Science and Engineering

70th Anniversary Fluoridation Celebration and Symposium
Our Speakers

Howard Pollick, BDS, MPH
Health Sciences Clinical Professor
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Kip Duchon, BSCE, MSEnvE, PE
CDC National Fluoridation Engineer
Understand:

- Key points about the science used to make the USPHS announcement of 0.7mg/L fluoride in drinking water
- Key points about the science to address the comments made regarding the announcement
- Common questions on fluoridation additives and facts on their composition
- Engineering and operational considerations for water facility operations
Why Do Many Reasonable People Doubt Science?

We live in an age when all manner of scientific knowledge—from climate change to vaccinations—faces furious opposition.
“So you might be surprised to learn that, half a century later, fluoridation continues to incite fear and paranoia.”
“On our own we suck at weighing evidence”
Kevin deLaplante. University of Iowa

“Science is what we do to keep from lying to ourselves and others”
Neil deGrass Tyson, Cosmos, 2014
* Human beings are prone to biases that lead to error

* Scientific methodology aims to reduce error

Scientific Method
* Judgment Heuristics are quite useful, but sometimes lead to severe and systematic efforts

* Affect Heuristic - judgments and decisions are guided directly by feelings of liking and disliking, with little deliberation or reasoning
“A reliable way to make people believe falsehoods is frequent repetition, because familiarity is not easily distinguished from truth.”
A set of tools for distinguishing meaningful from meaningless patterns:

* Controlled experimental studies
* Statistical analysis
* Used to distinguish meaningful from meaningless patterns
* Forces us to search for and weigh a complete body of evidence, confirming and disconfirming evidence

Scientific Method
* What
* How
* Who

Communicating Science
And now Howard.......