E-Cigarette Guideline Citation Network Analysis Plan

## Introduction

## Objectives

1. To use network analysis to explore common citations across public health guidelines on e-cigarettes across diverse jurisdictions.
2. To explore whether the citations used and conflicts of interest are related to differing recommendations.
3. To explore patterns over time of funding and conflicts of interest in papers cited.

## Research Questions

1. What are the influential sources of evidence drawn upon by public health bodies when making e-cigarette policy recommendations and how do guidelines differ in their use of them?
2. Are Public Health guidelines with similar e-cigarette policy recommendations drawing upon similar citations?
3. Are conflicts of interest changing over time?

## Analysis plan

#### RQ 1: what are the influential sources of evidence?

##### Extraction of all references from guideline documents

Extract all reference information from each document into an Excel table. Import into R.

##### Tidying and coding to network matrix

De-duplicate references, assigning each a unique ID (Author, Year), and construct a matrix recording each reference’s use across GL documents.

##### Visualisation of data

Plot network diagrams of GL documents connected by all references, coloured by number of times cited, using igraph.

##### Analysis and visualisation of most influential

Filter for highly cited and colour references by number of times cited in igraph plot.

##### Analysis of study design/conflicts of interest

Extract from highly cited references study designs and statements of conflicts of interest, form groupings and colour network graphs.

#### RQ2: Do GL documents with similar conclusions cite the same sources?

##### Likert scale for strength/direction of recommendation

Define a scale rating each GL document 1-5 on negative-neutral-positive recommendations regarding e-cigarettes (moderated by hypothesised effect size and confidence of evidence).

##### Coding of guideline documents

Code all GL documents using Likert scale (duplicated and reviewed). Extract Abstract/Summary statements as text to evaluate assessment.

##### Block modelling – grouped by common citations, coloured by recommendation

Calculate distance between papers according to number of citations in common.

##### Visualisation of grouped network

Plot network graph with GL points coloured by recommendation and clustered by documents in common.

#### RQ3: Are CoIs changing over time?

##### Screen all referenced documents for published reports and articles

Categorise all evidence documents according to type to extract relevant articles and reports (excluding news items, blog posts, campaigns etc.)

##### Get full text for all included

Through Shiny app, link to Scopus record and retrieve title and DOI. Use Endnote to retrieve full text

##### Extract CoI/funding sources from meta-data/article text

Extract all text from pdf documents and search for “conflicts of interest”, “funding” and other key words to extract relevant statements.

##### Code into CoI categories

For all documents presenting CoI/funding statements, categorise by type (cancer charity, medical research group, tobacco company etc.)