

# E-Cigarette Workshop

68<sup>th</sup> Tobacco Science Research Conference

## Part II – E-Liquids

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# Workshop – Google definition

- A meeting at which a group of people engage in intensive discussion and activity on a particular subject or project
- Synonyms: study group, discussion group

Therefore your full participation is needed to make this a successful learning experience for all

# Possible discussion topics

- History of e-liquids
- Folklore versus science
  - Best sources for accurate information
  - Who are the folk heroes of e-liquids
- Regulation of e-liquids?
  - Needed, not needed and why
  - If needed, can it be made affordable?
- Nicotine content restrictions
- Testing and GMP
- Packaging

# History of e-liquids

- Example of early formulation
  - PG >>> EtOH ~ H<sub>2</sub>O > nicotine > tobacco extracts, other extracts, flavors
- Use of glycerol alone or in mixtures with PG apparently came later
- How did we get early formulations to where we are today?
- Major flavor houses versus small e-liquid formulators in e-liquid development?

# Folklore versus science

- Apparently nothing in peer-reviewed scientific literature on PG vs glycerol
  - Much on vaping forums, but how correct is that information?
  - Has anecdotal information been verified through use of trained sensory panels?
  - Who are the experts?
- Do we need a scientific journal devoted exclusively to e-liquids/e-cigarettes to encourage needed research?

# Regulation of e-liquids?

- Is regulation of e-liquids needed?
  - Real need versus barrier to entry?
  - Can some devices make any e-liquid harmful to use (e.g., acutely toxic)?
  - If an e-liquid is all food-grade + USP nicotine, should it be exempt from regulation?
- Should regulation focus on short-term use (cessation) versus long-term use?
- Can we have regulation without accurate information on composition?

# Nicotine content?

- Should nicotine content be restricted?
  - Is there need to match conventional cigs?
  - Is there a practical limit?
  - Is pH of e-liquid important?
- If nicotine content restricted, what should be basis of restrictions?
  - Amount of e-liquid consumed
  - Other criteria

# Testing and GMP

- Can we have GMP without knowledge of what is in correctly formulated e-liquid?
  - How many GC-MS techniques needed?
  - Reliance on physical properties such as density and refractive index?
  - Back-box technology (e.g., Raman)?
- Can we have GMP without stability studies (PG + aldehydes equals ?)
- Should we exempt small formulators?



# Packaging

- Should regulators continue to permit sale of e-liquids not in sealed systems such as cartomizers or one-piece devices?
- Will devices be developed that allow cartomizers to be refilled under closed conditions?
- How will consumers deal with proprietary systems?