

2014 AAPM Annual Meeting: Professional Symposium on Communicating Risk

# Communicating Risk

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American Association of Physicists in Medicine Annual Meeting  
Austin, Texas

James Kofler, Ph.D.  
Mayo Clinic  
Rochester, Minnesota

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## Where to start?

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- Let patient guide the discussion
  - What are their concerns?
  - What do they know?
  - What do they want to know?

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## Where to start?

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Keep in mind...  
The purpose of the consult is to **educate** the patient!

Not to...

- Preach
- Tell them what is “right” for them
- Seem smarter than they are

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### When risk values are discussed...\*

- Note challenges of determining risk
  - Atomic bomb survivor data
  - Circumstances and difficulty comparing doses to medical exposures
  - Large uncertainties
  - Risk is immeasurably small, if existent
- Probabilities can be a worm-hole

\*Risk values are almost ALWAYS discussed!

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### Risk Reality

BEIR VII Report

“At doses of 100 mSv or less, statistical limitations make it difficult to evaluate cancer risk in humans.”

AAPM Statement

“Risks of medical imaging at effective doses below 50 mSv for single procedures or 100 mSv for multiple procedures over short time periods are too low to be detectable and may be nonexistent.

Predictions of hypothetical cancer incidence and deaths in patient populations exposed to such low doses are highly speculative and should be discouraged.”

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### Focus on

# BENEFIT

- Consequences of having the exam
  - Importance of getting answers
  - Negative & positive results are answers
- Consequences of NOT having the exam
  - Stress of not knowing
  - Potentially more serious medical problems

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### Case 1

- RSO gets call from physician
- 49 yo need an L-spine x-ray
- Patient concerned because of many x-ray exams in past years
- RSO calls me to check our records

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- 02-Oct-2013 PX-NA (Single full mouth x-ray)
- 20-Jun-2013 V&IRAD Ultrasound Guidance (fluoroscopic guidance for picc placement)
- 25-Feb-2013 V&IRAD Vascular & Intervention (Uterine artery embolization, fluoroscopy)
- 29-Jan-2013 NM BMD Spine and/or Hip(s) (Bone mineral density, Lower spine + both hips)
- 25-Jan-2013 CT Ent Abd w-Pelvis w (CT scan of the Abdomen and Pelvis with oral and IV contrast using the enterography protocol—single pass)
- 24-Jan-2013 CT Maxillofacial wo (CT scan of the Maxillofacial region without IV contrast: Sinus Brain lab protocol, single pass)
- 27-Dec-2012 Hand x-ray (both hands 2 view PA/ObI)
- 22-Dec-2012 V&IRAD Ultrasound Guidance (Placement of a 4F single lumen left arm SOLO PICC)
- 19-Nov-2012 V&IRAD Ultrasound Guidance (Single-lumen PICC line placed via the left arm without complications. Postprocedure chest x-ray shows it is in good position and can be used immediately)
- 12-Jul-2012 B Foot 3vw/STDG AP/LAT/ObI (x-ray both feet together, 3 views)
- 12-Mar-2012 BILATERAL DIGITAL DIAGNOSTIC MAMMOGRAM WITH CAD
- 28-Feb-2012 NM BMD Spine and/or Hip(s) (Bone mineral density)
- 26-Sept-2011 XC-Bitewings
- 11-Aug-2011 B Foot 3vw/STDG & Ankle 3vw/STDG (Both Foot 3vw/STDG & Ankle 3vw/STDG)

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- 06-Apr-2011 NM BMD Spine and/or Hip(s) (Bone mineral density)
- 06-Jan-2011 R CT EXT UPPER w (CT arthrogram of the right shoulder with intra-articular contrast)
- 03-Jan-2011 R Shoulder 2 or 3vw w/Axillary (x-ray, right shoulder)
- 11-Nov-2010 Bilateral digital screening mammogram
- 22-Oct-2010 CT-CT Chest (Chest CT, not done at Mayo)
- 22-Oct-2010 CT-CT Sinuses (Sinus CT, not done at Mayo)
- 21-Oct-2010 CR-DX c-spine, l-spine, hand (x-ray, not done at Mayo)
- 21-Oct-2010 CR-DX Hands Bilateral (hands x-ray, not done at Mayo)
- 21-Oct-2010 CR-DX Pelvis (Pelvis x-ray, not done at Mayo)
- 21-Oct-2010 CR-DX Feet Bilateral (Foot x-ray, not done at Mayo)
- 21-Oct-2010 CR-DX Spine Lumbosacral (spine x-ray, not done at Mayo)
- 21-Oct-2010 CR-DX Spine Cervical Complete (C-spine x-ray, not done at Mayo)
- 01-Aug-2010 L Femur 2vw AP/Lat (Femur x-ray, 2 views)
- 04-Jan-2010 CT CHEST wo
- 28-Jul-2009 B Clavicle 1 vw Sereidipity (x-rays, localized view of sternoclavicle joints)
- 29-May-2009 B Foot 3 vw/STDG & Ankle 3vw/STDG (x-ray)
- 27-Jan-2009 Sp Thor 2vw & LS 3vw

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- 27-Jan-2009 Sp Cerv 3vw AP/Lat/Odontoid
- 27-Jan-2009 Pelvis w/Sacro-Iliac obl 3 vw
- 21-Jan-2009 NM BMD Spine and/or Hip(s)
- 25-Nov-2008 R Fingers 3vw PA/Lat/Obl
- 06-Oct-2008 MG /Screening Exam (Bilateral digital screening mammogram)
- 07-Aug-2008 Chest—PA & Lateral (x-ray)
- 07-Aug-2008 CT Head wo
- 19-Mar-2008 CT CHEST wo
- 27-Feb-2008 B Foot 3vw/STDG & Ankle 3vw/STDG
- 06—Jul-2007 Chest PA & Lateral
- 14-Feb-2007 B Wrist 4vw PA/Lat/Obl
- 13-Nov-2006 CT CHEST wo
- 06-Sep-2006 L MG /Diagnostic Exam (Unilateral digital diagnostic mammogram)
- 16-Aug-2006 L MG /Screening Exam (Bilateral digital screening mammography)
- 09-Aug-2006 Chest—PA & Lateral
- 21-Jun-2006 CT-CT CHEST (ROUTINE) W CONTRAST (not done at Mayo)
- 21-Jun-2006 CT-CT HEAD ROUTINE W O CONTRAST (not done at Mayo)
- 14-Jun-2006 NM Bone scn 3 Phase

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- 09-Jun-2006 Pelvis (x-ray)
- 31-May-2006 Sp\*Thor 2 vw & L S 3vw
- 23-May-2006 NM BMD Spine and/or Hip(s)
- 10-Mar-2005 CT Chest wo
- 09-Mar-2005 Chest—PA & Lateral
- 06-Jan-2005 CT ABDOMEN we & PELVIS wo
- 04-Jan-2005 NM BMD Spine and/or Hip(s)
- 04-Jan-2005 CT Coronal Sinus wo
- 03-Jan-2005 CT CHEST wo
- 14-Jan-2004 R Hip 2vw AP/Lat
- 13-Dec-04 PA & Lateral Chest x-ray (outside film interpreted by Mayo 11-Jan-2005)
- 27-Aug-2004 Bilateral mammogram (outside film interpreted by Mayo 11-Jan-2005)
- 20-Jan-2002 B Foot 3vw/STDG AP/Lat/Obl
- 20-Jun-2002 NM Bone Scn 3 Phase
- 25-May-2001 NM BMD Spine and/or Hip(s)
- 23-May-2001 CT Coronal Sinus wo
- 23-May-2001 Chest—PA & Lateral
- 20-Jul-1999 GU-KUB w/tomos

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- 26-Apr-1999 Mammo – SCREENING (Bilateral)
- 26-Apr-1999 CT Coronal Sinus wo
- 26-Apr-1999 Chest—PA & Lateral
- 26-Apr-1999 zFeet -& Ankles (Both) (STDG)
- 19-Dec-1994 Hips, Bilat, Min 2 vws ea Hip
- 09-Jan-01 Sinus CT (outside, interpreted by Mayo 24-May-2001)

**73 radiological exams  
(over 14 years)**

**Should we be concerned?**

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### Case 2: Points

“Worry and stress affects the circulation, the heart, the glands, the whole nervous system, and profoundly affects heart action.”

*Dr. Charles H. Mayo, 1898*

- Fear & stress very real
- Listen, relate, show compassion, build trust
- Share information (educate)

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### Case 3

- Elderly woman, CT few months prior
- Wants dose and cancer risk increase
- Discuss, she seems fine
- Calls days later, same questions (ok now)
- Calls repeatedly, same conversation
- Finally had to stop

“You are causing more harm to yourself by obsessing than the radiation could have possibly done”

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### Case 3: Points

“While there are several chronic diseases more destructive to life than cancer none is more feared.”

*Dr. Charles H. Mayo, 1926*

- Some people just need to talk to someone
- Some need to feel in control of their situation
  - I encourage this!
- Some may never understand risk “reality”
  - Need to recognize and act accordingly and professionally

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### Case 4

- 20 yo male need a pre-surgical hip CT
- Few recent scans, mostly to shoulder
- Concerned about cancer (and more?)
- Briefly covered the background on risk
- Then asked him

*“What is the benefit from the surgery?”*

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### Case 4

*“I could walk again”*

- *What about radiation “down there”?*
- Dr. told him no more radiation “down there” for at least 6 months
- Clearly alarmed

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### Case 4: Points

- Very obvious benefit/risk
- Real concern most likely testicular dose
- Misinformation from authority (doctor) tipped risk scale
- Can be difficult to “undo”
  - Correct, but don’t insult

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### Case 5

- Patient: after CT has nausea, dizziness, stomach problems and poor cell phone reception
- Very sincere, rational
- Nothing else out of the ordinary
- Discussed possible causes (non-radiation) for non-phone related symptoms
- Everything went smoothly

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### Case 5: Points

- Patients may have a different perspective on radiation and technology
  - But their concerns are real
- Expect nearly anything
  - Patients may get upset, show emotions, challenge your motives, etc.
  - Be prepared, be respectful, be professional

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