



Carl Grimes, HHS, CIEC

Defining Health, Including People in Assessments & IICRC S-520 Revision Discussion

Air Date: 4-28-2023 | Episode 698

This week we welcome back a longtime friend of the show Carl Grimes of Hayward Score. Many of our listeners know Carl has been an advocate for including health in IEQ assessments for years and has been working with sensitive people for decades. Carl has been busy as usual and recently worked with ASHRAE to better define health, spoke at IAQA on including people in assessments and has been following the S520 revisions. Carl has unique perspective and insight into the IICRC's mold remediation standard and his thoughts on the latest proposed revisions. Carl is a member of the consensus board of the BSR/IICRC S-590 Standard for Assessing HVAC Systems following a Water Damage, Fire or Mold Damage Event.

Hayward Score Healthy Home Director Carl Grimes, HHS CIEC, has a unique combination of experiences. He has personal experience of how an unhealthy home created his disabling impact and the professional experience in various industries working in the Indoor Air Quality (IAQ) field. Carl wrote Starting Points for Healthy Habitat in 1999, detailing possibilities of what could occur in a house to make its occupants sick, how to identify what was happening, what to do about it, what not to do, and how to verify the results.

The book led to an invitation to speak at the national conference of the Indoor Air Quality Association, which led to an invitation to serve on a committee that wrote the first mold remediation standard. This was followed by revising the ANSI accredited water damage restoration standard, duct cleaning standards for two organizations, fire residue in HVAC systems, and eventually to the creation of IAQA's Home Health Committee. Under his leadership a new course was developed in partnership with the National Center for Healthy Housing and Children's Mercy Hospital in Kansas City: Healthy Home Assessment: Principles and Practice. Other activities included serving on the Board of the International Society of Indoor Air Quality and Climate (ISIAQ) as the Vice President of Practice, on the

ethics committee of the International Society of Environmental Epidemiology (ISEE), the Joint Task Force workgroup of the American Academy of Allergy, Asthma, and Immunology and the American College of Allergy, Asthma, and Immunology (AAAAI-ACAAI). The latter developed four medical practice parameters for allergists plus an entire issue of a leading peer reviewed journal on mold. He was on the committee that wrote the ASHRAE Position Document on Limiting Indoor Mold and Dampness in Buildings.

Nuggets mined from today's episode:

Hayward Score- For 5 years Hayward Score sought to survey homeowners about how they perceived their homes. The 50 question survey sought three different criteria: Type of Structure, How Home is Used, Complaints. With over 90,000 responses Hayward Score has captured “big data”. Lack of maintenance is responsible for most complaints, 2/3's of responders felt better when out of their homes. The Z-Man and others were disappointed with their scores (around 60) until they learned the average score was 53. (Z-Man's was 60 which he attributes to his wife leaving a master bedroom window open year-round.) Haywards data scientist crunched the data 3 different ways and found an association between house dust and health symptoms. Using this along with other data, Carl authored a paper which was published in CIRI Journal of Cleaning Science that discussed the association of house dust with health symptoms. People who took the survey learned important information about their homes. People who followed recommendations from their survey experienced improvements in health and comfort in their homes.

Hayward Score is developing a Mini Score (8-15 question) survey for real-time use by inspectors with homeowners.

Defining health?

- According to Carl Grimes, the “health” is too complex to be defined as a single term. Light, sound, thermal comfort and IEQ individually and together affect health. A better use of the term “Health” might be as an indicator pointing to the many: indices, facets, and influences such as political, psychological, and sociological practices, etc.
- **In 1948, WHO defines health positively as “a state of complete physical, mental, and social well-being and not merely the absence of disease or**

infirmity.” (Each year WHO celebrates its date of establishment, April 7, 1948, as World Health Day.)

- <https://www.who.int/about/governance/constitution>
- <https://www.ashrae.org › technical-resources › standards-and-guidelines › titles-purposes-and-scopes>
- TPS - Titles, Purposes, and Scopes - ASHRAE
- **SGPC 10** to maintain and revise Guideline **10**. Guideline **10** on continuous maintenance. **SGPC 10** authorized 10/1/2010. **Interactions Affecting the Achievement of Acceptable Indoor Environments**. ASHRAE Guideline 10-2021 - Published guideline. Supersedes Guideline-10-2018.
- Carl Grimes investigated why ASHRAE publications excluded references to health. He found that ASHRAE hadn't excluded "health"; by board directive use of the word health was prohibited. This appears to have occurred during the years that Big Tobacco was exerting its influence. Both past ASHRAE Presidents: Donald Bahnfleth, PE (1985-1986) and his son Dr. William Bahnfleth (2013-2014) unsuccessfully attempted to get ASHRAE to include health in their policy during their tenure. But it did appear in their latest 5-year Strategic Plan.
- Dr. Claudia Miller, MD, MS Researches the negative impact of chemicals, food and pharmaceuticals. Dr. Miller developed a rating system and ranges. These, along with other tools presented by Carl at the last IAQA conference, offer one suggestion of a "tool kit" for field practitioners to safely and effectively include people in their work. <https://tiltresearch.org/about-tilt/>
- Mike McGuinness, CIH NIOSH suggested the 4 P's- People, Pollution, Pathways and Pressures be used when evaluating buildings and the NIOSH Worker Well-Being Questionnaire (WellBQ) <https://www.cdc.gov/niosh/docs/2021-110/default.html>
- <https://www.ashrae.org/file%20library/technical%20resources/bookstore/dampbldgs-humanhealth-hvacdesign.pdf> LINK TO ASHRAE DAMP BUILDING & HEALTH DOCUMENT. This was the first document to include health effects

which were supported by a epidemiological meta-analysis of dampness on health.

IICRC S520 discussion:

- Carl Grimes writes a monthly column in Healthy Indoors magazine. <https://healthyindoors.com/magazine/>
- The IICRC uses ANSI standard writing process. (inclusive, industry consensus, standard of care (reasonable in field), operational science,
- The ANSI standard writing process is rigorous.
- Carl advocates that SPRAYING or fogging mold remediation products on fungal contaminated surfaces IS NOT EQUIVALENT to physical removal of mold growth from surfaces. This is important because S520 is a procedural standard for physical removal.
- Carl expressed concern that large and well-funded manufacturers of chemical remediation products have an increasing potential to influence (dominate) the S-520 consensus process to accept the use of these chemical products in lieu of source removal cleaning.
- Carl opines that, while chemical manufactures may have toxicology data (lab animal studies) and lab efficacy data acceptable to the EPA (FIFRA), that their data on limiting human exposure is insufficient. The risk to people is more than toxicity, it includes sensitization.
- Carl opined that the chemical industry needs to justify with independent studies why source removal is unnecessary when their products are used.
- Carl opined that the public review version of S-520 looks too cumbersome with explanatory and educational material, some of which was contradictory He preferred the earlier versions of the S-520 that included a reference guide in the same document so the procedural steps themselves were clear and not contradictory..
- Carl opined that S-520 should NOT be a training manual. It should be prescriptive procedures of how you do it: step 1, step 2, step 3, etc. based on the education, training, and experience of industry professionals who comply with the definition of "Standard-of-Care."

RoundUp-

- Tip for assessors, pose open ended questions.
- The pandemic, raised awareness of people (occupants).
- The pandemic improved the speed with which information was delivered.

- People are more interested in health now we need a way to talk about it.
- Some human comforts indoors have improved over time.
- Carl was very surprised that many medical groups haven't considered human exposures indoors.
- Some of the medical community has discovered Carl; he is speaking at a growing number of medical and public health conferences.
- People have been excluded from the definition of health because we don't know how to deal with the health of people.
- If we don't do it who will?

Z-Man signing off

Forrest Gump quote, "life is like a box of chocolates, you never know what you are going to get". There is no silver bullet to improve IEQ, there are many tools to improve IEQ. We need a box to hold the chocolate and glue to hold everything together.

1. SCORE to establish the house-specific situation.
2. BREESI to screen for occupant need.
3. Complaint Equation with PIR to profile the need and establish minimum diligence.
4. QEESI to compare reported symptoms before work begins with after work is completed.
5. Exposure History for the Physician.

The Score questionnaire can be accessed at www.haywardscore.com

BREESI and QEESI is free at www.tiltresearch.org as is a free PDF of her book, Chemical Exposure: Low Levels and High Stakes

The combination of BREESI, QEESI, and the exposure history for physicians can be downloaded at: <https://tiltresearch.org/wp-content/uploads/sites/46/2021/09/CI-self-evaluation.pdf>

For the Complaint Equation and the Personal Impact Rating (PIR) information, contact Carl Grimes directly at grimes@haywardscore.com