with a 20% relative reduction in the death rate from prostate cancer at a median follow-up of 9 years, with an absolute reduction of about 7 prostate cancer deaths per 10,000 men screened.8 The designs of the two trials are different and provide complementary insights. […]

[…] First, one must ask, "Why were these results published now?" Neither set of findings seems definitive; that is, there was neither a clear declaration of futility in the PLCO trial nor an unambiguous net benefit in the ERSPC trial. Both studies are ongoing, with future updates promised. The report on the ERSPC trial follows a third planned interim analysis, which found a marginally significant decrease in prostate-cancer mortality after adjustment of the P value for the two previous looks in an attempt to avoid a false positive conclusion (yet apparently preserving no alpha for the planned final analysis). On the other hand, the investigators in the PLCO trial made the decision to publish their results now because of concern about the emerging evidence of net harm compared with potential benefits associated with PSA screening. Both decisions to publish now can be criticized as premature, leaving clinicians and patients to deal with the ambiguity. […]

[…] Finally, despite these critiques, both groups of investigators deserve high praise for their persistence and perseverance: to manage such monstrous trials is a herculean task, made no easier when so many observers think the results are self-evident. Further analyses will be needed from these trials, as well as from others — such as the Prostate Cancer Intervention Versus Observation Trial (PIVOT) in the United States (ClinicalTrials.gov number, NCT0000 7644)10 and the Prostate Testing for Cancer and Treatment (PROTECT) trial in the United Kingdom (Current Controlled Trials number, ISRCTN20141297)11 — if the PSA controversy is finally to sleep the big sleep.

Mortality Results from a Randomized Prostate-Cancer Screening Trial

Background: The effect of screening with prostate-specific–antigen (PSA) testing and digital rectal examination on the rate of death from prostate cancer is unknown. This is the first report from the Prostate, Lung, Colorectal, and Ovarian (PLCO) Cancer Screening Trial on prostate-cancer mortality.

Methods: From 1993 through 2001, we randomly assigned 76,693 men at 10 U.S. study centers to receive either annual screening (38,343 subjects) or usual care as the control (38,350 subjects). Men in the screening group were offered annual PSA testing for 6 years and digital rectal examination for 4 years. The subjects and health care providers received the results and decided on the type of follow-up evaluation.

Usual care sometimes included screening, as some organizations have recommended. The numbers of all cancers and deaths and causes of death were ascertained.

Results: In the screening group, rates of compliance were 85% for PSA testing and 86% for digital rectal examination. Rates of screening in the control group increased from 40% in the first year to 52% in the sixth year for PSA testing and ranged from 41 to 46% for digital rectal examination. After 7 years of follow-up, the incidence of prostate cancer per 10,000 person-years was 116 (2820 cancers) in the screening group and 95 (2322 cancers) in the control group (rate ratio, 1.22; 95% confidence interval [CI], 1.16 to 1.29). The incidence of death per 10,000 person-years was 2.0 (50 deaths) in the screening group and 1.7 (44 deaths) in the control group (rate ratio, 1.13; 95% CI, 0.75 to 1.70). The data at 10 years were 67% complete and consistent with these overall findings. Conclusions After 7 to 10 years of follow-up, the rate of death from prostate cancer was very low and did not differ significantly between the two study groups. (ClinicalTrials.gov number, NCT00002540.)

Screening and Prostate-Cancer Mortality in a Randomized European Study

Background: The European Randomized Study of Screening for Prostate Cancer was initiated in the early 1990s to evaluate the effect of screening with prostate-specific–antigen (PSA) testing on death rates from prostate cancer.

Methods: We identified 182,000 men between the ages of 50 and 74 years through registries in seven European countries for inclusion in our study. The men were randomly assigned to a group that was offered PSA screening at an average of once every 4 years or to a control group that did not receive such screening. The predefined core age group for this study included 162,243 men between the ages of 55 and 69 years. The primary outcome was the rate of death from prostate cancer. Mortality follow-up was identical for the two study groups and ended on December 31, 2006.

Results: In the screening group, 82% of men accepted at least one offer of screening. During a median follow-up of 9 years, the cumulative incidence of prostate cancer was 8.2% in the screening group and 4.8% in the control group. The rate ratio for death from prostate cancer in the screening group, as compared with the control group, was 0.80 (95% confidence interval [CI], 0.65 to 0.98; adjusted P = 0.04). The absolute risk difference was 0.71 death per 1000 men. This means that 1410 men would need to be screened and 48 additional cases of prostate cancer would need to be treated to prevent one death from prostate cancer. The analysis of men who were actually screened during the first round (excluding subjects with non-compliance) provided a rate ratio for death from prostate cancer of 0.73 (95% CI, 0.56 to 0.90).

Conclusions: PSA-based screening reduced the rate of death from prostate cancer by 20% but was associated with a high risk of overdiagnosis. (Current Controlled Trials number,ISRCTN 49127736.)

L'ASN assure, au nom de l'Etat, le controle du nucléaire pour protéger le public, les patients, les travailleurs et l'environnement. Elle informe les citoyens.

Paris, le 4 mars 2009

Note d'information

L'ASN suspend l'autorisation du service de radiothérapie de Roanne (Loire) pour la prise en charge de nouveaux patients

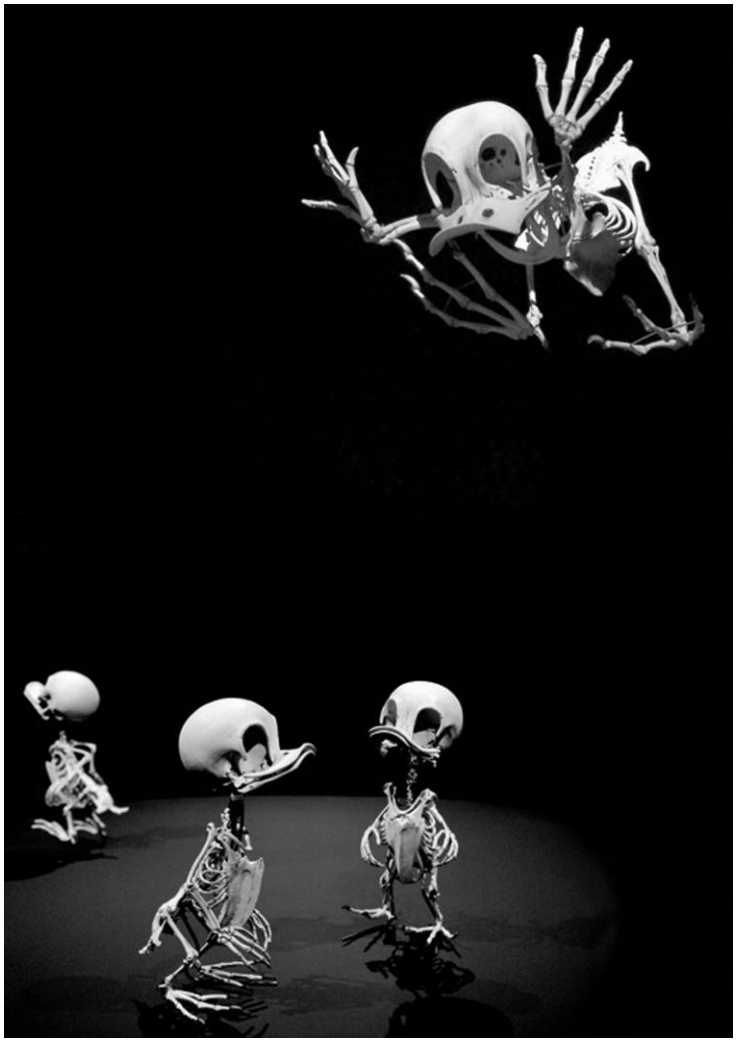
Le service de radiothérapie du centre hospitalier de Roanne n'est plus en mesure de respecter l'obligation réglementaire de présence d'un radiophysicien pendant les traitements depuis le 28 février 2009. Cette situation a conduit l'ASN à suspendre l'autorisation d'utilisation des accélérateurs du service à compter de cette date.
L'ASN avait déjà été amenée à prendre une décision similaire et à suspendre le 15 janvier 2009 l'autorisation du centre de radiothérapie de Blois (Loir-et-Cher) et le 9 février 2008 celle du centre de radiothérapie de Gap (Hautes-Alpes).
L'ASN considère que les conditions de sécurité des traitements ne sont pas réunies en l'absence de radiophysicien, dont l'article 6 de l'arrêté du 19 novembre 2004 impose la présence pendant la durée des traitements
Pour répondre à de telles situations qui sont susceptibles de se répéter dans les prochains mois, l'ASN considère qu'il est nécessaire de définir au niveau national[1] des dispositions transitoires à mettre en œuvre localement par les centres de radiothérapie et les ARH, notamment grâce à une collaboration régionale entre les centres.
Un cadre juridique robuste pour ces dispositions transitoires doit être défini par le ministère de la santé, afin d'assurer un niveau de sécurité satisfaisant qui permette la poursuite des traitements sans pénaliser les malades.

Les Personnes Spécialisées en Radiophysique Médicale, PSPRM, plus communément appelés radiophysiciens ou physiciens médicaux, interviennent dans les services médicaux utilisant des rayonnements ionisants. Leur présence est particulièrement importante dans les services de radiothérapie, où ils sont notamment chargés de tâches de métrologie, de planification des traitements, de contrôle qualité des appareils, d'optimisation de la radioprotection des patients et de gestion des risques dans la chaîne des traitements.

[1] La France, avec 320 physiciens en 2007, compte environ 5 radiophysiciens par million d'habitants contre 10 à 15 par million d'habitants en Grèce, en Italie, en Allemagne ou en Espagne, 15 à 20 en Irlande, en Finlande ou en Autriche, 20 à 25 en Grande-Bretagne, au Danemark, en Suède ou en Norvège). Il faudrait le recrutement volontariste de 340 physiciens d'ici 2012 pour atteindre le ratio de 9 physiciens par million d'habitants.

Quelle : http://www.asn.fr/lasn-suspend-lautorisation-du-service-de-radioth%C3%A9rapie-de-roanne-loire-pour-la-prise-en-charge-de-no

P I N N W A N D



Mit der Methodik eines Fossilienforschers ist der südkoreanische Künstler **Hyungkoo Lee** Comic-Figuren auf die Spur gegangen. Entstanden sind dreidimensionale, täuschend echte Skelett-Nachbildungen.

Prestigekleidung !?!

Schweden kämpfen um Arzt-Kittel

Zwischen schwedischen Ärzten und ihren Arbeitgebern ist ein bitterer Streit um den weißen Arztkittel entbrannt. Während die Leitung des Universitätskrankenhauses in Uppsala das Kleidungsstück für komplett überflüssig hält und nicht mehr bezahlen will, kämpfen die betroffenen Ärzte um ihr traditionelles Erkennungszeichen. "Ich will den Arztkittel, weil er mich wärmt und gut ist. Er ist auch ein gutes Arbeitsgerät. Ich kann mir Stethoskop, Bücher, Kalender, Handy und alles Mögliche in die Taschen stopfen", sagte der zuständige Ärzteverbandssprecher Martin Wohlin am Montag in der Fachzeitung "Dagens Medicin". Krankenhaus-Verwaltungschef Björn Ragnarsson meinte dagegen: "Für uns gibt es nur Vorschriften über die Hygiene bei Dienstkleidung von Ärzten. Da kommt der Kittel nicht vor." Ragnarsson hatte zuvor intern erklärt, dass man durch die Abschaffung von 8000 bisher benutzten Arztkitteln jährliche Kosten von 1,5 Millionen Kronen (140 000 Euro) einsparen könnte. Dieses Argument wollte der Ärzteverbandssprecher nicht geltenlassen: "Wenn der Arbeitgeber als Alternative für die Kittel für unsere Arbeitsgerätschaften Rucksäcke einkaufen muss, wird es unter dem Strich teurer."

Quelle: 26.03.2009 - Ausgabe: 0136 | kma

Zitat der Medizin-Physikerin:

"**How do you see the future of medical physics?**
I don't see any future if we don't refocus our job. Most Medical physicists spend too much time doing quality control tests. The tasks of a Medical Physicist should be designing processes, monitor them and so on, but not to perform the quality tests. They should spend more time on development, assessment and implementation of new technology. Medical physicists should do the work of a physicist and not that of a technician."

European Medical Physics News, Winter 2008, p. 18 in „The people behind Medical Physics:
Cari Borrás, Medical Physicist, Chair of the IOMP Scientific Committee."

Quelle: http://www.efomp.org/docs/EMPNewsWinter_2008_HQ.pdf