Overview of project, achievements and expectations from this meeting

Madan M Rehani, PhD
Radiation Protection of Patients Unit, IAEA & Director of Radiation Protection, European Society of Radiology, Vienna
madan.rehani@gmail.com
Tracking of patient’s exposures
Situation in 2003: Critics

Discussions with colleagues including ICRP
1. It is not a crazy idea anymore
Reason

- It may implicate staff having given more radiation dose to patient.
- Medical exposure is for benefit of patient
Situation 2003-2008: Critics

Rehani. Patient exposure tracking TM Sept 2013
Now in 2013

1. It is not a crazy idea anymore
2. It is feasible
Who wants it?
Only radiologist in first meeting
NOW in 2013

Who Doesn't Want It?
Now in 2013

1. It is not a crazy idea anymore
2. It is feasible
3. Who does not want it?
Why track?
Why Track?

CRITICAL INTENT

Meaningful intent
Why
THE NATIONAL ACADEMIES
Advisers to the Nation on Science, Engineering, and Medicine

Nuclear and Radiation Studies Board

2011 GILBERT W. BEEBE SYMPOSIUM

TRACKING RADIATION EXPOSURE FROM MEDICAL DIAGNOSTIC PROCEDURES

December 8-9, 2011

The National Academies
Keck Center
Room 100, 500 Fifth Street, NW
Washington, DC 20001
Why track?

For
• QA
• Patient protection
  • justification,
  • optimization
• Requirements
• Research
Now in 2013

1. It is not a crazy idea anymore
2. It is feasible
3. Who does not want it?
4. Why track? Justification, optimization, QA, research, requirements
What to Track?
What track?

Tracking of

- Examinations
- Dose
How Tracking Radiologic Procedures and Dose Helps: Experience From Finland

Raija Seuri1
Madan M. Rehani2
Mika Kortesniemi3

OBJECTIVE. The purpose of our study was to review the experience of tracking radiologic procedures and radiation dose for individual patients in terms of impact on justification and optimization.

MATERIALS AND METHODS. Examples were collected at the Hospital for Children.

CONCLUSION. Patient-specific justification and optimization becomes possible using the tracking of radiologic procedures and radiation dose of individual patients.
Case Report: 1 (Justification)

- 6 month old boy diagnosed with neuroblastoma of the posterior mediastinum 2 weeks earlier.
- The initial imaging included CT of the thorax as well as abdominal MRI.
- Bone scan performed two weeks later showed increased uptake in the posterior upper ribs on the right.
- Alarmed the oncologist to think of metastases in the ribs and thus a request for new CT scan
Case Report: 1 (Justification)

- Re-evaluation of the previous CT, showed erosion of the ribs by the tumour, which is a usual phenomenon with this kind of tumour but which was not mentioned in the initial report.
- Thus no further imaging was justified and a new CT scan was avoided.
Case Report: 2 (Optimization)

- **Boy 16 y, osteosarcoma of the femur.**
- **Initial imaging: CT of the chest (old scanner in 2008). DLP 475 mGy.cm.**
- **Follow-up examination in 2009, in another hospital but connected by PACS.**
- **DLP 221 mGy.cm.**
- **New scanner DLP 135 mGy.cm. Good image quality despite such low dose values**
Message

Tracking of radiological examinations & dose is useful
Now in 2013

1. It is not a crazy idea anymore
2. It is feasible
3. Who does not want it?
4. Why track? Justification, optimization, QA, research, requirements
5. What to track: examination, dose
We did not study cumulative dose aspect in tracking so far
Cumulative Radiation Exposure and Your Patient

This document, developed by Intermountain Healthcare's Cardiovascular Clinical Program and Imaging Clinical Service, provides information on the cumulative radiation exposure reported in HELP2: the limitations of this information, why Intermountain is measuring and reporting it, tips on interpreting this information, and factors to consider when choosing an imaging procedure.
Cumulative dose

Shoot it

Easiest thing to do

Cumulative dose
We seek your wisdom in
Now in 2013

1. It is not a crazy idea anymore
2. It is feasible
3. Who does not want it?
4. Why track? Justification, optimization, QA, research, requirements
5. What to track: examination, dose
6. Cumulative dose
3.156. The justification of medical exposure for an individual patient shall be carried out through consultation between the radiological medical practitioner and the referring medical practitioner, as appropriate, with account taken, in particular for patients who are pregnant or breast-feeding or paediatric, of:

(a) The appropriateness of the request;
(b) The urgency of the procedure;
(c) The characteristics of the medical exposure;
(d) The characteristics of the individual patient;
(e) Relevant information from the patient's previous radiological procedures.
PROTECTION OF PATIENTS AND OTHER INDIVIDUALS SUBMITTED TO MEDICAL EXPOSURE

Article 80
Justification

The referrer and the practitioner as specified by Member States, shall seek, where practicable, to obtain previous diagnostic information or medical records relevant to the planned exposure and consider these data to avoid unnecessary exposure.
Easy situation to monitor when there is reference
If the examination is justified, it should be performed irrespective of previous radiological history
If the examination is justified, it should be performed

irrespective of previous radiological history

Very good or excellent statement on paper
Why are 30-50% examinations unjustified
Mindset in process of justification
Patient A

- 35 yrs man
- Reports to Clinic/ED
- Abdominal pain
- Possibility of appendicitis
- No history of exposure
- Risk and benefit of CT > OK

Patient B

- 35 yrs man
- Reports to Clinic/ED
- Abdominal pain
- Possibility of appendicitis
- Early stage testicular cancer treated at 25 yrs > cured
- 20 Abdominopelvic CT, dose ≈ 100 mSv

What if the patient is 60 yrs or 20 yrs or a teen
• Can one ignore information about age, gender, previous disease, previous examinations…..

• Medical science is built on foundation of patient history
What do referring physicians think?
# Referring physicians

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<th>Resp.</th>
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<td>UK</td>
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622 physicians from 28 countries
International Atomic Energy Agency study with referring physicians on patient radiation exposure and its tracking: a prospective survey using a web-based questionnaire

Madan M Rehani, Theocharis Berris
How often in your clinical practice do you think knowing history of previous CT scans will help in making a better decision?

- Always: 23.0%
- Mostly: 49.0%
- Occasionally: 21.1%
- Rarely: 6.9%
Do you think having a system by which you have quick information about patients dose history will be helpful?

- Yes: 60.6%
- Maybe: 31.4%
- Not really: 7.9%
- No answer: 0.2%
Tracking radiation exposure of patients

As recently as only 6 years ago, it was not possible to come across a radiation-induced skin injury (erythema such as a burn, or hair loss) to a patient resulting from CT. However, in 2009-10, overexposure of about 400 patients undergoing brain-perfusion CT protocols, resulting in hair loss or skin redness in some patients, was brought to the attention of the US Food and Drug Administration and in media reports. 20 years ago, it was not possible to come across a patient who had undergone scores of CT scans in a few years, especially the patient without cancer. Did we see this coming? The answer is largely “no” for visible radiation effects and “probably yes” for usage. In view of these recent events, what might be the scenario in a few years? There are no indications that the increase in CT use will decrease. On the contrary, CT might replace some traditional fluoroscopy-based angiographic procedures. The medical profession has a responsibility to account for radiation exposure from medical imaging.

What are the risks and are the risks real? Essentially there are two types of radiation effects. Ones that are visible, documented, and confirmed (deterministic effects:"

the radiology facility has a major role to optimise the technique to do the examination with the minimum possible radiation dose without hampering the diagnostic purpose. The approach towards justification so far has been to promote use of appropriateness criteria developed by professional societies. Obviously the current situation with arguably unjustified CT scans ranging from 3% to 77% for certain indications and patients subjected to multiple radiological examinations shows that this approach is insufficient. A compelling answer is to track lifetime radiation exposure (radiation history, which should work efficiently to improve justification).

There are currently no successful examples of pro-

younger individual, one should aim at recording either doses or factors that can give a reasonable dose estimate within, say, ± 50%. At younger ages (20-40 years), if the number of examinations is low (say below five CT scans), tracking the number of examinations might suffice. But above five CT scans during this period, tracking of doses might be warranted.

"Maden Rehani, Donald Frush
International Atomic Energy Agency, Vienna 1400, Austria (MR);
and Duke Radiology, Durham, NC, USA (DF)
m.rehani@iaea.org
MR works on the SmartCard project. DF received travel assistance for project meetings.

Rehani & Frush. The Lancet 376 (9743); 754-755
Decision making tendency

There is no limit but mind makes value judgment
No limit but value judgment
Qualitative or quantitative guidance
Work (thoughts) in progress on how to deal with cumulative dose

After careful and rational analysis we might
Misconceptions & Myths

- Radiation doses on a card with patient
- Card like ATM card or Credit Card
- Acts as digital signature to access information online
PATIENT EXPOSURE TRACKING: THE IAEA SMART CARD PROJECT

Madan M. Rehani¹,* and Donald P. Frush²
¹Radiation Protection of Patients Unit, International Atomic Energy Agency, PO Box 100, A 1400 Vienna, Austria
²Duke University Medical Centre, PO Box 3808, Durham, NC, USA

*Corresponding author: m.rehani@iaea.org or madan.rehani@gmail.com
A Study of Smart Card for Radiation Exposure History of Patient

Madan M. Rehani¹
Joseph F. Kushi²

OBJECTIVE. The purpose of this article is to undertake a study on developing a prototype of a smart card that, when swiped in a system with access to the radiation exposure monitoring server, will locate the patient’s radiation exposure history from that institution or set of associated institutions to which it has database access.
Joint Position Statement on the IAEA Patient Radiation Exposure Tracking

By ESR, FDA, IAEA, IOMP, ISRRT, WHO and CRCPD

The IAEA Smart Card/SmartRadTrack Project aims at enhancing the implementation of principles of justification and optimization for radiation protection of patients. As quoted from Robert Glass earlier in the summary of the first meeting of the Smart Card Project, “Managing in the presence of data is far better and easier than managing in its absence”. It is believed that referring physicians will be in a better position to achieve appropriateness when provided information about previous radiological examinations and radiation doses of patients. A recent survey by the IAEA among referring physicians, currently under publication, confirms this belief.

The joint position statement is currently endorsed by the World Health Organization (WHO), the U.S. Food and Drug Administration (FDA), the European Society of Radiology (ESR), the International Organization for Medical Physics (IOMP), the International Society of Radiographers and Radiological Technologists (ISRRT) and the Conference of Radiation Control Program Directors (CRCPD) of USA.

Summary of the statement: Radiation protection of patients includes accountability for radiation exposure from multiple medical imaging procedures. While there are challenges, it has become increasingly necessary for organizations and professional communities to embrace a patient radiation exposure tracking programme for many reasons, in particular patient safety and welfare.

It is believed that organizations involved will take necessary actions to standardise the dose data provided by imaging equipment. It is important to be aware that, currently, only dose estimates are provided and not the actual individual patient dose. There is need to standardise the terminology of examinations.
Now in 2013

1. It is not a crazy idea anymore
2. It is feasible
3. Who does not want it?
4. Why track? Justification, optimization, QA, research, requirements
5. What to track: examination, dose
6. Cumulative dose
7. BSS, IAEA actions & surveys with referring physicians
Down the memory line

Memory Lane
Looking back

• It was good that I did not pursue it aggressively in 2003-2007
• Ahead of time
• Radiation units were not as matured
• PACS not talking to each other
• e-Health was in infancy
• Reports of few tens of or of ≥100 mSv doses to an individual were not there, but we predicted it to come
Number of CT Examinations

31,500 patients
190,712 CT examinations
22 year period

- 33%: ≥ 5 CT exams
- 5%: 22-132 exams

Sodickson et al.
Radiology 251; 175-184, 2009
Estimated Cumulative Dose

- 15%, ED > 100 mSv
- 4%, 250 -1375 mSv
- 1% >399 mSv

Sodickson et al.  
Radiology 251; 175-184, 2009
When there is light, everyone can see, but seeing in dark matters.......
Smart Protection

by Madan M. Rehani

A ‘smart card’ that contains patients’ information including radiation dose data would help protect them from radiation effects.

Until a decade ago, radiation protection programmes in the world were largely dominated by actions that concerned protection of the staff at the medical facility. Patient protection was felt to be not as important, as it was assumed that a patient undergoes examination with ionizing radiation once or only a few times in his or her lifetime.
Madan M. Rehani

Une protection intelligente

Une carte à puce pourrait servir de carnet électronique d’irradiation médicale pour les patients qui le souhaitent.

Il y a une décennie, les programmes de radio-protection en médecine avaient principalement pour objet la protection du personnel médical. La protection des patients était jugée moins importante car on partait de l’hypothèse qu’au cours de leur vie, ceux-ci ne subiraient qu’un
Smart Protection

【作者】Madan M. Rehani
【刊名】IAEA Bulletin, International Atomic Energy Agency
【出版日期】2009
【卷号】Vol:50
【期号】No.2
【关键词】Radiation Protection Medical Facilities Radiation Doses Healthcare Profession
August 2009

IAEA MOUNTS EFFORT TO RECORD PATIENT DOSE

In April of this year, the International Atomic Energy Agency announced a new project to record medical radiation exposures to patients over a lifetime. Besides calling attention to the increased exposure from the growing volume of x-ray examinations, the IAEA also notes a jump in patient exposure from CT scans as distinct from traditional x-ray examinations, said Madan Rehani, an IAEA radiation safety specialist.

The IAEA has invited the ISR and other international organizations to participate in the design of a “smart card” which people might carry to record their radiation exposures over a lifetime. How such a system might function has not been determined, he said.
IAEA calls for enhanced radiation protection of patients

The International Atomic Energy Agency (IAEA), in collaboration with other international organizations, is developing a series of measures aimed at strengthening patient radiation dose protection. The focus of recent efforts is a Smart Card project, to log how much radiation a person receives in the course of a lifetime.

Tracking Patient Radiation Dose: IT Implications

by Cat Vasko

In February, the FDA announced a new initiative to reduce unnecessary radiation exposure from CT, nuclear-medicine, and fluoroscopy exams. The agency’s three-pronged approach will include issuing safeguard requirements for device manufacturers, incorporating quality-assurance measures in mandatory CMS accreditation for imagers, and creating national dose registries to aid in the development of diagnostic-radiation reference levels.
International agency wants smart cards to track patient radiation histories

By Paula Gould | May 4, 2009

The International Atomic Energy Agency has launched an effort to create a running total of how much medical radiation patients are exposed to over time by issuing smart cards and modifying electronic medical records.

IAEA safety experts note that tracking dose for patients would provide a level of protection already available to medical practitioners. Standard protocols already exist to monitor levels of ionizing radiation that radiologists, technologists, and nursing staff are exposed to over prolonged periods.

The wearing of film badge or thermoluminescent dosimeters for several weeks or months is common practice. No such efforts, however, are made to record the cumulative x-ray dose received by patients.

For more information from the Diagnostic Imaging and SearchMedica archives:

- Radiation dose fears color coronary CTA guidelines.
- Soaring CT based radiation exposure points at self-referral.
- Study blasts agencies for radiation standards.
- Organizers expand scope of Image Gently radiation reduction program.
5) IAEA "SMART CARD" EFFORT TO CREATE RADIATION PASSPORTS

PHILADELPHIA, PA (July 22, 2010) -- Patients going from one radiology facility or one doctor to another, or indeed moving from one country to another, can leave a confusing trail of documentation about radiation exposure in radiological examinations. M. Rehani, who works at the International Atomic Energy Agency (IAEA) in Vienna, Austria, will report today at the 52nd meeting of the American Association of Physicists in Medicine (AAPM) on efforts to develop an international system for tracking patient exposures. The idea was first broached in 2001 but became an active program only around 2008.

Called a Smart Card/SmartRadTrack, the system ultimately may be something like an ATM card. It does not contain money on it but allows one to use the card to access money and account details. For the patient, radiation exposure history is sufficient whereas for health authorities radiation dose information is needed. Aggregate data obtained through the eHealth system would enable countries to establish radiation and exposure standards and help in future epidemiological studies. This would require manufacturers to develop equipment and software for tracking procedures and doses.

The presentation "IAEA Smart Card Initiative for Patient Exposure" by M Rehani will be at 8:30 a.m. on Thursday, July 22, 2010 in Room 202 of the Pennsylvania Convention Center.

From: Suzanne H. Reuben [mailto:progressive_hlth@msn.com]
Sent: Thursday, 04 June 2009 20:28
To: HANSEN, Kirstie
Subject: IAEA YouTube Video -- Enhanced Radiation Protection of Patients Needed

Dear Ms. Hansen:

I am Chief Writer for the U.S. President’s Cancer Panel, and am currently working on the Panel’s 2008-2009 report to President Obama.

A longtime friend at IAEA, Laura Rockwood, forwarded to me the Agency’s YouTube video on excess medical radiation exposure, a topic that will be part of the Panel’s report on environmental factors in cancer.

Two statistics included in the video caught my attention and I am hoping you can provide or refer me to the literature references for them:

- One average CT equals about 500 chest x-rays
- Radiation doses potentially can be reduced in many imaging examinations by up to 50 percent

Thank you for any information you can provide.

Sincerely,

Suzanne H. Reuben
President
Progressive Health Systems
Communications for Science and Health
9105 Paddock Lane
Potomac, Maryland 20854-2336
...a third of all CT scans practically could be replaced by other approaches or don’t have to be performed at all. But it’s going to be really hard to target this one-third because there are so many pressures on physicians to do CT scans.

DAVID BRENNER
COLUMBIA UNIVERSITY MEDICAL CENTER

The public is largely unaware of the radiation doses delivered by CT, positron emission testing, and other examinations that involve ionizing radiation, or of potential lifetime medical radiation doses and associated cancer risk. Speakers suggested that if patients were more aware of radiation exposure due to specific tests and the cancer risk that can accrue with cumulative medical radiation exposure, they might be more likely to raise this issue with their physicians. Doctors then may suggest alternatives that do not involve radiation (e.g., blood tests, magnetic resonance imaging, ultrasound) but still yield sufficient diagnostic information. A recently initiated international project would facilitate such doctor-patient discussions; efforts are underway to develop “smart cards” on which all radiation doses received by an individual are recorded. This information, when shared by the patient, also could prevent unnecessary repeat scans and would overcome data gaps.
NIH Adopts Radiation Exposure Tracking Policy

Patient concern about repeated radiation exposure has prompted a National Institutes of Health (NIH) plan to require all makers of CT and other radiation-producing scanners used at NIH clinics to have software to track a patient’s radiation dose and log it into an electronic medical record (EMR).

Although the policy impacts only vendors for NIH clinics, the organization strongly encourages all medical imaging facilities to adopt similar requirements, according to Ronald D. Neumann, M.D., and David A. Bluemke, M.D, Ph.D., who outlined the proposal in the February 2010 issue of the Journal of the American College of Radiology (JACR).

While patient record keeping "by itself is insufficient to provide needed answers regarding low-dose radiation exposure and increased cancer risk, it is nonetheless a necessary first step toward achieving that goal," wrote Drs. Neumann and Bluemke, both from Radiology and Imaging Sciences at NIH in Bethesda, Md.

Systems needed to record the data are readily achievable because EMRs are in place and because CT and PET/CT scanners already output the information, according to Dr. Bluemke.

"The information has simply never been recorded and tabulated in the radiology information systems and hospital..."
‘Smart Card’ project aims to better protect patients from radiation, say UN experts

29 April 2009 – A Smart Card project to log how much radiation a person receives in the course of a lifetime is among the latest efforts by the United Nations International Atomic Energy Agency (IAEA) and its partners to ensure better protection of patients from any unnecessary exposure.

Radiation safety experts from the IAEA have lauded advances in imaging technology that enable doctors to detect hidden diseases and make better diagnoses. At the same time, they caution that overuse of high-tech scanning procedures may unnecessarily expose patients to increased radiation levels.

Of particular concern are procedures such as computed tomography (CT) scans because they deliver higher doses of radiation to patients in comparison to conventional X-rays (radiographs), according to a news release issued by the agency.
IAEA Calls for Enhanced Radiation Protection of Patients

Suggestions

Radiation Protection of Patients
by IAEAvideo
1,027 views

IAEA Safeguards Analytical Laboratory
by IAEAvideo
772 views

IAEA Chief Addresses Historic UN Security Counc.
by IAEAvideo
1,792 views

IAEA Chief speaks to Press in Nigeria
by IAEAvideo
1,120 views

EURATOM: Radiation Protection - 4th of 4 relate...
IAEA Survey for Smart Card/SmartRadTrack Project

76 countries (All of the six most populous countries and 16 of the 20 most populous)
Patient radiation exposure tracking: Worldwide programs and needs–Results from the first IAEA survey

Madan M. Rehani a,*, Donald P. Frush b,1, Theocharis Berris a,2, Andrew J. Einstein c,3

a International Atomic Energy Agency. Radiation Protection of Patients Unit, Vienna International Centre, PO Box 200, A-1400 Vienna, Austria.
b Department of Radiology, Duke University Medical Center, Children's Health Center, PO Box 3808 DUMC, Durham, NC 27710, USA.
c Division of Cardiology, Department of Medicine, and Department of Radiology, Columbia University Medical Center, New York, NY 10032, USA.
Nationwide PACS- Estonia (1.3m)

- CT, interventional, NM, radiography and mammography (excl. dental) in PACS
- Government
  - Teaching medical institutions
  - Non-teaching Hospitals
- Private medical institutes:
- Private CT clinics:
Similar Situation but at sub-national level

- Finland
- Denmark
- Malta
- ........about a dozen countries
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<td>Vietnam</td>
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</tbody>
</table>
How useful do you think a radiation exposure tracking program would be (assuming practicalities are attended to)?

- Extremely useful: 28.9%
- Very useful: 60.5%
- Moderately useful: 10.5%
- Mildly useful: 0.0%
- Not useful: 0.0%

Total=76 countries
IAEA Survey in 76 countries

- Eight (11%) countries indicated that such a program is actively being planned and
- 3 (4%) stated that they have a program for tracking procedures only, but not for dose.
- 8 respondents from 8 different countries (Belgium, Bulgaria, Iran, Italy, Lebanon, PR of China, Slovakia and USA), stated that such a program is actively being planned.
IAEA Survey

- Which types of studies will be tracked?
- What radiation quantities will be tracked?
- Goals of the program: Justification, Optimization, QA, policy development, licensure/certification/regulation, decision support for ordering examinations, risk assessment, research and for population doses.
Now in 2013

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8. Global survey: Do countries want tracking
Looking ahead
IAEA launches project to develop methodologies to track radiation exposure of patients for Radiation SmartCare

Although the scope of the Smart Card project that was initiated by the IAEA in 2000 was comprehensive, it tended to give a narrow impression and, thus, the new name Smart Card/SmartRadTrack has been adopted. It includes following possibilities:

a. An electronic card that contains a patient’s information, including radiation exposure history.
b. A card only as a digital signature to access the radiation exposure data that is actually available online. A patient-accessible website can serve as a virtual card.
c. The information about radiation exposure history is made available in e-health records in a manner that can help track individual patients’ exposure over time. With interoperability, it should provide the possibility of access from anywhere.
d. In countries where neither an electronic card nor e-health record is feasible, a methodology to achieve information on tracking all radiological procedures, such as a radiation passport, somewhat like a vaccination card, could be initiated.

The project is aimed at:

Project in part by Extra budgetary grant from U S Govt.
Foremost necessity

Use of Patient Identifier
Informe Ecografía

Nombre: 
Matrícula: 261391 
Edad: 04 
Fecha Ejecución: 19/12/2007 
Hora ejecución: 08:25 
Médico solicitante: 
Tipo de ecografía: Aparato urinario 

Informe de Ecografía

DOMICILIO: SORIANO 1064 BLS/101 
NUMERO DE HISTORIA: 1170447-9
Radiation Exposure Tracking: Survey of Unique Patient Identification Number in 40 Countries

Madan M. Rehani¹
Theocharis Berris

OBJECTIVE. The purposes of this study were to survey in 40 countries the availability and use of unique patient identification numbers for radiologic examinations to facilitate radiation exposure tracking and to address plans for nationwide use of PACS networks and regulations in support of tracking.
36 Countries who responded to IAEA survey

Algeria, Argentina, Armenia, Bosnia and Herzegovina, Bulgaria, Colombia, Costa Rica, Czech Republic, Egypt, Estonia, Finland, Greece, Honduras, Hong Kong (China), Ireland, Kenya, Lithuania, Malaysia, Macedonia, Malta, Mexico, Moldova, Montenegro, Portugal, Nicaragua, Romania, Russian Federation, Serbia, Singapore, Slovakia, Slovenia, Spain, Sri Lanka, Sudan, Tajikistan, Tanzania, Uruguay
Is there a unique permanent identification number for every person in the country valid for life?

- Yes: 81%
- No: 19%

Total=36
Is this permanent number used for X ray examinations whenever a person visits a hospital?

- **YES** 44%
- **NO** 56%

Total=36
If this number is NOT used, it is because of:

- Lack of technology: 92%
- Confidentiality issue of patient: 8%

Percentages out of 20 answers!!
Issues nearly Resolved

• Use of reference dose quantities (e.g. DLP & CTDI in CT; KAP & CAK in fluoroscopy …)
• CT & fluoroscopy have dose displays & records
• DICOM- communication of images
• IHE- Structured dose reports, REM communication of dose
Practicability issues largely unresolved

- Use of patient identifiers
- Off line studies
- Nuclear Medicine
Nuclear Medicine

Tracking patient radiation exposure: Challenges to integrating nuclear medicine with other modalities

Mathew Mercuri, Madan M. Rehani & Andrew J. Einstein

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ISSN 1071-3581
J. Nucl. Cardiol.
DOI 10.1007/s12350-012-9586-x
European Commission planning to give patients secure access to digital health records by 2015

HAMBURG, GERMANY – (HealthTech Wire / PremiumPro) – The European Commission’s Digital Agenda for Europe (DAE) is a flagship initiative of the EU 2020 strategy, which focuses on sustainable growth through ICT. eHealth is a key part of it, said Flora Girogio of the EC’s ICT for Health unit, speaking at the Global eHealth Forum in Hamburg today. The DAE will develop the necessary infrastructure.

There are seven pillars, which encompass issues ranging from developing interoperability and standards to ultra fast Internet access, digital literacy and eGovernment solutions. The EC invests €11 billion until 2020 in driving and developing Europe’s digital infrastructure. The goal is to raise Internet coverage to 100% by 2013 and to facilitate data exchange at greater than 30 Mbps by 2020. Standards and interoperability among IT systems across Member States is another major concern of the DAE, and by 2012 a minimum set of common patient data should be available for interoperable patient records. The EC-funded epSOS project, involving 12 Member States, has launched a pilot project in this area. Girogio also announced that a Memorandum of Understanding is to be signed between the United States and Europe in around four months on the interoperability of health data exchange.

MoU US & Europe for health care data exchange
EU legislation

Directive 2011/24/EU on patients’ rights in cross-border healthcare clarifies the rules on access to healthcare in another EU country, including reimbursement. EU countries have until 25 October 2013 to pass their own laws implementing the Directive.
Exchange of patient information: continuity of care

129. Handling of patients' records in cross-border healthcare is particularly sensitive. Patient information would need to be transferred between providers and commissioners and across borders and this would need to be done safely, completely and securely. As the RCN noted, this would be essential for the continuity of care. (Q 259)

130. The efficient flow of crucial information and the continuity of care could be particularly challenging on an EU-wide scale. In a cross-border setting there are obvious concerns that the threat of data misuse would also be increased. (Q 143, p 168) The Government indicated that they would be studying the implications of aftercare arrangements in the UK for clinicians, including difficulties that might be experienced in understanding case notes. (p 18)
Europe for patients

A European Commission campaign bringing together different policy initiatives that share a common goal, better health care for all in Europe.
Now in 2013

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9. Looking ahead: Patient ID, EU actions
HLRCC Handbook
Welcome Friend

Chances are that if you are reading this page, you or someone you know has been impacted by HLRCC. We are very glad that you are here, to gather information, learn about this condition, and most importantly, to take control of your own, your patient's, or your loved one's health.

If you want a quick overview of HLRCC, there is a 2 page hand-out called "QUICK FACTS," to print and keep handy.

The term HLRCC did not exist a few years ago. Other older terms for this condition are Reed's syndrome or MCUL. Then ten years ago the connection to the possibility of developing kidney cancer and the role of the FH gene was found giving rise to the new term. Communicating to the outside world about this condition has been slow and arduous, although we are making progress.

So far, up to 1000 individuals have been involved in studies regarding this condition, but most
Hereditary Leiomyomatosis and Renal Cell Cancer (HLRCC) or Reed’s Syndrome is one of several rare familial syndromes involving kidney cancer.

The key symptoms of which only some MAY occur are (i) Cutaneous Piloleiomyomas (Skin Lumps) (ii) Uterine Leiomyomas (Fibroids) (iii) Papillary Type 2 or Collecting Duct Renal Cell Carcinoma (RCC is Kidney Cancer). Please refer to our “QUICK FACTS” for a quick overview and then study our Handbook for more detailed information.

We have formed the worldwide HLRCC Family Alliance (HLRCCFA), a family support organization similar to the VHL Family Alliance. We are indebted to the VHLFA at www.vhl.org for its guidance and in supporting us with their infrastructure. If you are interested in connecting with other families affected by HLRCC, please go to our Support Message Boards. We all have a common interest in helping and supporting each other.
Vision and Mission

VISION: VHLFA envisions a cure for VHL

MISSION: VHLFA is dedicated to research, education, and support to improve diagnosis, treatment, and quality of life for those affected by VHL.

VHL or von Hippel-Lindau is a genetic form of cancer. VHL patients battle a series

Faces of VHL

Patient Testimonials

The VHL Family Alliance has meant the world to me. Through this alliance I have met friends who can relate to the unique world of VHL. Questions, concerns and ideas about VHL have been through this organization. Many thanks and kudos to VHL Family Alliance. Truly, you have helped me climb the mountain of VHL.

From Great NonProfits
Now in 2013

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9. Looking ahead: Patient ID, EU actions
10. Patients with genetic diseases: Lots of CT scans
We are in a situation where turning back is Not possible

New tracking of patient’s radiation exposure

21/May/2013

In the May 21 edition of The Wall Street Journal, Mass General Radiologist-in-Chief and Image Wisely Co-Chair James A. Brink, MD discusses radiation dose in the context of efforts to track patient exposure.

Dr. Brink notes that for most diagnostic imaging, the added cancer risk is so small it can only be measured on a population rather than an individual basis. He also notes that even exposure data isn’t a reliable measure because it can vary highly by such factors as age, gender, the body part exposed to radiation and the patient’s size.

The Department of Radiology at Mass General has been active in reducing radiation exposure for more than a decade, striving
Looking back

• My expectations have been surpassed
It is rare to find examples of actions (not discoveries) where so much change has occurred in so few years.
This meeting

• Is patient exposure tracking effective? Is there evidence of its effectiveness?

• What are the major accomplishments of the program?

• What can and should be done further?

• Who can what?

• Actions that you can take?

• Actions on which recommendations should be provided?

• Actions where international organizations can help?
This meeting

• What are the most important barriers and the chances of overcoming them?
• How do we foresee this project spreading to the rest of Europe and other parts of the world?
• Tying in with what is being done now in the U.S.?
• Are political issues and technical shortcomings insurmountable when it comes to the establishment of an integrated international system?
This meeting

- Is there any role for an electronic card with patient exposure and dose data on it?
- How does the patient with the smartcard give his or her new clinic or provider access to his radiation exposure record?
- Develop guidance for industry and decision makers in Member States.
In countries without PACS

• Is there willingness for providers to complete a manual version of the radiation card?
• Can teleradiology or other means be harnessed to improve functionality even in less resourced countries?
• What are the most important next steps.
Thank You

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