

# AGROMEDICINE PROGRAM UPDATE

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*Previous issues are available at [www.musc.edu/oem/apunews.html](http://www.musc.edu/oem/apunews.html)*

## **PROGRAM NOTES**

> A touch of fall is in the air, but heat related-illnesses are certainly still a possibility, since daytime temperatures are often above 90 and humidity levels are often 90% or higher. Both Drs. Frithsen and Simpson have made presentations to lay and professional groups on heat-related illness this month. Give the office a call if you would like to schedule a presentation for your group.

> Dr. Simpson gave presentations on Avian Influenza and Community-Associated Methicillin-Resistant Staph Aureus(CA-MRSA) to the Carolinas Occupational and Environmental Medicine Association annual meeting in Charleston in September. Lay and professionally oriented presentations are available on both of these topics on request.

>Dr. Frithsen's article on reports of brown recluse spider envenomations has been published in the Journal of the American Board of Family Practice. Copies

of the article are available on request.

>Dr. Stan Schuman's new book: Rainbows in Wash-tubs, should be out any day. We will let you know when it is available.

## **RECENT CONSULTS**

> Dr. Jerry Jebaily, Associate Director of the McCleod Family Medicine Residency Program in Florence and long-time friend of the Agromedicine Program reported on a case of a 76 year old farmer who became severely nauseated and dizzy while operating his combine. He was brought to the emergency room for evaluation. Initial evaluation for cardiac abnormalities was negative and ENT and neurology evaluations were being considered when the family medicine resident seeing the patient asked for more history.

It turned out that a friend of the farmer had pointed out the pattern that the combine blades made in the grain and the farmer had begun to focus his eyes on the blades rather than the path

ahead. This had resulted in the dizziness and nausea, which abated within a few minutes of arriving in the emergency room. As is most often the case, the history holds the key to the diagnosis!!

>Readers will remember an article about a tick-borne disease which might be mistaken for a "brown recluse-like bite"—American Boutonneuse Fever. Ian Stocks of Clemson writes: "Deerflies (Chrysops spp., Tabanidae) are also competent vectors, in addition to ticks, not just of rickettsias but also of *F. tularensis*." So add a deer-fly bite to tick bites as a possible cause of a necrotic skin lesion

## **SPECIAL ARTICLE**

### *Well water safety*

A recent article in Environmental Health Perspectives describes a case of uranium exposure from drinking water that was discovered in 2000. A family of 7 recognized the problem after 5 years of living in a Connecticut house that used a well as the source for drink-

ing water. A neighbor was initially found to have elevated uranium in her hair and subsequently a uranium level 1.5 times the US Environmental Protection Agency (EPA) maximum contaminant level (MCL) was noted in her well water. This led the family in question to also have their water tested and the uranium level in their well was almost 40 times the EPA MCL. No negative health effects were reported by any of the family members. The youngest child was reported to have an elevated urinary beta-2-microglobulin excretion rate which is a marker for proximal renal tubule damage. However, this rate was noted to be decreasing and no other evidence of proximal tubular damage was noted. Uranium is a naturally occurring element that has been noted to have wide variations in concentration in small areas as was seen in these two neighboring wells. A similar problem was noted in South Carolina around the same time.

SC Department of Health and Environmental Control (DHEC) began an investigation in early 2001 in Greenville County after learning that high levels uranium were found in private wells near Simpsonville. Extensive testing of both private and public wells in the upstate region revealed that 80 of 778 private wells and 7 of 322 public wells tested exceeded the MCL for uranium. Wells

with levels exceeding the MCL were scattered throughout the upstate. Testing has determined that the source of these contaminations is from naturally occurring uranium commonly found in bedrock formations that wells often tap into. Testing by the Center's for Disease Control (CDC) indicate that some owners of wells that were found to have elevated uranium levels has elevated urine uranium. No health effects have been reported due to exposure to uranium from well water in SC. DHEC suggests testing for uranium for well users in many SC counties, more information can be found on the DHEC website listed below or by calling their Bureau of Water at 1-888-761-5989.

--Dr. Ivar Frithsen

#### References:

Magdo, HS. Nephrotoxicity in a Young Child Exposed to Uranium from Contaminated Well Water. *Environmental Health Perspectives*. 2007; 115(8):1237-42.

Chepesiuk, R. Unwell water in South Carolina. *Environmental Health Perspectives*. 2002; 110(4): A182.

<http://www.epa.gov/safewater/privatewells/index2.html>

<http://www.scdhec.net/environment/water/dwrw.htm#regulation>

More information on private well water testing will be included in the October issue

of the Agromedicine Program Update.

#### FROM THE LITERATURE

>A study of more than 1200 Salzburg, Austria area residents aged 40 and older showed that while fewer farmers were smokers, 30% of farmers, versus 22% of non-farmers had at least mild chronic obstructive pulmonary disease (COPD) by spirometric criteria. Severe COPD was found in 14% of farmers and only 8% of non-farmers. The differences began showing up at age 50 and held beyond age 80.

The authors theorize that exposure to mineral dusts stirred up by working the soil could contribute to the increased rate of COPD. Limitations of the study include lack of information on the type, duration and intensity of exposure for the farmers, the limited range in geography and farm type and the lack of long-term spirometry data.

Only 5% of both farmers and non-farmers had a doctor's diagnosis of COPD.

--Lamprecht B et al. *Am J Industrial Med*. 2007; 50:421-6

Editor's note: This is the first study that shows a clear association of COPD with farming, but the limitations of the study noted above are substantial. Dust control is important, for certain, just how important isn't. WMS