APPENDIX A.

Details of Literature Search (performed on September 29, 2014)
All databases were searched from their start date (indicated below for each database) to September 29, 2014

MEDLINE (OVID) (medical database) (start year: 1946)
1. Fluoridation/
2. (fluoridate* or fluoridation*).tw.
3. 1 or 2
4. (cessation or cease* or discontinu* or removed or removal or reversal or stopping or suboptimal or sub-optimal or withdrawal).tw.
5. (defluoridat* or fluoride-deficient or (non adj2 fluoridat*) or nonfluoridat* or no-longer-fluoridat*).tw.
6. 3 and 4
7. 5 or 6
Total: 897

PubMED (medical database) (start year: 1946)
1. Fluoridation[MeSH]
2. (fluoridate* or fluoridation*)[tiab]
3. 1 or 2
4. (cessation or cease* or discontinu* or removed or removal or reversal or stopping or suboptimal or sub-optimal or withdrawal)[tiab]
5. (defluoridat* or fluoride-deficient or (non-fluoridat*) or nonfluoridat* or no-longer-fluoridat*)[tiab]
6. 3 and 4
7. 5 or 6
Total: 901

EMBASE (OVID) (medical database) (start year: 1980)
1. *fluoridation/
2. (fluoridate* or fluoridation*).tw.
3. 1 or 2
4. (cessation or cease* or discontinu* or removed or removal or reversal or stopping or suboptimal or sub-optimal or withdrawal).tw.
5. 3 and 4
6. defluoridation/
7. (defluoridat* or fluoride-deficient or (non adj2 fluoridat*) or nonfluoridat* or no-longer-fluoridat*).tw.
8. 5 or 6 or 7
Total: 1,061

Global Health (OVID) (public health database, community and international level) (start year: 1973)
1. fluoridation/
2. (fluoridate* or fluoridation*).tw.
3. 1 or 2
4. (cessation or cease* or discontinu* or removed or removal or reversal or stopping or suboptimal or sub-optimal or withdrawal).tw.

5. 3 and 4
6. (defluoridat* or fluoride-deficient or (non adj2 fluoridat*) or nonfluoridat* or no-longer-fluoridat*).tw.
7. 5 or 6
Total: 295

CINAHL (EBSCO) (nursing and allied health database) (start year: 1982)

1. MH "Fluoridation")
2. TI (fluoridate* or fluoridation*) OR AB (fluoridate* or fluoridation*)
3. 1 or 2
4. TI (cessation or cease* or discontinu* or removed or removal or reversal or stopping or suboptimal or sub-optimal or withdrawal) OR AB (cessation or cease* or discontinu* or removed or removal or reversal or stopping or suboptimal or sub-optimal or withdrawal)
5. 3 and 4
6. TI (defluoridat* or fluoride-deficient or (non N2 fluoridat*) or nonfluoridat* or no-longer-fluoridat*) OR AB (defluoridat* or fluoride-deficient or (non N2 fluoridat*) or nonfluoridat* or no-longer-fluoridat*)
7. 5 or 6

Total: 116

ERIC (EBSCO) (education database) (start year: 1907)

1. TI (fluoridate* or fluoridation*) OR AB (fluoridate* or fluoridation*)
2. TI (cessation or cease* or discontinu* or removed or removal or reversal or stopping or suboptimal or sub-optimal or withdrawal) OR AB (cessation or cease* or discontinu* or removed or removal or reversal or stopping or suboptimal or sub-optimal or withdrawal)
3. 1 and 2
4. TI (defluoridat* or fluoride-deficient or (non N2 fluoridat*) or nonfluoridat* or no-longer-fluoridat*) OR AB (defluoridat* or fluoride-deficient or (non N2 fluoridat*) or nonfluoridat* or no-longer-fluoridat*)
5. 3 or 4

Total: 1

AquaLine (ProQuest) (database for all aspects of water resources) (start year: 1960)

1. TI (fluoridate* or fluoridation*) OR AB (fluoridate* or fluoridation*) OR SU (fluoridate* or fluoridation*)
2. TI (cessation or cease* or discontinu* or removed or removal or reversal or stopping or suboptimal or sub-optimal or withdrawal) OR AB (cessation or cease* or discontinu* or removed or removal or reversal or stopping or suboptimal or sub-optimal or withdrawal) OR SU (cessation or cease* or discontinu* or removed or removal or reversal or stopping or suboptimal or sub-optimal or withdrawal)
3. 1 and 2
4. TI (defluoridat* or fluoride-deficient or (non-fluoridat*) or nonfluoridat* or no-longer-fluoridat*) OR AB (defluoridat* or fluoride-deficient or (non-fluoridat*) or nonfluoridat* or no-longer-fluoridat*) OR SU (defluoridat* or fluoride-deficient or (non-fluoridat*) or nonfluoridat* or no-longer-fluoridat*)
5. 3 or 4

Total: 197

BIOSIS Previews (Web of Science) (life sciences and biomedical sciences database) (start year: 1980)

1. Topic (fluoridate* or fluoridation*) OR Title (fluoridate* or fluoridation*)
2. Topic (cessation or cease* or discontinu* or removed or removal or reversal or stopping or suboptimal or sub-optimal or withdrawal) OR Title (cessation or cease* or discontinu* or removed or removal or reversal or stopping or suboptimal or sub-optimal or withdrawal)
3. 1 and 2
4. Topic (defluoridat* or fluoride-deficient or (non-fluoridat*) or nonfluoridat* or no-longer-fluoridat*) OR Title (defluoridat* or fluoride-deficient or (non-fluoridat*) or nonfluoridat* or no-longer-fluoridat*)
5. 3 or 4

Total: 73

Education Research Complete (EBSCO) (education database) (start year: 1880)

6. TI (fluoridate* or fluoridation*) OR AB (fluoridate* or fluoridation*)
7. TI (cessation or cease* or discontinu* or removed or removal or reversal or stopping or suboptimal or sub-optimal or withdrawal) OR AB (cessation or cease* or discontinu* or removed or removal or reversal or stopping or suboptimal or sub-optimal or withdrawal)
8. 1 and 2
9. TI (defluoridat* or fluoride-deficient or (non N2 fluoridat*) or nonfluoridat* or no-longer-fluoridat*) OR AB (defluoridat* or fluoride-deficient or (non N2 fluoridat*) or nonfluoridat* or no-longer-fluoridat*)
10. 3 or 4

Total: 12

Environment Complete (EBSCO) (database for agriculture, ecosystem ecology, energy, and related) (start year: 1888)

1. TI (fluoridate* or fluoridation*) OR AB (fluoridate* or fluoridation*)
2. TI (cessation or cease* or discontinu* or removed or removal or reversal or stopping or suboptimal or sub-optimal or withdrawal) OR AB (cessation or cease* or discontinu* or removed or removal or reversal or stopping or suboptimal or sub-optimal or withdrawal)
3. 1 and 2
4. TI (defluoridat* or fluoride-deficient or (non N2 fluoridat*) or nonfluoridat* or no-longer-fluoridat*) OR AB (defluoridat* or fluoride-deficient or (non N2 fluoridat*) or nonfluoridat* or no-longer-fluoridat*)
5. 3 or 4

Total: 194

PAIS (ProQuest) (public affairs, policy, politics, international affairs database) (start year: 1914)

1. TI (fluoridate* or fluoridation*) OR AB (fluoridate* or fluoridation*) OR SU (fluoridate* or fluoridation*)
2. TI (cessation or cease* or discontinu* or removed or removal or reversal or stopping or suboptimal or sub-optimal or withdrawal) OR AB (cessation or cease* or discontinu* or removed or removal or reversal or stopping or suboptimal or sub-optimal or withdrawal) OR SU (cessation or cease* or discontinu* or removed or removal or reversal or stopping or suboptimal or sub-optimal or withdrawal)
3. 1 and 2
4. TI (defluoridat* or fluoride-deficient or (non-fluoridat*) or nonfluoridat* or no-longer-fluoridat*) OR AB (defluoridat* or fluoride-deficient or (non-fluoridat*) or nonfluoridat* or

no-longer-fluoridat*) OR SU (defluoridat* or fluoride-deficient or (non-fluoridat*) or nonfluoridat* or no-longer-fluoridat*)

5. 3 or 4

Total: 3

Public Affairs Index (EBSCO) (public affairs database) (start year: 1934)

1. TI (fluoridate* or fluoridation*) OR AB (fluoridate* or fluoridation*)
2. TI (cessation or cease* or discontinu* or removed or removal or reversal or stopping or suboptimal or sub-optimal or withdrawal) OR AB (cessation or cease* or discontinu* or removed or removal or reversal or stopping or suboptimal or sub-optimal or withdrawal)
3. 1 and 2
4. TI (defluoridat* or fluoride-deficient or (non N2 fluoridat*) or nonfluoridat* or no-longer-fluoridat*) OR AB (defluoridat* or fluoride-deficient or (non N2 fluoridat*) or nonfluoridat* or no-longer-fluoridat*)
5. 3 or 4

Total: 32

SocIndex (EBSCO) (sociology, including sub-disciplines and closely related areas of study) (start year: 1895)

1. TI (fluoridate* or fluoridation*) OR AB (fluoridate* or fluoridation*)
2. TI (cessation or cease* or discontinu* or removed or removal or reversal or stopping or suboptimal or sub-optimal or withdrawal) OR AB (cessation or cease* or discontinu* or removed or removal or reversal or stopping or suboptimal or sub-optimal or withdrawal)
3. 1 and 2
4. TI (defluoridat* or fluoride-deficient or (non N2 fluoridat*) or nonfluoridat* or no-longer-fluoridat*) OR AB (defluoridat* or fluoride-deficient or (non N2 fluoridat*) or nonfluoridat* or no-longer-fluoridat*)
5. 3 or 4

Total: 27

APPENDIX B.

Summary of instances of cessation of community water fluoridation (CWF) (interventions) and impact on dental caries, ordered chronologically starting with most recent. Please see bottom of table for abbreviations.

Population; dental indicators; citations	**Intervention (cessation); time frame of research**	**Comparison community**	**Outcomes (key findings / conclusions)**	**Study design**
1. Cheongju, South Korea[14] Children age 6, 8, and 11 years from 4 schools in total. dft, dfs (6 year olds) DFT, DFS (8 & 11 year olds)	CWF began in Cheongju in 1982. Cessation occurred in December **2003** "because of anti-fluoridation protest movements". The research was conducted in July 2011 (8 years post-cessation).	Comparison community: Seongnam, South Korea (never fluoridated). The two cities have "similar economic status and population size".	Six-year-old children (no exposure to CWF) in CWF-cessation area showed higher dft than those in non-CWF area. Eleven-year-old children (exposed to CWF for approx. 4 years after birth) in CWF-cessation area showed lower DMFT than those in non-CWF area. No difference for 8 year-olds between CWF-cessation and non-CWF area. (multivariate models adjusting for key confounders) OVERALL: ADVERSE EFFECT OF CESSATION? This cessation instance is considered separately for synthesis	Cross-sectional design with comparison community.
2. Kuopio, Finland[15-18] Children age 3, 6, 9, 12, and 15 years. Plaque fluoride, Strep mutans count (12 year olds); DMFS, dmfs, ds	CWF began in Kuopio in 1959. Cessation occurred in late **1992** "due to strong opposition" Plaque fluoride and strep mutans count: data collected 1- and 2-years post-cessation.	Comparison community: Jyvaskyla, Finland (not fluoridated). Jyvaskyla is "a neighbouring town …with about the same social structure and size" as Kuopio.	Significant increase in salivary strep mutans in CWF-cessation community following cessation. No significant change for plaque strep mutans or plaque fluoride. No indication of increasing caries following CWF-cessation. For both primary and permanent teeth, values either decreased or remained about the same during the observation period. The mean number of fluoride varnish and sealant applications	Repeated cross-sectional design with comparison community.

	DMFS, dmfs, etc data collected in 1992, 1995, and 1998 (baseline, and 3 and 6 years post-cessation).		decreased in both towns during the observation period. OVERALL: ADVERSE EFFECT OF CESSATION? NO	
3. Comox/Courtney and Campbell River, British Columbia, Canada[19-22] Students in grades 2, 3, 8, 9 and 5, 6, 11, 12. D1D2MFS; D1S; D2S (all surfaces; surfaces at risk; pit & fissure [PF] surfaces at risk); Surfaces sealed; Tooth surface progressions (all, smooth, PF); reversals Fluorosis (Thystrup-Fejerskov Index (TFI))	CWF began in Comox / Courtney and Campbell River in approximately 1967. Cessation occurred in **1992** based on referendum. Data collected in 1993/94 (baseline), 1996-97 (4 years post-cessation) and 2002/03 (9 years post-cessation – fluorosis only)	Comparison community: Kamloops (<u>still fluoridated</u>)	Based on repeated cross-sectional data, caries prevalence decreased over time in the CWF-cessation site; no change in the still-fluoridated site. Based on repeated cross-sectional data, the number of sealed surfaces increased at both study sites. Based on prospective longitudinal data (lifelong residents only), caries incidence did not differ between the two sites Based on prospective longitudinal data (lifelong residents only), when D1D2MFS components and surfaces at risk were investigated in detail, there were differences between the two sites, but differences depend on outcome and do not clearly favor one site or the other. Based on prospective longitudinal data (lifelong residents only), caries progression was more common (PF surfaces), and larger (smooth surfaces), in the CWF-cessation site compared to the still-F site. Fluorosis: TFI scores, for the CWF-cessation site only, decreased significantly between 1993/4 and 2002/03. OVERALL: ADVERSE EFFECT OF CESSATION? MIXED – depends on how it is studied	Repeated cross-sectional design with comparison community *and* prospective longitudinal design

4. Anglesey, Wales[23,24] 5-year-old children from BASCD* national surveillance program dmft, d *British Association for the Study of Community Dentistry	CWF began in part of Anglesey in 1955, expanded to the rest of the island in 1964. CWF was intermittent and generally sub-optimal starting in 1987/88. Cessation occurred in July / August **1991**. Data collected in 1987/88 (baseline); 1989/90, 1991/92, 1993/94 (approx. 2, 4, and 6 years post-cessation).	Comparison community: Gwynedd (mainland) – non-fluoridated.	Primary tooth caries (dmft) increased (worsened) in Anglesey post-CWF-cessation, but stayed about the same in non-CWF Gwynedd. 1993 data from different regions of Anglesey showed higher dmft scores in regions with lower proportion of lifetime exposure to CWF. Using questionnaire data, children who had received fluoride supplements, bottled water, or water from wells or springs, were excluded from analysis. OVERALL: ADVERSE EFFECT OF CESSATION? YES	Repeated cross-sectional design with comparison community.
5. Former East Germany: Chemnitz Spremberg; Zittau[25,26] Children aged 3-8 and 6-15 years; all lifelong residents (not a sample) DMFT % caries-free DMFT index CDAG (Caries Disease Activity Group)	CWF began in Chemnitz in 1959. Cessation occurred in **1990** with German reunification (note: 22-month interruption in 1970/2; suboptimal delivery 1973/7; 6-month interruption 1981). CWF in Spremberg installed in 1972, not in operation until 1982/82. Cessation in 1990. CWF in Zittau installed in 1975, not in operation until 1980/3. Cessation in 1993.	Comparison community: Plauen (previously fluoridated). CWF was implemented in Plauen in 1972 but coverage was incomplete. Cessation occurred in 1984/85.	In contrast to the first three decades of the research (approx. 1959-1987, when CWF was in place), during the years 1987-1995 there was a significant decrease in caries in both towns (Chemnitz and Plauen). This pattern was repeated following cessation in Spremberg and Zittau. OVERALL: ADVERSE EFFECT OF CESSATION? NO	Interrupted time series design; repeated cross-sectional design with comparison community.

	Data collected in 1959 then every 4 years until 1995 (Chemnitz); 1973, 1981, 1989, 1993, 1996 (Sprem-berg); 1975, 1981, 1993, 1996 (Zittau).			
6. La Salud, Cuba[27] Children aged 6-13 years, all lifelong residents of La Salud (not a sample). DMFT, DMFS, % caries-free children	CWF (0.7ppm) was implemented in 1973; 0.8ppm by 1976. Cessation occurred in **1990** when Cuba stopped importing fluoride chemical due to economic issues Data collected in 1973 (baseline), 1982, and 1997 (9 and 14 years post-cessation).	None.	Following the cessation of drinking water CWF, DMFT and DMFS values remained at a low level for the 6 to 9 year olds and appeared to decrease for the 10/11 year olds. For the 12/13 year olds, there was a significant decrease (DMFT, DMFS) and the % caries-free children of this age group increased. OVERALL: ADVERSE EFFECT OF CESSATION? NO	Repeated cross-sectional design, no comparison community (historical comparison).
7. Prague, Czechoslovakia[28,29] Children age 6, 12, 14 years; children in 1st, 5th, and 8th classes. Random 5% sample. DMF/dmf (and constituent components), % with intact teeth, "cariosity" of deciduous teeth and of permanent teeth.	CWF was implemented in Prague in 1975. Cessation occurred in **1988** because of "the necessity to reconstruct the water treatment plant" (primary reason stated in official documents) and doubts about its effectiveness and safety. Data collected in 1987 (baseline) and 1995 (7 years post-cessation).	None.	Cariosity for 12 and 14 year olds (who had 5 and 7 years of exposure to CWF before cessation, respectively) did not change. Cariosity for 6 year olds (born one year after cessation) increased, for both deciduous and permanent teeth. OVERALL: ADVERSE EFFECT OF CESSATION? YES, for 6 year olds.	Repeated cross-sectional design, no comparison community (historical comparison).

8. Piracicaba, SP, Brazil[30] Schoolchildren age 6-8 years Fluoride concentration in plaque (nanograms fluoride per milligram dry weight of plaque)	CWF began in Piracicaba, SP, Brazil in 1971. Cessation occurred in **1987** due to lack of sodium fluorosilicate availability.	None.	Fluoride concentration in plaque 2 months after cessation was significantly lower than the concentration during CWF OVERALL: ADVERSE EFFECT OF CESSATION? YES based on fluoride concentration in plaque. Dental caries outcomes not measured. Consider separately due to absence of dental outcomes.	Repeated cross-sectional design, no comparison community (historical comparison).
9. Stranraer, Southwest Scotland[31-34] 5, 10, and 15 year old children, lifelong residents, sampled from state primary schools. DMFT, DT, dmft, dt, mt, ft, MT, FT, cost of all dental treatment; cost of restorative care; cost of extractions	CWF began in Stranraer in 1970. Cessation occurred in **1983** after a "court judgment which held that Scottish law was not clear about the compulsory fluoridation of public water supplies". Data collected in 1980 (baseline), 1986 (3 years post-cessation), 1988 (5 years post-cessation).	Comparison community: Annan (<u>never fluoridated</u>). Stranraer and Annan are "similar small towns in the south-west of Scotland, with approximately equal dentist/population ratios and clinical care provided by general and community dental services". "Both towns are small ports supporting farming and light industry and have a similar social class composition".	While outcomes (caries, treatment) improved among 5- and 10-year olds in Annan (comparison community, non-CWF), and among 5-year olds in Stranraer (CWF cessation), caries prevalence and treatment costs increased among 10 year olds in Stranraer, to almost parity with children in Annan (non-CWF). OVERALL: ADVERSE EFFECT OF CESSATION? YES, for 10 year olds.	Repeated cross-sectional design with comparison community.
10. Fangcun District of Guangzhou City, China[35,36] Children 3-6 years selected from 4 kindergartens (residential, office, factory and faculty	CWF was implemented in Guangzhou in 1965. Cessation occurred in **1983**, attributed to an "increase in dental fluorosis (…) with only a marginal decrease in dental caries".	Comparison community (for 15 year olds): Fushan (<u>not fluoridated</u>) "much smaller city"	Two years and 7 months after cessation, 3 year old children showed marked increase in caries. Four years and 4 months after cessation, an increase in caries was seen in 3-5 year olds. This rebound (increase in caries) was most severe in the proximal surface caries. Six-year-olds did not show the rebound.	Repeated cross-sectional design with no comparison community (historical control). For 15 year olds: cross-sectional design with

kindergarten) in the Fangcun district). 15 year old schoolchildren. Caries (% > 0 & average #); surface caries; anterior proximal surface caries; posterior occlusal surface caries; dental fluorosis (Dean's index);	For 3-6 year olds: data collected in 1983 (baseline), 1986 (2 years, 7 months post-cessation), 1988 (4 years, 4 months post-cessation), and 1990 (7 years post-cessation). For 15 year olds: data collected in 1990 (7 years post-cessation).		Among 15-year olds, caries and dental fluorosis declined in Guangzhou between 1982 and 1990; however caries were lower and fluorosis was higher in 1990 compared to non-CWF Fushan. OVERALL: ADVERSE EFFECT OF CESSATION? Yes, for 3-5 year olds.	comparison community.
11. Wick, Scotland[37] 5 and 6 year old Primary 1 children (all lifelong residents attending the 5 junior schools in Wick). dmft, dmfs, % caries-free children	CWF in Wick was implemented in 1969. Cessation occurred in **1979** following a decision by the Highland Regional Council to stop pursuing CWF in their region. Data collected in 1979 (baseline) and in 1984 (5 years post-cessation).	None.	5 years post CWF-cessation, "both tooth and surface caries scores had increased significantly, and the percentage of clinically and radiographic caries-free children dropped", based on lifelong residents who had not taken fluoride tablets. This trend occurred despite: a change in the social class profile with an increase in % of higher social class (I/II); no increase in the dental establishment; and a general downward trend in caries experience throughout the UK. OVERALL: ADVERSE EFFECT OF CESSATION? YES	Repeated cross-sectional design, no comparison community (historical control).
12. Tiel, the Netherlands[38,39] 15 year olds (repeated cross-sectional study). All lifelong residents invited to participate.	CWF was implemented in Tiel in 1953. Cessation occurred in **1973** when a decision was made by the Ministry of National Health and Environmental Hygiene to retract the bill to change the law regarding	Comparison community (for repeated cross-sectional design): Culemborg (<u>never fluoridated</u>). Socio-economic differences between the	In Tiel (CWF-cessation), DMFS increased between 68/69 and 79/80, and decreased in the following years to 87/88. In Culemborg (non-CWF), DMFS decreased over the full time period. In 1987/88 DMFS was higher in Tiel (CWF-cessation) than in Culemborg. Longitudinal component (which combined Tiel and Colemborg on basis that neither had	Repeated cross-sectional design with comparison community; Longitudinal design

Children born in 1973 in Tiel or Culemborg, examined at age 7, 9, 11, 13, and 15 (longitudinal study). All invited to participate. DMFT, DMFS, DS	water supply such that CWF would not be possible in the future. Data collected in 1968/69 (baseline), annually between 1979 and 1988 (1988 is 15 years post-cessation). Longitudinal study: starting in 1980, 7-year olds were followed until 1988.	towns were reported to be negligible.	exposure to CWF) showed decreasing trend in caries over time. OVERALL: ADVERSE EFFECT OF CESSATION? YES, though extent of adverse effect lessened over time.	
13. Okinawa, Japan[40] 18-22 year old female nursing school students (all female students from 1st to 3rd year of Koza Nursing School) DMFT (DT, FT, MT), DMFS (pit/fissure, free smooth surfaces, approximal surfaces)	CWF in Okinawa began in 1957, but only applied to those cities / towns / villages that were under the control of U.S. military. Cessation occurred in **1972** when Okinawa was returned to Japan from the U.S. Data collected in 1985 (13 years post-cessation).	Students who had not been exposed to CWF during childhood.	Students who had had fluoridated water during childhood had fewer missing teeth, less progressed caries, and lower caries prevalence on free smooth and approximate surfaces compared to those without CWF during childhood. Overall DMFT differences in favour of the CWF subjects were small and not statistically significant. OVERALL: ADVERSE EFFECT OF CESSATION? This cessation instance is considered separately for synthesis	Cross-sectional survey of students with and without exposure to CWF during childhood.
14. Antigo, Wisconsin, USA[41] Children in Kindergarten, 2nd, 4th, and 6th grades (all children invited to participate). deft (kindergarten), DMFT (grade 2, 4, 6)	CWF in Antigo began in June 1949. Cessation occurred in November **1960** due to "the actions of a militant antifluoridation group". Note that CWF was reinstated in 1966. Data collected in 1960 (baseline), 1964 (4 years	None.	"Dental examinations made in 1964, four years after fluoridation had stopped, and in 1966, just after fluoridation had been reinstituted, showed that DMF rates had greatly increased and were characteristic of those rates found in [non-CWF] areas in Wisconsin". OVERALL: ADVERSE EFFECT OF CESSATION? YES	Repeated cross-sectional design, no comparison community (historical comparison).

	post-cessation), 1966 (note: this was just after CWF was reinstated).			
15. Austin, Minnesota, USA[42] 6, 7, and 8 year olds. DMFT	The community of Austin began fluoridating their water in 1952. Cessation occurred in April **1956**, based on a local referendum. Data were collected yearly between 1952 and 1959 (up to 3 years post-cessation).	None.	"Since the discontinuance of the (fluoridation) program, the caries rate is increasing" This is in contrast to pre-cessation years, where decline (improvement) in DMF was apparent from 1952-1956. OVERALL: ADVERSE EFFECT OF CESSATION? YES	Repeated cross-sectional design, no comparison community (historical comparison).

Abbreviations:
CWF = community water fluoridation
CWF-cessation = community where cessation of community water fluoridation occurred
Non-CWF = community without community water fluoridation (e.g., comparison community)
DMFT = decayed, missing (due to caries), filled permanent teeth
dmft, deft = decayed, missing or extracted (due to caries), filled primary teeth
DT, MT, FT, dt, mt, ft, etc = individual components of DMFT/dmft
DMFS – decayed, missing (due to caries), filled permanent tooth surfaces
dmfs, defs = decayed, missing or extracted (due to caries), filled primary tooth surfaces
DS, MS, FS, ds, ms, fs etc = individual components of DMFS/dmfs
D1S = pre-cavitated tooth surfaces
D2S = cavitated tooth surfaces

APPENDIX C.

Risk of bias (ROB) assessment for instances of cessation of community water fluoridation (CWF) (interventions) (n=15) included in the review (all publications for each cessation intervention were grouped together for assessment)

1. Cheongju, South Korea[14]

Bias domain	Authors' judgement	Support for judgement
Sampling	High ROB	Convenience sample of schools based on regional socioeconomic status
Confounding	Low ROB	Models were adjusted for family income, cariogenic foods and beverage intake, and tooth brushing ("fluoridated toothpastes have about 97% toothpaste market share")
Blinding of outcome assessment	High ROB	No incorporation of blind outcome assessment (exam took place in the classroom)
Incomplete outcome data	Low ROB	In Cheongju, 94-96% of participants were examined. In Seongnam, 82-95% of participants were examined; of those, 72-83% are included in analysis due to missing data (range by age group)
Selective reporting	Low ROB	Outcome of interest reported
Other bias	Unclear ROB	"Lifelong residents" criteria applied to Cheongju but not Seongnam; fluoride concentrations in the two cities (controlled or naturally-occurring) not provided.
Other comments	• Fluoride mouth-rinsing programs were held in Cheongju schools (CWF-cessation) but not in non-CWF schools, which might have masked or offset effect of cessation.	
Overall rating	**3/6 domains (50%) rated as high or uncertain risk of bias**	

2. Kuopio, Finland[[15-18]

Bias domain	Authors' judgement	Support for judgement
Sampling	Low ROB	Random sample
Confounding	High ROB	Accounted for other sources of fluoride (info gathered via questionnaire) but not SES or dietary factors
Blinding of outcome assessment	Unclear ROB	Not indicated whether analysis of plaque fluoride and strep mutans reported in Seppa 1996 was blind to CWF status.
Incomplete outcome data	Low ROB	Of participants with consent, at least 80% were examined in both sites at both time points
Selective reporting	Low ROB	Outcome of interest reported
Other bias	Unclear ROB	• Communities were neighboring therefore possible that comparison community also had CWF exposure by virtue of its proximity. • Possible measurement bias as teeth extracted due to caries were counted as 2 surfaces (vs. 4 or 5)

Other comments	• CWF-cessation community started providing fluoride tablets to children, which may have masked or offset effect of cessation • Both communities had comprehensive dental care system
Overall rating	**3/6 domains (50%) rated as high or uncertain risk of bias**

3. Comox/Courtney and Campbell River, British Columbia, Canada[19-22]

Bias domain	Authors' judgement	Support for judgement
Sampling	Low ROB	It appears that all eligible children were examined (not a sample)
Confounding	Low ROB	Analyses incorporated questionnaire data on diet, SES, and other sources of fluoride.
Blinding of outcome assessment	High ROB	No incorporation of blind outcome assessment
Incomplete outcome data	High ROB	Most (about 90%) of children examined at baseline; 64% at follow-up with variation across groups
Selective reporting	Low ROB	Outcome of interest was reported
Other bias	Unclear ROB	A 14-19 month time gap between cessation (1992) and baseline measurement (1993/4) may not reflect actual baseline measures.
Other comments	• The two communities had relatively similar exposures to fluoridated tooth paste, good adherence to oral hygiene regime, and access to oral health care. The use of sealants was also high in both communities.	
Overall rating	**3/6 (50%) rated as high or uncertain risk of bias**	

4. Anglesey, Wales[23,24]

Bias domain	Authors' judgement	Support for judgement
Sampling	Low ROB	Research used data from BASCD national surveillance program (British Association for the Study of Community Dentistry)
Confounding	High ROB	Questionnaire included that assessed other sources of fluoride and source of drinking water; but not diet or SES
Blinding of outcome assessment	High ROB	No incorporation of blind outcome assessment
Incomplete outcome data	High ROB	No tests of statistical significance of effects / change were reported.
Selective reporting	Low ROB	Outcome of interest was reported
Other bias	Low ROB	No other apparent bias
Other comments	• Children who had received fluoride supplements, bottled water, or water from wells or springs, were omitted from analysis	
Overall rating	**3/6 (50%) rated as high or uncertain risk of bias**	

5. Former East Germany: Chemnitz, Spremberg, Zittau[25,26]

Bias domain	Authors' judgement	Support for judgement
Sampling	Low ROB	All lifelong residents (not a sample)
Confounding	High ROB	No information about important confounders (no questionnaire)
Blinding of outcome assessment	High ROB	No incorporation of blind outcome assessment
Incomplete outcome data	Low ROB	Exclusions were justified (e.g., only children who had moved into the towns and disabled children were excluded)
Selective reporting	Low ROB	Outcome of interest reported
Other bias	High ROB	Comparison community also had optimal fluoridated water for certain periods of time (1972-1984/85) which was not uniform; and the CWF levels changed in both communities numerous times therefore it is difficult to ascertain the stability of the exposure.
Other comments	• Starting in 1993, fissure sealants were paid for by statutory health funds; this could have masked or offset effect of cessation; • Authors acknowledged increase in other fluoride exposures during this time period, such as increased consumption of fluoridated tooth paste and fluoridated salt; however, information about these exposures was not collected.	
Overall rating	**3/6 (50%) rated as high or uncertain risk of bias**	

6. La Salud, Cuba[27]

Bias domain	Authors' judgement	Support for judgement
Sampling	Low ROB	All lifelong residents (not a sample)
Confounding	High ROB	No assessment of important confounders (no questionnaire)
Blinding of outcome assessment	High ROB	No incorporation of blind outcome assessment
Incomplete outcome data	Low ROB	Exclusions were: those who moved into town (vs lifelong residents), who were ill on the exam day, and who attended school in La Salud but lived elsewhere.
Selective reporting	Low ROB	Outcome of interest reported
Other bias	High ROB	No comparison community
Other comments	• After cessation, all children received fluoride mouth-rinses fortnightly, and children 2-5 years old received 1-2 fluoride varnish applications annually; could mask or offset effect of cessation.	
Overall rating	**3/6 (50%) rated as high or uncertain risk of bias**	

7. Prague, Czechoslovakia[28,29]

Bias domain	Authors' judgement	Support for judgement
Sampling	Low ROB	Random 5% sample

Confounding	High ROB	No information on important covariates. It is indicated that a questionnaire was used to assess access to dental care, but no further information provided.
Blinding of outcome assessment	High ROB	No incorporation of blind outcome assessment
Incomplete outcome data	High ROB	No tests of statistical significance reported
Selective reporting	Uncertain ROB	Very limited information about the dental exam
Other bias	High ROB	No comparison community
Other comments	• In 1988, following cessation, administration of fluoride tablets in kindergartens was also gradually discontinued, which might have further affected the increase in cariosity in 6 year olds. • Fluoridated salt is available in the Czech Republic (no further information provided). • Articles originally written in non-English. Though professionally translated, some information may have been missed / misinterpreted.	
Overall rating	**5/6 (83%) rated as high or uncertain risk of bias**	

8. Piracicaba, SP, Brazil[30]

Bias domain	Authors' judgement	Support for judgement
Sampling	Unclear ROB	No information provided on how selection occurred.
Confounding	High ROB	No information about important confounders
Blinding of outcome assessment	Unclear ROB	Not indicated whether analysis was blind to CWF status.
Incomplete outcome data	Low ROB	Data from all samples was presented (had to be pooled post-cessation due to low fluoride concentrations)
Selective reporting	Low ROB	Reports plaque fluoride (not dental caries); however this is not an instance of selective reporting
Other bias	High ROB	No comparison community
Other comments	• Note: this is a short report • Clinical relevance of change in dental plaque fluoride levels is not provided.	
Overall rating	**4/6 (66%) rated as high or uncertain risk of bias**	

9. Stranraer, Southwest Scotland[31-34]

Bias domain	Authors' judgement	Support for judgement
Sampling	Low ROB	All children of eligible grades in state (non-denominational) primary schools were sampled.
Confounding	High ROB	Information on social class and dental attendance was recorded but does not appear to have been incorporated; no information on diet or other sources of fluoride.

Blinding of outcome assessment	High ROB	No incorporation of blind outcome assessment
Incomplete outcome data	Low ROB	Appears that data were presented for all participants who were lifelong residents
Selective reporting	Low ROB	Outcome of interest reported
Other bias	Low ROB	No other apparent bias
Other comments	• Observed increase in treatment may reflect dentists being more inclined to restore incipient lesions in CWF-cessation area, considering that they might progress faster.	
Overall rating	**2/6 (33%) rated as high or uncertain risk of bias**	

10. Fangcun District of Guangzhou City, China[35,36]

Bias domain	Authors' judgement	Support for judgement
Sampling	Unclear ROB	For 3-6 year olds, four kindergartens (including residential, office, factory and faculty kindergarten) in the Fangcun district were selected; no further detail. For 15 year olds, no details provided re: sampling.
Confounding	High ROB	No information on important confounders (no questionnaire)
Blinding of outcome assessment	High ROB	No incorporation of blind outcome assessment
Incomplete outcome data	High ROB	Insufficient detail reported
Selective reporting	High ROB	No measures of variance for the comparison of 15-year olds
Other bias	High ROB	• No comparison community for study of 3-6 year olds • For study of 15-year olds (comparison of Guangzhou and Fushan in 1990), there were no methodological details and no significance tests.
Other comments	• Articles originally written in non-English. Though professionally translated, some information may have been missed / misinterpreted.	
Overall rating	**6/6 (100%) rated as high or uncertain risk of bias**	

11. Wick, Scotland[37]

Bias domain	Authors' judgement	Support for judgement
Sampling	Low ROB	All lifelong residents attending the 5 junior schools in Wick (not a sample).
Confounding	Low ROB	A "simple habits and social questionnaire" was used to gather data on parental occupation and exposure to fluoride (including place of birth, residential history in Wick, and use of fluoride tablets). No questions on diet.
Blinding of outcome assessment	Low ROB	Included blind radiographic data
Incomplete outcome data	Low ROB	It appears that data were presented for all lifelong residents

Selective reporting	Low ROB	Outcome of interest reported
Other bias	High ROB	• No comparison community • The use of a modified DMF index, which scored only canines and molars, is not justified
Other comments	• The same examiner conducted examinations in both surveys	
Overall rating	1/6 (17%) rated as high or uncertain risk of bias	

12. Tiel, the Netherlands[38,39]

Bias domain	Authors' judgement	Support for judgement
Sampling	Low ROB	All lifelong residents (not a sample)
Confounding	High ROB	Questionnaire was used to gather information on dental visits, sources of fluoride, and tooth brushing. No information on SES or diet.
Blinding of outcome assessment	Low ROB	Included blind radiographic data
Incomplete outcome data	Low ROB	It appears that data were presented for all children who participated in the research. Completed questionnaire was returned by 90% of participants.
Selective reporting	Low ROB	Outcome of interest reported
Other bias	Uncertain ROB	• In the longitudinal research, data from Tiel and Culemborg were combined on the basis that those children were not exposed to CWF (all born in 1973, when CWF-cessation occurred in Tiel). However covariates show that children in Culemborg had significantly higher fluoride applications, which might have affected their caries experience. • No other apparent bias for the repeated cross-sectional component
Other comments	• Articles originally written in non-English. Though professionally translated, some information may have been missed / misinterpreted.	
Overall rating	**2/6 (33%) rated as high or uncertain risk of bias**	

13. Okinawa, Japan[40]

Bias domain	Authors' judgement	Support for judgement
Sampling	High ROB	Participants were all female students from the 1st to the 3rd year of Koza Nursing School in 1985 (convenience sample).
Confounding	High ROB	Questionnaire was used to gather data on residential history. No information on other fluoride sources or SES.
Blinding of outcome assessment	Low ROB	Caries examination was done "using blind recording conditions"
Incomplete outcome data	Low ROB	It appears that data were presented for all participants who could be classified as "CWF" or "non-CWF" based on residential history information
Selective reporting	Low ROB	Outcome of interest reported

Other bias	Low ROB	No other apparent bias
Other comments	• The CWF process was complex as it included six water supply systems with different levels of CWF for different time periods; investigators, using questionnaires, made a good attempt to assess the correct CWF history of participants. To reduce bias, participants who had partial exposure to fluoride were eliminated from analyses.	
Overall rating	**2/6 (33%) rated as high or uncertain risk of bias**	

14. Antigo, Wisconsin, USA[41]

Bias domain	Authors' judgement	Support for judgement
Sampling	Low ROB	All children of eligible grades, in both public and parochial schools, were invited to participate (not a sample)
Confounding	High ROB	Questionnaire used to gather residential history data; no information on diet, other sources of fluoride, or SES
Blinding of outcome assessment	High ROB	No incorporation of blind outcome assessment
Incomplete outcome data	Low ROB	It appears that data were reported for all children who participated in the exam (who represented 91% of those approached)
Selective reporting	Low ROB	Outcome of interest reported
Other bias	High ROB	• No comparison community • There is some ambiguity around the age of participants (i.e., whether K, grade 2, grade 4, grade 6 can be assumed to correspond to age 6,9,11, and 13 years.
Other comments	• These results prompted re-introduction of CWF in Oct 1965 • The 1966 data therefore reflect some exposure to (re-introduced) CWF; therefore we focused on the 1960 and 1964 data	
Overall rating	**3/6 (50%) rated as high or uncertain risk of bias**	

15. Austin, Minnesota, USA[42]

Bias domain	Authors' judgement	Support for judgement
Sampling	Uncertain ROB	Insufficient detail reported
Confounding	High ROB	No indication that any potential confounders were considered
Blinding of outcome assessment	High ROB	No indication that blind outcome assessment was incorporated
Incomplete outcome data	Unclear ROB	Insufficient information reported
Selective reporting	Low ROB	Outcome of interest reported
Other bias	High ROB	No comparison community
Other comments	• Note: this is a short report (very limited methodological detail)	
Overall rating	**5/6 (83%) rated as high or uncertain risk of bias**	