Addendum 4: Tables for chapter 5

Table 5-1 Measurements of mercury levels in women occupationally exposed to mercury and their offspring.

Author, year, study	**Employment (no. of measurements)**	**Mercury levels, (nmol/L); Milk, Umbilical Cord, Blood, Placenta, Baby plasma, Amniotic fluid, Amnion membrane, Chorion membrane vs. (controls). Median-level.**	**Maternal mercury levels; Urine, Blood (nmol/L), Plasma, Hair (µg/g), Nail, Vapour (mg/m³). Median-levels. Vs. controls**
(Yang and others 1997) cross sectional	China, Lamp factory; 9 parturient women and 9 non-exposed subjects from food factories; In the exposed group, a significant positive correlation was found between inorganic mercury of maternal blood and umbilical cord blood (R= 0.705, *P*< 0.05), indicating that metallic mercury was easily transferred through the placenta.	Milk; 32.65 (4)[a,b] Umbilical cord blood; 83.9 (31.1)[a,b] Placenta; 455.35 (232.8)[a,b]	Mercury vapour; 0.24[a] (0.01-0.03) Blood; 54.2 (21.35)[a,b]
(Wannag and Skjaerasen 1975) cross sectional	Norway, Dentistry; 19 female dental workers and their babies vs. 26 non-exposed women and their babies; Student's *t*-test was applied when the values from the groups were compared. *P*< 0.05 was used as the significance level for differences in mercury content.	Baby plasma; 20.3 (21.55)[a,c] *P*= 0.7741 Baby erythrocytes; 50.9 (44.25)[a,c] *P*= 0.3736 Amniotic fluid; 11.65 (16.15)[a,c] *P*= 0.3046 Placenta; 122.35 (60.00)[a,c] *P*= 0.0013 Chorion membrane; 108.05 (57.35)[a,c] *P*= 0.0032 Amnion membrane; 72.7 (26.6)[a,c] *P*= 0.0134	Plasma; 23.15 (23.1)[a,c] *P*= 0.9841 Erythrocytes; 44.2 (39.8)[a,c] *P*= 0.3520

[a]mean-level

[b]µg/L converted into nmol/L

[c]ng Hg/g tissue converted into nmol/L

Table 5-2 The rate of spontaneous abortion/miscarriage in women occupationally exposed to mercury.

Author, year, study	**Employment (no. of measurements)**	**Mercury levels; Urine (nmol/L), Blood, Plasma, Hair (µg/g), Nail, Vapour (mg/m³). Median-levels. Vs. controls**	**Spontaneous abortion/miscarriage % (controls)**
(Hilt and others 2007d), 2006, cross-sectional	Norway, Dentistry; Incidence of spontaneous abortions (self-reported) before 12 weeks of pregnancy vs. controls (4,419) matched for geographical placement, age and gender; 596 dental assistants; 175 dentists; Incidence of spontaneous abortions (self-reported) after 12 weeks of pregnancy/still birth vs. controls (409) matched for geographical placement, age and gender; 572 dental assistants; 169 dentists;	Self reported exposures	23.7 (23.4), *p*= 0.940 20.0 (23.4), *p*= 0.390 6.1 (7.6), *p*= 0.369 4.7 (7.6), *p*= 0.275
(Jones and others 2007), case-control 30-year follow-up	New Zealand; Frequency of miscarriage in 38 ex-School Dental Nurses vs. controls (30 friends or sisters of the exposed) matched for alcohol intake, tobacco intake and self-reported general health.	Self reported exposures	23.68 (13.33), ns[f]

(Lindbohm and others 2007), 1992-1999, case-control	Finland, Dentistry; Cases were 235 women whose pregnancy under study was a miscarriage, and the 500 controls were selected from pregnancies that had ended in a delivery. Sampled from the Finnish birth register. 155 dentists, 26 dental technicians and laboratory workers, and 269 dental nurses and hygienists occupationally exposed to amalgam. The non-exposed were 208 pharmacists,and 77 secretaries and receptionists in health care. Not exposed, 120 vs. (270); Very low, 9 vs. (23); Low, 39 vs. (98); Intermediate, 23 vs. (36); High, 28 vs. (61);	Self reported exposures The OR were adjusted for employment, age, time period, exposure to solvents, X-radiation, previous miscarriage, induced abortion or extrauterine pregnancy, use of intrauterine device or pills at conception, previous intrauterine inflammation, other previous genital disease, diabetes, previous medical infertility examination, use of potentially harmful drugs, smoking and use of alcohol and number of own amalgam fillings.	Crude and (adjusted) odds ratios; 1.0 (1.0), ref. 0.9 (1.2), (95%CI: 0.5-3.0) 0.9 (1.3), (95%CI: 0.7-2.3) 1.4 (2.0), (95%CI: 1.0-4.1) 1.0 (1.3), (95%CI: 0.6-2.5)
(Dahl and Sundby 1999), 1951-1990 cross-sectional	Norway, Dentistry; (607 dentists <30 years of age) (247 teachers < 30 years of age as controls); (120 dentists >30 years of age) (93 teachers >30 years of age as controls);	Self reported exposures	7.3 (11.7) 19.0 (10.8) The odds ratio for spontaneous abortion for dentists > 30 years of age was 2.4 (95%CI: 1.0-5.4), adjusted for age, smoking, time to pregnancy and the decade the women was pregnant.

(Sikorski and others 1987) Cross sectional	Poland, Dentistry (45 dentists and 36 dental assistants, 117 pregnancies) (34 controls and 63 pregnancies);	Scalp hair; 0.527 (0.042-59.546) vs. 0.100 (0.017-0.308)[a,b] Pubic hair; 0.381 (ND-18.166) vs. 0.060 (ND-0.524)[a,b]	16 (11) Dentists with reproductive failures (spontaneous abortion, stillbirth or congenital malformation) in the history had significantly higher total mercury levels determined in their scalp (*P*= 0.0038) and pubic (*P*= 0.00032) hair while no such relationship was found in the non-exposed women (for scalp and pubic hair TMLs: *P*= 0.8808 and 0.9282, respectively).
(Brodsky and others 1985), 1968-1978 historical follow-up/retrospective	USA, Dentistry; Assistants, direct exposure (n = 21,202); Rates standardized, adjusting for maternal age and maternal smoking history.	Self reported exposures	0-40 amalgams 10.7 >40 amalgams 9.8 . Neither direct nor indirect mercury exposure at the two levels had a statistically significant effect on the rate of spontaneous abortion.

(Heidam 1984), 1980 cross sectional	Denmark, Dentistry; 259 pregnancies in dental assistants, private clinics vs. 843 pregnancies in a reference group; self reported spontaneous abortions. Dental assistants in private clinics compared with women who worked in a reference occupation during pregnancy 93 pregnancies in dental assistants, dental school service vs. 843 pregnancies in a reference group; Dental assistants, private clinics; Exposed to inorganic mercury, 218 pregnancies, vs. 41 pregnancies in dental assistants in private clinics not exposed to inorganic mercury. Dental assistants, dental schoolservice; Exposed to inorganic mercury, 68 pregnancies, vs. 25 pregnancies in not exposed to inorganic mercury. Dental assistants (449 pregnancies) (988 pregnancies in women who worked in a reference occupation). Hospital registered;	Self reported exposures Controlled for gravidity, pregnancy order, and the woman's age at pregnancy.	11.2 (10.0) OR = 1.1 (95%CI: 0.7-1.8).; 1.0 (95%CI: 0.6-1.6). 9.7 (10.0) OR = 1.0 (95%CI: 0.4-2.0), and controlled; 0.9 (95%CI: 0.4-2.0). 9.6 (19.5) OR = 0.4 (95%CI: 0.2-1.3), and controlled 0.5 (95%CI: 0.2-1.4). 11.8 (4.0) OR is 3.2 (95%CI: 0.4-147.8), and controlled; 2.6 (95%CI: 0.2-31.2). 11.6 (10.7) Odds ratio = 1.1 (95%CI: 0.7-1.7), and controlled for age; 1.2 (95%CI: 0.8-1.7).
(Rowland and others 1995) et al 1987 cross sectional	1.465 dental assistants being pregnant during work. Article primary on nitrous oxide. >= 50 amalgams/week in analysis as a confounder		Relative risk 1.8 (1.0-1.8).

(Nixon and others 1979), 1928-1977 historical follow-up	UK, female dentists; 2,291 pregnancies in 1,615 dentists vs. (7,296 pregnancies in controls); Dentists, first pregnancy 932 vs. first pregnancy in controls (2,392);	Self reported exposures	12.8 (10.9), an abortion rate significantly higher (*P*< 0.05) than the controls. 12.8 (7.7), an abortion rate that is highly significant (*P*< 0.001) compared to the controls.
(Schuurs 1999) review	Russia, Smelting plant (168);	Mercury vapour; 0.08[d]	17 (5)
(Elghany and others 1997), 1948-1977 cross sectional	USA, Thermometer etc. Factory (72 pregnancies in 46 women in the production) (19 controls and 32 pregnancies in the non-production);	Mercury vapour, median-value; 0.09 (0.025-0.6)	8.3 (9.4) (First 16 weeks) 4.2 (3.1) (16-28 weeks). No significant difference between the two groups of workers.
(de Rosis F. and others 1985) cross sectional	Italy, Lamp factory (120 pregnancies in 153 women, factory A) (254 pregnancies in 293 controls, factory B);	Not stated	12 (14) Age standardised rate ratios for spontaneous abortion compared with controls were 1. The rates of smoking and alcohol consumption during pregnancy were generally low, so standardisation for these factors was not necessary.

ND: not detected [a]Geometric mean [b]mg/kg converted into µg/g [c]µg/L converted into nmol/L [d]µg/m^3 converted into mg/m^3 [e]mean-level

[f]not significant

Table 5-3 The fecundability (probability of conception each menstrual cycle) of women

Author, year, study	Employment (no. of measurements)	Mercury levels; Urine (nmol/L), Blood, Plasma, Hair (µg/g), Nail, Vapour (mg/m³). Median-levels. Vs. controls	Fecundability ratio (95%CI)
(Dahl and others 1999), 1991 cross-sectional	Norway, Dentistry; Female dental surgeons vs. high school teachers; 1951-1960 (n = 60) (n = 18) 1961-1970 (n = 129) (n = 80) 1971-1980 (n = 218) (n = 187) 1981-1990 (n = 311) (n = 285) No. of placed amalgams/week vs. high school teachers (574); > 51 (n = 262) > 100 (n = 67) No. of placed amalgams/week vs. dentists placing < 20 dental amalgams/week (n = 217); > 51 (n= 262) > 100 (n = 67)	Not stated	 0.97 (0.83-1.12)[b] 1.02 (0.92-1.12)[b] 1.03 (0.96-1.11)[b] 0.98 (0.90-1.06)[b] 1.00 (0.96-1.05)[b] 1.04 (0.97-1.11)[b] 0.96 (0.81-1.13)[b] 1.13 (0.86-1.49)[b]
(Rowland and others 1994), 1987-1988 cross sectional, retrospective	USA, Dentistry; 296 dental assistants working with amalgam vs. 111 dental assistants not working with amalgam. No of amalgams prepared per week; 0 (100) 1-14 (76) 15-29 (79) 30-59 (82) 60+ (36) Adding poor hygienic factors: 0 1-14 15-29 30+	Self reported:	 1.00[a] 1.33 (1.03-1.72)[a] 1.25 (0.97-1.63)[a] 0.90 (0.68-1.19)[a] 0.87 (0.58-1.29)[a] 0-3 4 5-8 1[a] 1.39 1.22 1.53 1.42 1.17 1.14 1.32 0.81 0.63 (0.42-0.96)

[a]adjusted for recent oral contraceptive use, age, race, smoking, pelvic inflammatory disease, number of sex partners, frequency of intercourse, unscavenged nitrous oxide, and year the pregnancy attempt began. [b]adjusted for age, smoking habits, and medical history indicating reduced

fertility for the respondent and spouse.

Table 5-4 The rate of infertility in women occupationally exposed to mercury

Author, year, study	Employment (no. of measurements)	Odds ratios (95% CI)	Infertility/conception difficulty (women) vs. (controls) %
(Jones and others 2007), 30-year follow-up	New Zealand; 38 ex-School Dental Nurses vs. controls (30 friends or sisters of the exposed) matched for alcohol intake, tobacco intake and self-reported general health.	Self reported exposures	Conception difficulties; 21 (6.66), ns[a]
(Choy and others 2002) case-control	Hong Kong, Infertility and blood mercury concentrations. (155 females in the infertile group) (26 females in the fertile group as controls) Subjects with elevated blood Hg; (150 males in the infertile group) (26 males in the fertile group as controls) Subjects with elevated blood Hg;	Self reported exposures	23.2 (3.9)* *P*= 0.02 when compared with control group. 35.3 (23.1)* *P*> 0.05 when compared with control group. Blood mercury concentrations were positively correlated with quantity of seafood consumption. Infertile subjects with elevated blood mercury concentrations consumed a larger amount of seafood. *error in the original table
(Rachootin and Olsen 1983), 1977-1981 case-control	Denmark, Females exposed to lead, mercury, cadmium compared with controls. (927 infertile case couples and 3,728 fertile control couples);	2.9 (1.4, 6.3)	As shown, females reporting exposure to lead, mercury and cadmium had three times the risk of idiopathic infertility. Subsequent analyses using logistic regression to control for the possible effects of women's age, education, residence and parity produced the following odds ratio, 2.6 (95%CI: 1.1, 5.9).
(Nixon and others 1979), 1928-1977 historical follow-up	UK, Female dentists (1271 married dentists);	Self reported exposures	7.9 (infertility >2 years) (female anæsthetists 9.7, hospital doctors 10.6). The frequency of infertility was significantly lower in the marriages of female dentists than

			in thos of female hospital doctors ($P < 0.02$).

[a]not significant

Table 5-5 The rate of menstrual disorders in women occupationally exposed to mercury.

Author, year, study	**Employment (no. of measurements)**	**Mercury levels; Urine, Blood, Plasma, Hair (µg/g), Nail, Vapour (mg/m³). Median-levels. Vs. controls**	**Menstrual disorders (irregular, painful, haemorrhagic) vs. (controls) %**
(Sikorski and others 1987) cross sectional	Poland, Dentistry (45 exposed younger than 40) (21 non-exposed younger than 40);	Scalp hair, exposed: With menstrual disorders; 0.570[a,b] No menstrual disorders; 0.305[a,b] Pubic hair, exposed: With menstrual disorders; 0.330[a,b] No menstrual disorders; 0.365[a,b]	31.1 (19.0). The prevalence of menstrual disorders in exposed women was significantly associated with the number of years worked in the dental profession (*P*= 0.0052). The relation between hair TMLs in the exposed women and the prevalence of menstrual disorders was established to be statistically significant in case of scalp hair (*P*= 0.0444), but not in the case of pubic hair (*P*= 0.378). Menstrual disorders in the control group was not associated significantly with TMLs in their scalp and pubic hair (*P*= 0.926 and 0.8808, respectively).
(de Rosis F. and others 1985) cross sectional	Italy, Lamp factory. 136 exposed (factory A) and 241 controls (factory B); Italy, Lamp factory (106 of 153 exposed examined, factory A) (241 of 293 controls examined, factory B);	Not stated	65 (71)[c] (normal duration of menstrual cycle, 25-31 days). 34.56 (29.05)[c] (polymenorrhoea, oligomenorrhoea). Age standardised rate ratio of abnormal cycles (polymenorrhoea + oligomenorrhoea) = 1.4. Exacerbation of the premenstrual syndrome; 36 (18)[c] Change in the menstrual cycle; 43 (24)[c]

[a]Geometric mean [b]mg/kg converted into µg/g [c]the incidence of the disorders in the menstrual cycle during the period of employment in factory A or B was computed as the number of women having "normal" cycles at their engagement at the factory but who noticed a subsequent change in one of the parameters that

usually characterise the cycle (length, duration, and amount of blood loss).

Table 5-6 The rate of congenital abnormalities/malformations in children of women occupationally exposed to mercury.

Author, year, study	**Employment (no. of measurements)**	**Mercury levels; Urine, Blood, Plasma, Hair (µg/g), Nail, Vapour (mg/m³). Median-levels. Vs. controls**	**Congenital abnormalities/malformations (controls) %**
(Hilt and others 2007c), 2006 cross-sectional	Norway, Dentistry; 655 dental assistants vs. 456 controls matched for geographical placement, age and gender; 186 dentists vs. 456 controls matched for geographical placement, age and gender;	Not stated	Per 100 born infant; 3.75 (95%CI: 2.73-4.77) vs. 1.58 (95%CI: 0.81-2.34) 3.59 (95%CI: 1.87-6.19) vs. 1.58 (95%CI: 0.81-2.34)
(Jones and others 2007), 30-year follow-up	New Zealand, Dentistry; Frequency of children with birth defects of 38 ex-School Dental Nurses vs. controls (30 friends or sisters of the exposed) matched for alcohol intake, tobacco intake and self-reported general health.	Not stated	18.42 (10), ns[c]
(Irgens and others 1997), 1970-1993 register study	Norway, Dentistry; risk of neural tube defects in 5.432 offspring of female dental assistants born 1970-1993 compared to the risk in offspring of mothers not occupied as dental assistants (1.2 million);	Not stated	Per 10.000; 12.89 (9.52) (3 spina bifida, 3 anencephalus, 2 encephalocele). A non-significant age adjusted odds ratio was observed, 1.40 (CI 0.61-2.77).
(Ericson and Kallen 1989), 1976-1986 Register study	Sweden, Dentistry 1976-1986; Number of births of dentists was 1,362; Number of births of dental assistants was 6,339; Number of births of dental technicians was 457; For 1976/1981, the expected numbers are based on the 1976 and 1981 rates, respectively, in the Medical Birth Registry; for 1982-1986 the expected numbers are calculated from baselines derived from the total	Not stated	4.0 (expected 5.0) 4.6 (expected 5.0) 5.0 (expected 5.0) No clear-cut differences between the observed and expected numbers can be seen.

	population 1973-1977 and using information available both in the Medical Birth Registry and the Registry of Congenital Malformations.		
(Sikorski and others 1987) cross sectional	Poland, Dentistry (45 dentists and 36 dental assistants, 117 pregnancies) (34 controls and 63 pregnancies);	Scalp hair; 0.527 (0.042-59.546) vs. 0.100 (0.017-0.308)[a,b] Pubic hair; 0.381 (ND-18.166) vs. 0.060 (ND-0.524)[a,b]	5.1 (5 spina bifida and 1 interatrial defect). Reproductive failures (spontaneous abortion, stillbirth or congenital malformation) in the history of exposed women were significantly associated with total mercury levels determined in their scalp (*P*= 0.0038) and pubic (*P*= 0.00032) hair while no such relationship was found in the non-exposed women (for scalp and pubic hair TMLs: *P*= 0.8808 and 0.9282, respectively).
(Brodsky and others 1985), 1968-1978 historical follow-up/retrospective	USA, Dentistry; Assistants, direct exposure (21202); 0-40 amalgams >40 amalgams	Not stated	3.1 4.1 All rates were standardized, adjusting for maternal age and maternal smoking history. Values for *P*< 0.05 were considered significant. Neither direct nor indirect mercury exposure at the two levels had a statistically significant effect on the rate of incidence of congenital abnormalities in the offspring.
(Nixon and others 1979), 1928-1977 historical follow-up	UK, female dentists (1959 children of dentists) (6442 children of controls);	Not stated	4.2 (3.6) (Congenital heart malformation, cleft lip/palate, Down's syndrome, hydrocephalus). The frequency of malformations did not differ significantly from the control group.

(Elghany and others 1997), 1948-1977 cross sectional	USA, Thermometer etc. Factory (72 pregnancies in 46 women in the production) (19 controls and 32 pregnancies in the non-production);	Exposure-level in air; 0.025-0.23	4.2 (0) (bilateral talipes-equine varus, extrophy of the bladder and abnormal anal opening, and meningomyelocele and Mongoloid faeces). The risk ratios for the pregnancy outcome depending exposure were calculated. The RR estimate of risk among exposed workers compared to non-exposed workers was 1.333 (95%CI: 0.468-4.316).
(Matte and others 1993), 1968-1980 case-control	USA, Health care; 4,915 case babies (live-born or stillborn infants with serious malformations) and 3,027 control babies (live-born babies without birth defects frequency matched to case babies by: year and quarter of birth, race, and hospital of birth).	Not stated	RR for any congenital defects in offspring of mothers employed in dental care: 1.35 (95%CI: 0.70-2.61). (28 case babies and 13 control babies). Among offspring of mothers in dental occupations, the RR for cardiovascular system defects was 1.71 (95%CI: 0.66-4.42) and 1.58 (95%CI: 0.62-4.07) for limb defects. RR of any defects in offspring of mothers with mercury exposure: 1.0 (95%CI: 0.33-3.07). (8 case babies and 5 control babies). RR of any congenital defects in offspring of fathers employed as dentists: 0.98 (95%CI: 0.40-2.36). (13 case babies and 8 control babies). RR of any congenital defects in offspring of father with mercury exposure: 1.33 (0.46-3.84). (11 case babies and 5 control babies).

(de Rosis F. and others 1985) cross sectional	Italy, Lamp factory (120 pregnancies, 106 births in 153 women, factory A) (254 pregnancies, 218 births in 293 controls, factory B);	Not stated	7 (3) (6 of the 7 cases were congenital dislocations of the hip). No cases of congenital dislocation of the hip were seen in the controls, and this could be due to a different prevalence of this condition in northern and southern Italy.

ND: not detected [a]Geometric mean [b]mg/kg converted into µg/g [c]not significant

Table 5-7 The rate of women occupationally exposed to mercury, giving birth to low birth weight infants.

Author, year, study	Employment (no. of measurements)	Mercury levels; Urine, Blood, Plasma, Hair (µg/g), Nail. Median-levels. Vs. controls	Low birth weight (<2500 g) (controls) %
(Jones and others 2007), case-control 30-year follow-up	New Zealand, Dentistry; Frequency of low birth-weight babies of 38 ex-School Dental Nurses vs. controls (30 friends or sisters of the exposed) matched for alcohol intake, tobacco intake and self-reported general health.	Not stated	10.52 (3.33), ns[a]
(Ericson and Kallen 1989), 1976-1986 register study	Sweden, Dentistry; Number of births of dentists was 1,362; Number of births of dental assistants was 6,339; Number of births of dental technicians was 457; The expected number, calculated from the total population and standardized for year of birth, maternal age, parity, and infant sex.	Not stated	3.4 (expected 3.8) The risk ratio is 0.9 (95%CI: 0.7-1.2). 4.3 (expected 3.7) Risk ratio is 1.2 (95%CI: 1.0-1.3). 3.1 (expected 3.7) Risk ratio is 0.8 (95%CI: 0.5-1.4).
(Nixon and others 1979), 1928-1977 historical follow-up	UK, female dentists; 1,998 births reported in 1615 dentists; 1,853 working female dentists vs. 438 non-working female dentists;	Not stated	5.2, which is within the range expected for Social Class I women. 5.2 (4.9) 15 babies (0.98%) were born at less than 1.6 kg to working dentists, however, none were born under 1.6 kg to non-working dentists. This difference was statistically significant ($P< 0.05$).
(Hujoel and others 2005), 1993-2000 case-control	USA, Mercury exposure from dental filling placement during pregnancy (1,117 women giving birth to low-birth-weight infants) (4,468 women giving	Not stated >1 amalgam restoration	3.5 (5.3) The odds for a low-birth-weight infant were significantly lower

	birth to normal birth weight infants as controls);		among women who had one or more dental amalgams placed during pregnancy (odds ratio = 0.65, 95%CI: 0.46, 0.92). After adjustment for sociodemographic and medical risk factors for low birth weight, placement of amalgam filling was no longer significantly associated with the odds for a low-birth-weight infant (odds ratio = 0.68, 95%CI: 0.42, 1.09).
(de Rosis F. and others 1985) Cross sectional	Italy, Lamp factory (120 pregnancies, 106 births in 153 women, factory A) (254 pregnancies, 218 births in 293 controls, factory B);	Not stated	3 (3)

[a]not significant

Table 5-8 The rate of women occupationally exposed to mercury, giving birth to infants suffering from perinatal death.

Author, year, study	**Employment (no. of measurements)**	**Mercury levels; Urine, Blood, Plasma, Hair (µg/g), Nail, Vapour (mg/m³). Median-levels. Vs. controls**	**Perinatal death (still birth) (controls) %**
(Jones and others 2007), case-control 30-year follow-up	New Zealand, Dentistry; Frequency of stillbirth in 38 ex-School Dental Nurses vs. controls (30 friends or sisters of the exposed) matched for alcohol intake, tobacco intake and self-reported general health.	Not stated	5.26 (0), ns[c]
(Ericson and Kallen 1989), 1976-1986 register study	Sweden, Dentistry 1976-1986; Total number of births of dentists was 1,362; Total number of births of dental assistants was 6,339; Total number of births of dental technicians was 457;	Not stated	0.14 (stillbirth) 0.14 (liveborn dead before 7 days) 0.28 (stillbirth) 0.25 (liveborn dead before 7 days) 0.00 (stillbirth) 0.00 (liveborn dead before 7 days) The total observed number of perinatal deaths was 38, the expected number was 59.7. Risk ratio is 0.6 (95%CI: 0.5-0.9).
(Sikorski and others 1987) cross sectional	Poland, Dentistry (45 dentists and 36 dental assistants, 117 pregnancies) (34 controls and 63 pregnancies);	Scalp hair; 0.527 (0.042-59.546) vs. 0.100 (0.017-0.308)[a,b] Pubic hair; 0.381 (ND-18.166) vs. 0.060 (ND-0.524)[a,b]	2.6 Reproductive failures (spontaneous abortion, stillbirth or congenital malformation) in the history of exposed women were significantly associated with total mercury levels determined in their scalp (*P*= 0.0038) and pubic (*P*= 0.00032) hair while no such relationship was found in the non-exposed women (for scalp and pubic hair TMLs: *P*= 0.8808 and 0.9282, respectively).

(Nixon and others 1979), 1928-1977 historical follow-up	UK, female dentists (1,998 births reported in 1,615 dentists);	Not stated	1.05 (stillbirths) 0.90 (death occurred in the first week of life)
(Elghany and others 1997), 1948-1977 cross sectional	USA, Thermometer etc. Factory (72 pregnancies in the production) (19 controls and 32 pregnancies in the non-production);	Mercury vapour, median-value; 0.09 (0.025-0.6)	4.2 (3.1). No statistically significant difference.
(de Rosis F. and others 1985) cross sectional	Italy, Lamp factory (120 pregnancies, 106 births in 153 women, factory A) (254 pregnancies, 218 births in 293 controls, factory B);	Not stated	1.67 (0.79)

ND: not detected

[a]Geometric mean

[b]mg/kg converted into µg/g [c]not significant

Table 5-9 Neuropsychological development in children of women occupationally exposed to mercury.

Author, year, study	**Employment (no. of measurements)**	**Mercury levels; Urine, Blood, Plasma, Hair, Nail, Vapour, Teeth (µg/g). Vs. controls**	**Neuropsychological development in children (controls) %**
(Hilt and others 2007b), 2006 cross-sectional	Norway, Dentistry; 1,823 children of female dental workers and 1,015 children of matched controls. 601 dental assistants; 168 dentists; 76 other dental personnel; 416 matched controls;	Not stated	Had children with need of school psychologist or educational-psychological service; 18.6, (*P*= 0.231) 11.3, (*P*= 0.003) 18.4, (*P*= 0.546) 21.9
(Jones and others 2007), case-control 30-year follow-up	New Zealand, Dentistry; 38 ex-School Dental Nurses vs. controls (30 friends or sisters of the exposed) matched for alcohol intake, tobacco intake and self-reported general health.	Not stated	Have children with learning difficulties; 13.15 (6.66), ns[a] Have children with developmental delay; 5.26 (3.33), ns[a]

[a]not significant

Table 5-10 The rate of spontaneous abortion/miscarriage in wives of men, occupationally exposed to mercury.

Author, year, study	**Male employees (no. of measurements)**	**Mercury levels; Urine (nmol/L), Blood, Plasma, Hair (µg/g), Nail, Vapour (mg/m³). Median-levels. Vs. controls**	**Spontaneous abortion/miscarriage % (controls)**
(Brodsky and others 1985), 1968-1978 historical follow-up/retrospective	USA, Wives of male dentists, indirect exposure (21634); 0-40 amalgams >40 amalgams	Not stated	 8.3 7.3 All rates were standardized, adjusting for maternal age and maternal smoking history. Values for *P*< 0.05 were considered significant. Neither direct nor indirect mercury exposure at the two levels had a statistically significant effect on the rate of spontaneous abortion.
(Cordier and others 1991), 1984 cross sectional	France, Chloralkali plant (239 pregnancies in 118 male workers) (544 pregnancies in 283 male controls); Rate of spontaneous abortion according to the average mercury concentration in the urine of the father before pregnancy;	The median value of mercury in the fathers' urine from 1968-1984; 225[c] 5-95[a,b](22 pregnancies) 100-245[a,b](38 pregnancies) >250[a,b] (38 pregnancies)	7.53 (9.56) 4.5, Odds ratio 1.31 (95%CI: 0.99-1.74) 13.2, Odds ratio 1.72 (95%CI: 0.99-3.01) 18.4, Odds ratio 2.26 (95%CI: 0.99-5.23) The risk of spontaneous abortion rises significantly with the mercury concentration (*P*< 0.05).
(Alcser and others 1989), 1952-1966 retrospective cohort study	USA, Plant using elemental mercury. (675 pregnancies in exposed workers, i.e. their wives, during 1952-1966) (687 pregnancies in non-exposed workers, i.e. their wives, during 1952-1966);	Not stated	14.2 (9.6) The exposed group had a statistically significantly higher miscarriage rate than the non-exposed group. The average odds ratio for miscarriage was 1.57 (*P*= 0.008). About half of the

			miscarriages occurred before the start of mercury exposure.

[a]µg/L converted into nmol/L [b]mean-level

Table 5-11 The rate of congenital abnormalities/malformations in children of men occupationally exposed to mercury.

Author, year, study	**Male employees (no. of measurements)**	**Mercury levels; Urine, Blood, Plasma, Hair (µg/g), Nail, Vapour (mg/m³). Median-levels. Vs. controls**	**Congenital abnormalities/malformations (controls) %**
(Brodsky and others 1985), 1968-1978 historical follow-up/retrospective	USA, Wives of male dentists, indirect exposure (21634); 0-40 amalgmas >40 amalgams	Not stated	 4.6 4.8 All rates were standardized, adjusting for maternal age and maternal smoking history. Values for $P< 0.05$ were considered significant. Neither direct nor indirect mercury exposure at the two levels had a statistically significant effect on the rate of incidence of congenital abnormalities in the offspring.
(Alcser and others 1989), 1952-1966 retrospective cohort study	USA, Plant using elemental mercury. (675 pregnancies in exposed workers, e.i. their wives, during 1952-1966) (687 pregnancies in non-exposed workers, e.i. their wives, during 1952-1966);	Not stated	6.9 (8.1) For liveborn children with abnormalities no statistically significant relationship was found between exposure and abnormality rate (average odds ratio = 0.82, $P= 0.36$).