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General Comment

There is a threshold.

NCRP 147 does in fact describe design criteria that essentially already suggest a threshold. Every recommendation in NCRP 147 indicates that more shielding (and thus less exposure), whereas not immediately needed, could be considered as a future "need/work load". Thereby justifying the extra cost of excessive shielding in order to future proof an area that in the future could use higher work loads without the need for renovation of the same shielded area. If we carry the modest considerations of exposure that are set forth in this scientific and thoughtful document and if we were allowed to study as a scientific group how this would apply to ALARA in broader applications and not just limited to shielding I believe the scientific community could easily agree on a threshold that is correct. Recently public comment from some Low Dose oriented medical leaders suggest a gross misuse of the ALARA concepts where the already thoughtful and correct ALARA is further embellished to be interpreted to mean as low as possible (ALAP). Because of the erroneous ALAP approach protagonists of ALAP are creating entire industries, are creating unneeded policies and creating unneeded procedures to the detriment of health care, patient care, and cost.

Caution should be used moving forward to avoid false medicine that advocated the benefits of maintaining a threshold level of radiation wherein "Thresholdists" could insist that we create a Recommended Daily Allowance (RDA) of radiation. There may be indications of benefit at a

threshold but the exact threshold and the exact benefits are unknown, not well understood and therefore in the year 2015 not medically indicated.

Setting public exposure levels to worker exposure levels for medical procedures is simply not needed, sets a poor precedent for public opinion and would add significant cost simply having to change an already functioning standard. As one example, medical equipment developers and manufacturers may then be able to reduce the amount of shielding required for x-ray tube assemblies. Patients would get a slightly higher dose and perhaps under extreme conditions reach a dose allowed (by today's standards) only for radiation workers. What then happens to the radiation worker? Instead of wearing a lead lined apron that weighs from 8 - 15 pounds the same (by increasing exposure) apron could need to weigh 80-150 pounds. This illustration shows that the cost does not disappear, rather the cost simply shifts. Hospitals would naturally need entirely new equipment and shielding, one set of the same for their "old equipment" and one set for their "new equipment" the cost basis increases tremendously. Since the entire industry would take time to adopt the new standards there would be a prolonged period of the two system need that would most certainly double or more the cost of the exposure arena.

In summary, a basis for establishing a Threshold does exist and could be used to define a lower limit to the ALARA mandate. As Low as Possible concepts are damaging to medicine. ALARA is misinterpreted and because of this misinterpretation ALAP extremists are attempting to create need that can only be justified through fear and vague non-scientific discussions. Because of these competing (ALARA versus ALAP) notions clinicians and scientists are placing fear into the public sector.

Exposure limits are in place and insinuation that a lower than pre-established limits are needed can only be justified based on expected future exposures that would cause a member of the public or a radiation worker to necessarily exceed the same. Insisting on further lowering exposure, beyond that justification (anticipated future exposure), is simply wrong. At the same time pretending that increasing the annual public exposure limit to the same as annual radiation worker exposure limit may not serve to lower costs.