

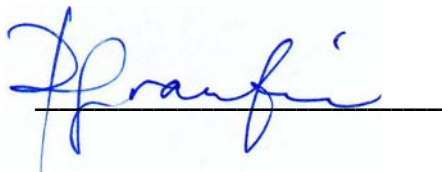
**The Matter of An Arbitration Under the Rules of the United
Nations on International Trade law
Chevron Corporation and Texaco Petroleum Company v. The
Republic of Ecuador
PCA Case 2009-23**

Opinion of Philippe Grandjean, MD

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In regard to health outcomes, none of the studies carried out so far was capable of determining a direct link between exposures at an individual level and the subject's disease or symptoms. The evidence is instead at a so-called ecologic level, where residents are considered as exposed based only on their address (e.g., at the time of death) in a canton with a history of oil production. Residential history was not available, and no information on exposure potentials was obtained. Thus, by assuming that everybody with a particular residence has been exposed will result in a dilution, as some residents will have had only a short-term or low, if any, exposure. The degree of misclassification will increase with time, as people move in and out of the cantons, and this problem will dilute any association with adverse outcomes. In my opinion, the extent of the pollution-related health effects is therefore most likely underestimated.

Further, an even greater underestimation is likely in regard to cancer in adults, because the disease develops after a latency period that can be much longer than 20 years. The available cancer data from El Oriente confirm a peak age for cancer of 50 years and above. Thus, the mortality data may provide information of little usefulness if exposed subjects by the end of follow-up had not yet reached mid-adult age or not yet accumulated at least 20 years since first exposure. Too few cancer deaths may have occurred to generate statistically significant results. While the exposed subjects may have an increased cancer risk, this risk will only become apparent during subsequent years. However, by that time, exposed subjects may have moved away from the canton, where they were originally exposed. Unfortunately, the limited results available do not allow analysis by age at first exposure, time since first exposure, and duration of exposure, issues of key importance in cancer epidemiology. By considering only the overall number of cases, no matter when they occurred and the age at diagnosis, the evidence is not sufficiently informative.

All of these factors support the notion that a serious health hazard is present from the oil production activities in El Oriente, and that information available so far most likely substantially underestimates the magnitude of adverse health consequences.

IV. Basis of opinions

Oil exploration began in the 1960s in El Oriente, a rainforest region with a population of about a half million indigenous peoples and mestizos. Population counts are somewhat uncertain, as some groups live in isolated areas. During the subsequent 20 years or so, oil exploration activities as well as extraction, production and transportation are known to have resulted in releases of a variety of chemicals, including polyaromatic hydrocarbons (PAHs) and volatile organic compounds, such as benzene.¹ Many of these compounds are known carcinogens. According to the Louis Berger report, a number of additional toxicants and possible carcinogens were released from the drilling wastes that were initially deposited in waste pits or separation ponds. Thus, pipelines, tanks, and storage drums

¹ Expert Opinion of Kenneth J. Goldstein, M.A., CGWP and Jeffrey W. Short, Ph.D. Regarding the Environmental Contamination From Texpet's E&P Activities in the Former Napo Concession Area Oriente Region, Ecuador, February 2013 ("Louis Berger report").

leaked large volumes of crude oil, and toxic brines released from production wells added further complexity to these releases.

For this report, I have relied on published literature (see Appendix A), as well as the expert opinions by Dr. Harlee Strauss from February and December, 2013, the Louis Berger report, and the report by Dr. Suresh Moolgavkar from May, 2013. In addition, I have previously visited El Oriente and I have conducted epidemiological studies in Ecuador. I am thus familiar with the Ecuadorean health care system and the opportunities for epidemiologic projects.²

Given the extent of documentation available and the uncertainties involved in evaluating the actual risks of adverse health effects, this opinion will consider the evidence in light of what is currently known in regard to such hazards and the likelihood that adverse health effects exist or will become apparent later on. In this regard, I am also considering what could be known in regard to past and current adverse effects, given the availability of exposure assessments, actual studies, and health data.

Exposure assessment

As described in the two reports by Dr. Strauss and in the Louis Berger report,³ multiple sources document the extent of environmental contamination from TexPet's operations in El Oriente. Thus, extensive records show that TexPet's exploration, extraction, and transportation of crude oil led to releases of toxic chemicals into the environment, and that the toxicants remain a serious hazard many years after the operations were halted.⁴ Residents were exposed to crude oil and its residues, produced water, drilling mud, hydrogen sulfide, diesel emissions, and flares. Exposures of particular relevance include polyaromatic hydrocarbons and benzene, because they are known to be human carcinogens. Other volatile hydrocarbons from crude oil and chemicals used in oil production are known to cause mucous membrane irritation and neurotoxicity.

Some exposure is continuing at locations where Texpet-released contamination remains in the environment.⁵ Exposure pathways for residents include domestic use of water contaminated with oil, whether visibly or not, washing in streams with oil contaminated sediments, and consumption of fish contaminated by oil residues. While some dissemination may still occur via the air, most current exposures are via water, soil, and food. It is likely that the multi-pathway exposures encountered by the residents has resulted in uptakes of toxic compounds that equal or exceed those known to occur in occupations related to oil extraction, production, or clean-up.

² Grandjean P, Harari R, Barr DB, Debes F. Pesticide exposure and stunting as independent predictors of neurobehavioral deficits in Ecuadorian school children. *Pediatrics* 2006; 117: 546-56. Harari R, Julvez J, Murata K, Barr D, Bellinger DC, Debes F, Grandjean P. Neurobehavioral deficits and increased blood pressure in school-age children prenatally exposed to pesticides. *Environ Health Perspect* 2010; 118: 890-6.

³ Louis Berger report, op. cit. Expert Opinion of Harlee S. Strauss, PhD Regarding human health-related aspects of the environmental contamination from Texpet's E&P activities in the former Napo concession area Oriente region, Ecuador. February 18, 2013. Rejoinder Opinion of Harlee Strauss, Ph.D. Regarding Human Health Risks, Health Impacts, and Drinking Water Contamination Caused by Crude Oil Contamination in the Former Petroecuador-Texaco Concession, Oriente Region, Ecuador. December, 2013.

⁴ Louis Berger report, op. cit.

⁵ Harlee Strauss report, February, 2013, op.cit.

As described in Dr. Strauss' reports, the available information regards occurrence of carcinogenic or otherwise highly toxic chemicals in the El Oriente environment. Detailed exposure profiles and their time-dependence for individuals or groups of residents would be of great value for clinical and epidemiology studies, but such data are not realistic to obtain.

Background knowledge on risks involved

A detailed risk assessment would require documentation on dose-dependent associations for major exposure components and their adverse effects. As such data are unavailable from the EL Oriente setting, one must rely on documentation from other sources. While information is available in regard to occupational exposures at oil refineries, circumstances in El Oriente are very different due to the multiple pathways of exposure among the residents. Perhaps the closest exposure situations occurred in connection with major marine oil spills that resulted in exposures to clean-up workers and residents. A recent review of adverse effects from oil spills concluded that the health consequences remained incompletely known, as the few studies available were typically cross-sectional and suffered from several deficiencies.⁶ Only seven of a total of 38 oil spills have resulted in published reports on adverse health effects. These reports emphasized skin and mucous membrane irritation along with some neurobehavioral symptoms, but detailed information on long-term effects is missing.

This incomplete evidence from other, comparable exposure settings makes it almost impossible to judge the possible and likely health consequences for the El Oriente population exposed to toxic chemicals from decades of oil production.

Such lack of generic toxicology information is not unique, however. The vast majority of industrial chemicals remains unstudied. I have recently shown that even current research on environmental chemicals primarily focuses on well-known problems, not on the potential hazards about which new information is particularly needed.⁷ This inertia and the continued focus on well-known substances relates in part to a traditional science paradigm, where solid conclusions depend on replication and verification. However, repeated replication attempts can also result in inertia. When extracting information on publications in scientific journals, we found a continued and narrow research focus on well-studied hazards, such as lead, cadmium and mercury, much beyond the mere need for replication.

The incompleteness of the science base is particularly unfortunate in a situation where the responsible parties have not produced the relevant toxicology evidence or carried out targeted studies when the pollution problems emerged. Thus, the available scientific documentation cannot contribute the necessary generic data that might, at least in part, compensate for the lack of information on the specific health risks encountered in the exposed population.

As a further complication, the contaminated El Oriente region has limited access to health care, medical records are incomplete, even population records are imperfect. Thus,

⁶ Aguilera F, Méndez J, Pásaro E, Laffon B. Review on the effects of exposure to spilled oils on human health. *J Appl Toxicol* 2010; 30: 291-301.

⁷ Grandjean P, Eriksen ML, Ellegaard O, Wallin JA. The Matthew effect in environmental science publication: A bibliometric analysis of chemical substances in journal articles. *Environ Health* 2011; 10: 96.

documentation of limited quality can be extracted for evaluating the health risks associated with the exposures that the local population is and has been facing. Nonetheless, existing documentation must be carefully analyzed to determine any evidence of adverse health effects among El Oriente residents exposed to toxic hazards.

Available evidence on adverse health effects

The human health studies carried out include questionnaire surveys, cross-sectional examinations, and ecological epidemiology studies. All of these study types have general weaknesses that are well known. Briefly, the findings are affected by uncertainties in regard to the true level of exposure of individual residents and the true occurrence of the outcome studied, such as cancer. El Oriente is far from Quito and other large cities, and access to health care and the completeness of record-keeping are less than optimal. Even carrying out studies in the affected communities is a logistic challenge. Nonetheless, initial community-based studies recorded links between oil-related exposures and acute or short-term effects, such as skin rashes and skin or eye irritation, and less well defined problems, such as headaches, nausea, anxiety and ill-health.⁸ These findings are highly plausible and not likely to be due to chance or bias.

Due to the known carcinogenicity of crude oil constituents, several studies focused on the cancer occurrence in areas involved in oil extraction. One study examined subjects with well documented exposures in the Sachas canton and documented DNA damage in blood cells.⁹ Such genotoxicity effects are known to be associated with later development of cancer.

The first cancer epidemiology studies in El Oriente began with case series and were then extended to the four cantons (Sucumbios, Orellana, Napo and Pastaza) where the oil industry had been most active for the longest time.¹⁰ Despite the known difficulties in obtaining accurate data on cancer cases in a remote area like El Oriente, these early studies showed clear excesses in some cancer rates. In adults, the cancer cases occurring up to 1998 mainly involved middle-aged adults with short latency times only of about two decades or less after first exposure to oil chemicals.¹¹ As many cancer types primarily appear in older adults and after longer latency periods, this finding suggests the presence of an important cancer risk.

In addition, an increased rate of childhood leukemia was found in the same cantons.¹² This disease usually occurs at shorter latency times than most adult cancers, and, given the exposures, this finding is therefore meaningful and plausible. An additional study reported

⁸ Center for Economic and Social Rights. Rights Violations in The Ecuadorian Amazon, The Human Consequences of Oil Development. CESR, 1994.

⁹ Paz-y-Miño C, López-Cortés A, Arévalo M, Sánchez ME. Monitoring of DNA damage in individuals exposed to petroleum hydrocarbons in Ecuador. *Ann N Y Acad Sci* 2008; 1140: 121-8.

¹⁰ San Sebastián M, Armstrong B, Córdoba JA, Stephens C. Exposures and cancer incidence near oil fields in the Amazon basin of Ecuador. *Occup Environ Med.* 2001; 58:517-22. Hurtig AK, San Sebastián M. Geographical differences in cancer incidence in the Amazon basin of Ecuador in relation to residence near oil fields. *Int J Epidemiol* 2002; 31: 1021-7.

¹¹ Hurtig et al. 2002, op.cit.

¹² Hurtig AK, San Sebastián M. Incidence of childhood leukemia and oil exploitation in the Amazon basin of Ecuador. *Int J Occup Environ Health* 2004; 10: 245-50.

increased rates of spontaneous miscarriage, malformations and child mortality.¹³ Again, these outcomes are plausible and likely relate to recent or accumulated exposures.

On the other hand, in a study funded by Chevron, Dr. Kelsh and colleagues used a different collection of cantons and found no clear evidence of excess cancer rates up to 2005. The cantons in this study were selected by “visual inspection” of a map showing oil production activities.¹⁴ The authors then chose to include the Cascales, Cuyabeno and Putumayo cantons in addition to the cantons considered exposed by Drs. Hurtig and San Sebastián. Dr. Strauss in her reports from February and December, 2013 has already commented on differences between the cantons in regard to exposures; the inclusion of three cantons with less exposure potential must have resulted in a dilution of the overall exposures within the population considered exposed in Dr. Kelsh’s study. Interestingly, the authors did not provide comparison data between the two sets of cantons in regard to the outcomes. Given the subjective – and in my opinion inappropriate – method of canton selection used in Dr. Kelsh’s study and the likely dilution of the exposure, the non-informative findings are not surprising and do not add any important information on the health risks encountered by exposed El Oriente residents. Incidentally, the confidence intervals reported in Dr. Kelsh’s study show that the findings are not in conflict with those obtained by Drs. Hurtig and San Sebastián.

In his opinion, Dr. Moolgavkar summarizes a recent study that he has carried out to update the cancer mortality data from El Oriente. Apparently, a manuscript has been submitted to a scientific journal, but his study has not been published so far. In his brief summary, Dr. Moolgavkar indicates that he has included cancer deaths from 1990 to 2010 (five years more than Kelsh). Although leaving out the years 1985-1989 that were included by Drs. Hurtig and Sebastián, the extended follow-up represents an advance, as this time period better reflects the usual latency period of many cancer types, which may not appear until 20, 30, or more years after first exposure to the carcinogenic chemicals. However, Dr. Moolgavkar bases his primary analysis on seven cantons with some level of oil exploration and production, and he compares the cancer mortality there with the one in 13 cantons with “little or no such activity”. Thus, similar to Dr. Kelsh’s study, the exposed group of cantons is diluted with cantons with less intensive exposures, and the comparison group is not free of exposure. When examining single cantons as well as the same group of cantons used by Drs. Hurtig and San Sebastián, Dr. Moolgavkar found “no statistically significant excess of overall or site-specific cancer mortality”. No results are presented, and it is therefore difficult to evaluate this conclusion. The lack of significance may simply be due to numbers of cases observed being too small in the individual cantons to obtain the necessary statistical power. The same applies to Dr. Moolgavkar’s conclusions on other causes of death, such as aplastic anemia. As a further observation, mortality from infectious diseases showed a significant deficit, thus suggesting that diagnostic misclassification, incomplete case assessment, or exaggerated population counts may have biased the findings. Dr. Moolgavkar recognizes the problems associated with “lack of individual-level

¹³ San Sebastián M, Armstrong B, Stephens C. Outcomes of pregnancy among women living in the proximity of oil fields in the Amazon basin of Ecuador. *Int J Occup Environ Health* 2002; 8: 312-9.

¹⁴ Kelsh MA, Morimoto L, Lau E. Cancer mortality and oil production in the Amazon Region of Ecuador, 1990-2005. *Int Arch Occup Environ Health* 2009; 82: 381-95.

data on exposures and potential confounders, (...) duration of residence, and probable incompleteness and inaccuracy in data on cause of death". I concur, and for this reason, Dr. Moolgavkar's conclusion of "no scientifically reliable evidence that residential proximity to oil exploration and production activities increases mortality..." and "no support for a causal relationship between environmental exposure to petroleum, its compounds, and related wastes and any form of cancer" are not convincing. In fact, this study, at least from the summary provided in Dr. Moolgavkar's report adds little additional information on the presence of health risks in the exposed population.

Critical assessment of the evidence

When considering the overall evidence in regard to the possible presence of health risks associated with the pollution in El Oriente, the incomplete data on exposure levels in El Oriente's cantons and the resulting imprecision of the exposure assessment constitute a major source of uncertainty. As a further complication, when recorded at the time of death, the residence will be a highly imprecise measure of a subject's past exposures. Thus, during a period of three or four decades, especially mestizo population is likely to move, e.g., through gravitating toward the cities. If mestizos are also the most highly exposed subjects, any cancer death occurring later on will not be reflected by El Oriente mortality.

Such imprecision (and the associated selection bias) is a key weakness, as standard statistical methods assume that no imprecision is present in the exposure assessment, an assumption that is usually not true – and certainly not in the present case. Although this problem is often ignored, such types of uncertainty can be potentially used to manipulate research findings, and any obvious uncertainty may be erroneously claimed to cause exaggeration of the risks. In reality, the greater degree of the imprecision of the exposure estimate, the larger the average bias will be toward the null, i.e., the likelihood of finding no effect.¹⁵

In my judgment, the studies by Dr. Kelsh and co-authors and by Dr. Moolgavkar are seriously affected by imprecision and the resulting likelihood of finding no association. In fact, as the follow-up was extended to 2010 by Dr. Moolgavkar, his use of the deceased subject's most recent residence as criterion for exposure classification is bound to be even more imprecise than in Dr. Kelsh and coworkers' five year shorter follow-up, as additional exposed subjects may have moved away from their original residence.

The studies by Drs Hurtig and San Sebastián are by no means free of imprecision and possible selection bias. However, based on their intimate knowledge of the exposure conditions in El Oriente, they used a narrower definition of exposed cantons, thereby limiting the extent of dilution by unexposed subjects in the group considered exposed. Also, as their follow-up was through 1998 only, their results were less impacted by recent movement of residents away from the exposed areas.

Among the uncertainties are also the completeness of case identification, i.e., the likelihood that death certificates will be recorded by the registry in Quito and that the cause of death indicated on the death certificate will be accurate and reflect the outcomes

¹⁵ Grandjean P. Seven deadly sins of environmental epidemiology and the virtues of precaution. *Epidemiology* 2008; 19: 158-62.

of interest in regard to the oil pollution. These problems will lead to underestimation of the cancer risk in all of the studies carried out in El Oriente.

Given these concerns, careful assessment of the evidence is needed beyond a simple calculation whether the observed data are “statistically significant” or whether they can be attributed to chance. The probability that the results are significant is usually expressed as p values, or probability values. Originally proposed by the UK statistician Ronald Fisher, the p was evaluated using a limit of 5%. This method allows the researcher to identify findings that deviated significantly – unlikely due to random variation – so that the hypothesis that no difference was present would be rejected. When the p was above 5% researchers concluded that their findings did not reliably reject the “null” hypothesis of no difference or no association. This 5% limit is now widely applied and has become almost sacrosanct. A few studies and many anecdotes suggest that scientists place greater emphasis on results that have a p value of, say, 4.9% than on results with a p value of 5.1%.¹⁶ Statistically, there is of course no meaningful difference between outcomes with such similar p values. So-called statistical significance should therefore not be used as the only parameter of interest when evaluating epidemiological results.

When a study addresses an environmental hazard using study parameters that are unreliable or perhaps not representative, the results will usually not reach statistical significance. Sometimes, such results may be misinterpreted as evidence against the hazard causing any risk at all. Accordingly, studies showing no statistically significant effect are claimed to be “negative”. A more correct term would be non-informative (or non-positive). Misleading conclusions that refer to “negative” studies are sometimes referred to as a Type III error.¹⁷

Oil company experts have criticized the epidemiological studies by Drs. Hurtig and San Sebastián for being “weak and biased”.¹⁸ To some extent, the evidence is indeed weak, as only limited data of suboptimal quality are available from this resource-poor setting. As discussed above, the results may well be biased for this reason. Although the likely direction of the bias is misinterpreted by Dr. Moolgavkar in his opinion, ample evidence is available that studies on average are biased toward the null, thus leading to an underestimation of the risk.¹⁹

An alleged bias put forward by oil industry representatives refers to the fact that the Ecuadorean researchers worked closely with the affected communities. I don’t think that this assertion is fair; it rests on subjective opinion only, without substantiation. On the contrary, the researchers’ intimate knowledge of the environmental setting and

¹⁶ Holman CD, Arnold-Reed DE, de Klerk N, McComb C, English DR. 2001. A psychometric experiment in causal inference to estimate evidential weights used by epidemiologists. *Epidemiology* 12: 246-55.

¹⁷ Schwartz S, Carpenter KM. The right answer for the wrong question: consequences of type III error for public health research. *Am J Public Health* 1999; 89: 1175-80.

¹⁸ Hurtig AK, San Sebastián M. Epidemiology vs epidemiology: the case of oil exploitation in the Amazon basin of Ecuador. *Int J Epidemiol* 2005; 34: 1170-2.

¹⁹ Grandjean P, Budtz-Jørgensen E. An ignored risk factor in toxicology: The total imprecision of exposure assessment. *Pure Appl Chem* 2010; 82: 383-91.

understanding of the health issues allowed them to carry out a study of the highest possible quality and relevance. I concur with this view, as expressed by San Sebastián and Hurtig.²⁰

As another alleged source of bias, the presence of oil activities may also be linked to other health risks, such as tobacco smoking. However, this explanation seems to be unrealistic. The El Oriente culture, widespread poverty, and the cancer pattern, do not suggest tobacco smoking, or alcohol drinking for that matter, as underlying confounders.

Overall, the balance of evidence favors the presence of a serious environmental hazard that is already impacting human health in the El Oriente population. The weaknesses and the incomplete nature of the available information suggest that the risk of adverse human health effects may in fact have most likely been seriously underestimated.

The focus on *p* values is therefore inappropriate. As a useful complement, the 95% confidence limits are highly useful. They are usually calculated in epidemiological studies, as they represent the range that would be in statistical accordance with the empirical results obtained, i.e., without the deviation reaching statistical significance. Thus, studies that show a risk that is not significantly increased will have a lower 95% limit is below 1.

We need to focus also on the upper confidence limit, which reflects the highest extent of excess risk that would be in accordance with the findings (i.e., without showing a significant difference). When reviewing the results obtained in the cancer studies from El Oriente, we see that a presence of highly elevated cancer risks is in full accordance with the results. For example, the results reported by Hurtig and San Sebastián show a confidence interval for melanoma of 2.19-46.97. In other words, a melanoma risk 47-fold greater than expected cannot be excluded. Several other cancer sites show confidence intervals that are in accordance with a 10-fold increased risk, or more.

Prudent interpretation

In reaching a decision whether a conclusion is amply supported by the evidence, we traditionally favor acquisition of ample verification to obtain robust documentation that will resist critiques about possible sources of error or bias. But this ideal may not be feasible, as the study conditions may not allow replication or the application of the highest-quality parameters as in the case of El Oriente. Exaggerated critique and skepticism may be inappropriate in regard to emerging insights on complex environmental situations in a resource-poor setting.

In the past, special interest groups have praised what they call “sound science”, which supports conclusions that are considered attractive (for other reasons). An exaggerated skepticism toward unwelcome research, in combination with unrealistic (or manufactured) doubt has been used time and again, e.g., by plaintiffs in tobacco litigations.²¹ A call for guidelines on “Good Epidemiological Practice” was embraced at first by independent researchers as a useful tool to stimulate high quality (and sound) science. However, strict interpretation of epidemiological quality criteria can be – and were – also applied to disregard epidemiological findings that for other reasons were regarded as unwelcome.

²⁰ San Sebastián M, Hurtig AK. Oil development and health in the Amazon basin of Ecuador: the popular epidemiology process. *Soc Sci Med* 2005; 60: 799-807.

²¹ Michaels D. 2005. Doubt is their product. *Sci Am* 292(6): 96-101.

This tactic was employed by industry groups to disqualify unwelcome “junk science”.²² Thus, these groups turned on its head the scientific rigor that had been considered a prerequisite in the traditional science paradigm, creating instead an unrealistic requirement for repetitive, controlled studies as a precondition for acceptable conclusions. This concept allowed for unwanted results to be criticized as “junk” and for uncertainties to be erroneously interpreted as an indication that no hazard was present.²³

Another common strategy is to apply “criteria” for causality in a very strict sense to counter unwanted conclusions. Although biostatistician (Sir) Austin Bradford Hill is often cited as a source for so-called criteria for causal relations, these aspects (not “criteria”), as Hill called them, should not be overinterpreted. In Hill’s own words, “All scientific work is incomplete... All scientific work is liable to be upset or modified by advancing knowledge. That does not confer upon us the freedom to ignore the knowledge we already have, or to postpone the action that it appears to demand at the given time.”²⁴

Thus, the epidemiological studies carried out in El Oriente should not be considered “junk science”, and causal “criteria” are not violated when drawing cautious conclusions. While the evidence available must be critically considered, the limitations of science must also be recognized. A balance needs to be achieved, where both the knowns and the unknowns are taken into account. The key in prudent interpretation is that, when a study fails to document with statistical certainty that a hazard is present, the results should not be misinterpreted as proof that a hazard is not present. Or, in short, absence of evidence is not evidence of absence.

Research is always affected by uncertainties, and many of them can easily blur a real association between an environmental hazard and its adverse effects. Thus, “noisy” studies, e.g., with imprecise estimates of the causative exposure, insensitive and nonspecific outcome measures, and incomplete or too short follow-up, are likely to detect only the most serious risks. The fact that the null hypothesis could not be rejected with confidence (or statistical significance) may be irrelevant. Thus, rather than simply relying only on studies that show statistical significance, we need to judge the overall plausibility and the possible impact of the uncertainties that may involve underestimation of adverse effects. We also need to consider the long-term consequences, the effects of mixed exposures and the impacts on vulnerable subpopulations, such as children and pregnant women – none of which have been studied to a sufficient extent so far.

In the past, skepticism has often prevailed, and “manufactured doubt” sometimes made the evidence look less convincing than it really was. While asbestos is a well-known example, a recent monograph from the European Environment Agency outlines many other illustrative cases, such as lead, mercury, and DDT.²⁵ In each of these cases, the risk was found to be greater as more and better evidence was obtained. Thus, the initial and early documentation underestimated the adverse health effects. The costs to society caused by

²² Ong EK, Glantz SA. Constructing “sound science” and “good epidemiology”: Tobacco, lawyers, and public relations firms. *Am J Public Health* 2001; 91: 1749-1757.

²³ Grandjean P. 2008. *op cit*.

²⁴ Hill AB. The Environment and disease: association or causation? *Proc. R. Soc. Med.* 1965; 58: 295-300.

²⁵ Gee D, Grandjean P, Hansen SF, van den Hove S, MacGarvin M, Martin J, Nielsen G, Quist D, Stanners D. Late Lessons from Early Warnings, volume II (EEA Report No 1/2013). Copenhagen: European Environment Agency, 2013.

disregarding these risks were enormous. Thus, false negatives (i.e., ignoring true hazards) can be costly to the individual victims as well as to society.

On the other hand, many other cases illustrate the advantages of reacting on early, plausible, although yet uncertain evidence. Among the best known US examples are the actions to control scrapie (thereby avoiding BSE and human disease risk), the bans of thalidomide and diethylstilbestrol (both toxic to the fetus), and the control of fluorocarbon uses (that destroy the ozone layer). All of these actions were precautionary and were later found to have saved society from enormous losses. Of note, few of these prudent actions would have withstood modern-day skepticism promoted by vested interests.

Given this experience, we need to avoid underestimation of early and uncertain information that may be erroneously interpreted as “negative”. Accordingly, the question on possible causality need to be rephrased: “Are we sufficiently confident that this exposure to a potential hazard leads to doses of a magnitude that can result in adverse effects that are serious enough to initiate transparent and democratic procedures to decide on appropriate intervention?”²⁶ Decisions based on a positive response to this question are often referred to as precautionary in the EU, although the EU, on balance, is not more precautionary than the US.

This is not to say that the possibility of false positives, i.e., alleged hazards that turn out to be innocuous, can be ignored.²⁷ But environmental hazards constitute a totally different situation, as the majority of industrial chemicals has been poorly studied, if at all. For example, after the EU promulgated chemicals regulations in 1981, of new chemicals marketed in the EU and tested by standardized procedures, about 70% are considered hazardous one way or another. The same is true for only a few percent of the “old” chemicals (including oil chemicals), most of which have not yet undergone similar toxicity testing. As new substances would seem unlikely to be particularly toxic as compared to those previously marketed, any belief in the safety of unstudied or understudied chemicals would appear naïve.

Actual occurrence of false positives in regard to environmental chemicals and preventive interventions would justify a view that “chemophobia” is affecting our assessment of chemical hazards. As also discussed in the European Environment Agency’s monograph, the study considered a total of 88 alleged false positives (i.e., chemicals or exposures that were erroneously claimed to be dangerous). This error was actually found to be true only in four cases, one of which being the swine flu scare, where vaccines, later found to be unnecessary, were stockpiled.²⁸ Thus, the evidence suggests that the prevalent tradition to withhold scientific conclusions pending solid proof most likely results in serious underestimations of environmental hazards.

²⁶ Grandjean P. Science for precautionary decision-making. In: Gee D, Grandjean P, Hansen SF, van den Hove S, MacGarvin M, Martin J, Nielsen G, Quist D, Stanners D. Late Lessons from Early Warnings, volume II (EEA Report No 1/2013). Copenhagen, European Environment Agency, 2013, pp. 517-35.

²⁷ The conclusions of many often-cited publications in major medical journals were later found to be wrong, probably in part because major medical journals prefer to publish attention-attracting results (Ioannidis JP. 2008. Why most discovered true associations are inflated. *Epidemiology* 19: 640-8).

²⁸ Hansen SF, Kraye von Krauss MP, Tickner JA. Categorizing mistaken false positives in regulation of human and environmental health. *Risk Anal* 2007; 27: 255-69.

Of additional importance, risks are often considered within a narrow frame, and formal risk assessments often ignore impacts of exposures that happen during early development, delayed or long-term adverse effects, cumulated and aggregated (via different pathways) exposures, and the consequences of mixed exposures. These concerns were recently highlighted by an expert committee of the National Research Council.²⁹

All of these considerations provide a general framework on which to build a prudent and considerate opinion on the health risks associated with the El Oriente pollution.

Conclusions

Existing evidence is insufficient to reach firm conclusions on the presence and magnitude of health risks associated with chemical hazards from the oil production in El Oriente. However, current knowledge on the hazards known to be present allows plausible conclusions that are also supported by existing epidemiology results. Although far from ideal, the human studies carried out support the existence of adverse health effects, some of which will likely develop further in the coming years. Several known uncertainties suggest that the studies available substantially underestimate the true extent of adverse effects, especially in regard to cancer. From a critical review of the evidence and from the perspective of experiences in various settings with other environmental hazards, the vast majority of which have been underestimated, I conclude that a serious health hazard is present from the oil production activities in El Oriente.

²⁹ National Research Council. Science and decisions: advancing risk assessment. Washington, D.C.: National Academy Press; 2009.

Appendix A

References

Expert opinions

Expert Opinion of Kenneth J. Goldstein, M.A., CGWP and Jeffrey W. Short, Ph.D. Regarding the Environmental Contamination From Texpet's E&P Activities in the Former Napo Concession Area Oriente Region, Ecuador, February 2013.

Expert Opinion of Suresh H. Moolgavkar, M.D., Ph.D. May 31, 2013.

Expert Opinion of Harlee S. Strauss, PhD Regarding human health-related aspects of the environmental contamination from Texpet's E&P activities in the former Napo concession area Oriente region, Ecuador. February 18, 2013.

Rejoinder Opinion of Harlee Strauss, Ph.D. Regarding Human Health Risks, Health Impacts, and Drinking Water Contamination Caused by Crude Oil Contamination in the Former Petroecuador-Texaco Concession, Oriente Region, Ecuador. December, 2013.

Published scientific literature

Aguilera F, Méndez J, Pásaro E, Laffon B. Review on the effects of exposure to spilled oils on human health. *J Appl Toxicol* 2010; 30: 291-301.

Center for Economic and Social Rights. Rights Violations in The Ecuadorian Amazon, The Human Consequences of Oil Development. CESR, 1994.

Gee D, Grandjean P, Hansen SF, van den Hove S, MacGarvin M, Martin J, Nielsen G, Quist D, Stanners D. Late Lessons from Early Warnings, volume II (EEA Report No 1/2013).

Copenhagen: European Environment Agency, 2013. URL:

<http://www.eea.europa.eu/publications/late-lessons-2>

Grandjean P. Science for precautionary decision-making. In: Gee D, Grandjean P, Hansen SF, van den Hove S, MacGarvin M, Martin J, Nielsen G, Quist D, Stanners D. Late Lessons from Early Warnings, volume II (EEA Report No 1/2013). Copenhagen, European Environment Agency, 2013, pp. 517-35. URL: <http://www.eea.europa.eu/publications/late-lessons-2/late-lessons-chapters/late-lessons-ii-chapter-26>

Grandjean P. Seven deadly sins of environmental epidemiology and the virtues of precaution. *Epidemiology* 2008; 19: 158-62.

Grandjean P, Budtz-Jørgensen E. An ignored risk factor in toxicology: The total imprecision of exposure assessment. *Pure Appl Chem* 2010; 82: 383-91.

Grandjean P, Eriksen ML, Ellegaard O, Wallin JA. The Matthew effect in environmental science publication: A bibliometric analysis of chemical substances in journal articles. *Environ Health* 2011; 10: 96.

Grandjean P, Harari R, Barr DB, Debes F. Pesticide exposure and stunting as independent predictors of neurobehavioral deficits in Ecuadorian school children. *Pediatrics* 2006; 117: 546-56.

Hansen SF, Kraye von Krauss MP, Tickner JA. Categorizing mistaken false positives in regulation of human and environmental health. *Risk Anal* 2007; 27: 255-69.

Harari R, Julvez J, Murata K, Barr D, Bellinger DC, Debes F, Grandjean P. Neurobehavioral deficits and increased blood pressure in school-age children prenatally exposed to pesticides. *Environ Health Perspect* 2010; 118: 890-6.

Hill AB. The Environment and disease: association or causation? *Proc. R. Soc. Med.* 1965; 58: 295-300.

Holman CD, Arnold-Reed DE, de Klerk N, McComb C, English DR. 2001. A psychometric experiment in causal inference to estimate evidential weights used by epidemiologists. *Epidemiology* 12: 246-55.

Hurtig AK, San Sebastián M. Epidemiology vs epidemiology: the case of oil exploitation in the Amazon basin of Ecuador. *Int J Epidemiol* 2005; 34: 1170-2.

Hurtig AK, San Sebastián M. Geographical differences in cancer incidence in the Amazon basin of Ecuador in relation to residence near oil fields. *Int J Epidemiol* 2002; 31: 1021-7.

Hurtig AK, San Sebastián M. Incidence of childhood leukemia and oil exploitation in the Amazon basin of Ecuador. *Int J Occup Environ Health* 2004; 10: 245-50.

Ioannidis JP. 2008. Why most discovered true associations are inflated. *Epidemiology* 19: 640-8.

Kelsh MA, Morimoto L, Lau E. Cancer mortality and oil production in the Amazon Region of Ecuador, 1990-2005. *Int Arch Occup Environ Health* 2009; 82: 381-95.

Michaels D. 2005. Doubt is their product. *Sci Am* 292(6): 96-101.

National Research Council. Science and decisions: advancing risk assessment. Washington, D.C.: National Academy Press; 2009. URL: http://www.nap.edu/catalog.php?record_id=12209

Ong EK, Glantz SA. Constructing "sound science" and "good epidemiology": Tobacco, lawyers, and public relations firms. *Am J Public Health* 2001; 91: 1749-1757.

Paz-y-Miño C, López-Cortés A, Arévalo M, Sánchez ME. Monitoring of DNA damage in individuals exposed to petroleum hydrocarbons in Ecuador. *Ann N Y Acad Sci* 2008; 1140: 121-8.

San Sebastián M, Armstrong B, Córdoba JA, Stephens C. Exposures and cancer incidence near oil fields in the Amazon basin of Ecuador. *Occup Environ Med.* 2001; 58:517-22.

San Sebastián M, Armstrong B, Stephens C. Outcomes of pregnancy among women living in the proximity of oil fields in the Amazon basin of Ecuador. *Int J Occup Environ Health* 2002; 8: 312-9.

San Sebastián M, Hurtig AK. Oil development and health in the Amazon basin of Ecuador: the popular epidemiology process. *Soc Sci Med* 2005; 60: 799-807.

Schwartz S, Carpenter KM. The right answer for the wrong question: consequences of type III error for public health research. *Am J Public Health* 1999; 89: 1175-80.

Appendix B - CV

Date: 11/20/2013

NAME: PHILIPPE GRANDJEAN, M.D., D.M.Sc.

ADDRESS:

Naboløs 4, DK-1206 Copenhagen, Denmark
10 Dana Street, Apt 315, Cambridge, MA 02138, USA

DATE & PLACE OF BIRTH:

March 1, 1950. Copenhagen, Denmark.

EDUCATION:

1974, M.D., University of Copenhagen
1975, Diploma in basic medical research, University of Copenhagen
1979, D.M.Sc. (dr.med.), University of Copenhagen

POSTDOCTORAL TRAINING (Research Fellowships):

1974-1975 Postgraduate training fellowship, University of Copenhagen
1975-1978 Research fellow, Institute of Hygiene, Univ. Copenhagen
1978-1980 Senior research scholar, Fulbright Foundation
Visiting fellow, Department of Community Medicine,
Mount Sinai School of Medicine, New York

ACADEMIC APPOINTMENTS:

2003- Adjunct Professor of Environmental Health, Harvard School of Public Health,
Boston
1994-2002 Adjunct Professor of Public Health (Environmental Health), Boston University
School of Public Health, Boston
Adjunct Professor of Neurology, Boston University School of Medicine, Boston
1983- Consultant in Toxicology, National Board of Health, Danish Ministry of Health
1982- Professor and Chair of Environmental Medicine, Odense University / University of
Southern Denmark, Odense, Denmark
1980-1982 Director, Department of Occupational Medicine, Danish National Institute of
Occupational Health, Copenhagen, Denmark

HONORS AND DISTINCTIONS:

Prize essay in medicine, University of Copenhagen (1972)
Fulbright senior research scholarship (1978)
Keynote speaker, Odense University anniversary (1983)
Gitlitz Memorial Lecture, Association of Clinical Scientists, USA (1985)
Fellow, Collegium Ramazzini (1987)
Knight of the Dannebrog, awarded by the Queen of Denmark (1990)
The Dannin prize for medical research (1991)
Fellow, American Association for the Advancement of Science (1994)

Irish Congress Lecturer, Royal College of Physicians of Ireland and Irish Society of Toxicology (1996)

Knight of the Dannebrog, First Degree, awarded by the Queen of Denmark (2003)

'Mercury madness award' for excellence in science in the public interest from eight US environmental organizations (2004)

Emeritus Fellow, International Union of Pure and Applied Chemistry, IUPAC (2009)

Honorary Research Award, International Order of Odd Fellows (2010)

Science Communication Award, University of Southern Denmark (2012)

MAJOR PROFESSIONAL SERVICE:

United States:

Agency for Toxic Substances and Disease Registry:

Workshop Rapporteur, Neurobehavioral Test Batteries for Use in Environmental Health Field Studies (1992);

Member, Expert Panel of Mercury (1998)

Boston Environmental Hazards Center: Consultant (1994-1999)

National Institutes of Health: Member of Special emphasis panel (2009-)

Society of Occupational and Environmental Health: Member, Governing Council (1990-1993)

U.S. Environmental Protection Agency:

Member, SAB/SAP Endocrine Disruptor Screening Program Subcommittee (1998-1999);

Member, Food Quality Protection Act (FQPA) Science Review Board (SRB)(1999-

2003); White House Office of Science and Technology Policy: Team leader and presenter, Workshop on Scientific Issues Relevant to Assessment of Health Effects from Exposure to Methylmercury (1998)

U.S.FDA, Food Advisory Committee, Methylmercury: Invited expert (2002)

White House Office of Science and Technology Policy: Team leader and presenter, Workshop on Scientific Issues Relevant to Assessment of Health Effects from Exposure to Methylmercury (1998)

Denmark:

Danish Medical Research Council:

Consultant on environmental medicine (1985-1990);

Member, Joint Research Council Committee on Environmental Research (1986-1991);

Member of DMRC (1992-1998);

Danish Society of Community Medicine:

Secretary (1977-1978)

Danish Society of Industrial Medicine:

Board Member (1974-1983)

Ministry of Education:

Member, Committee on Toxicology (1984-1986);

Member, Committee on Environmental Education (1986-1987)

Ministry of the Environment:

Member, Council on Environmental Chemicals (1983-1989);

Member, Environmental Appeal Board (1986-2010);

Member, Environmental Research Council (1990-1992);

Member, Advisory Committee on Pesticide Research (1995-2004);

Member, Advisory Committee on Arctic Research (1996-2004)

Ministry of Health: numerous committee appointments;
Chair, Committee on Risk Perception (2000-2001)

Ministry of Labour:
Consultant on Occupational Health, Council on Occupational Safety and Health (1983-1993);
Member, Occupational Health Council Research Committee (on behalf of the Danish Medical Research Council) (1984-1990 and 1999-2003)

Ministry of Research:
Chair, Committee on Research at the Faroe Islands (1995-1996);
Member, Committee on Scientific Dishonesty (2004-2006);
Chair, Program Committee on Non-Ionizing Radiation (2004-2009)

Odense University (from 2000 University of Southern Denmark), elected offices:
Chairman, Institute of Community Health (1982-1985; 1996-1999);
Member of Executive Committee, Institute of Community Health (From 2000 Institute of Public Health) (1986-1995; 2000-2005);
Member, Faculty Research Committee (1983-1985);
Member, Curriculum Committee (1984-1986);
Member, Faculty Council (1985-1993);
Vice-Dean (1991-1993)

International:

Academy of Finland:
Member of panel evaluating the National Institute of Public Health (1995), site visit of center of excellence (2001)

Association of Schools of Public Health in the European Region:
Treasurer (1975-1977)

BioMedCentral: Member, Editors Advisory Group (2011-2013)

Collegium Ramazzini:
President, International Conference, The precautionary principle: Implications for research and prevention in environmental and occupational health (2002);
Member, Executive Council (2005-2013)

Commission of the European Communities:
National Expert, Working Party on Environmental and Lifestyle-Related Diseases (1988-1990); Member, Scientific Committee on Emerging and Newly Identified Health Risks; - Working group on Dental Amalgam (Human Health) (2012-2013)
Ad hoc Scientific Advisor on Risk Assessment (2009-)

European Environment Agency: Member of the Scientific Committee (2012-2015)

European Food Safety Authority:
Member, Panel on Contaminants in the Food Chain (2003-2009)
Member of Working Groups on mercury, polychlorinated biphenyls, cadmium, lead, and benchmark dose (2004-2010)

International Agency for Research on Cancer:
Member of Task Group, Monographs on the Evaluation of Carcinogenic Risks to Humans, Vol. 47 (1988), 49 (1989), as chairman, 58 (1993), and as subgroup chair 100C (2009)

International Commission on Occupational Health:

Danish Delegation Secretary (1982-90);

Member, Scientific Committee on the Toxicology of Metals (1987-present);

Member of the Board (1990-1996)

International Programme on Chemical Safety:

Member of Task Group, Environmental Health Criteria, Vol. 36 (1984) and 72 (1986)

International Society for Environmental Epidemiology:

Councillor (1991-1994)

International Union of Pure and Applied Chemistry:

Member, Subcommittee on the Toxicology of Nickel (1979-1989);

Titular Member (1985-1991) and Chairman (1987-1991), Commission on Toxicology;

Chairman, Subcommittee on Risk Assessment (1985-1989)

Karolinska Institute (Stockholm, Sweden):

Member of international evaluation panel on environmental medicine (1993)

Ministry for Scientific Policy (Belgium):

Consultant on national research program on health hazards (1990 and 1994)

NATO Priority Area Panel on Environmental Security:

Member (1996-1997)

Norwegian Research Council:

Ad hoc reviewer (2001-2008)

Chairman, Environment and Health Review Group (2009-2010)

Member of steering committee (2011-present)

Spain: INMA (Infancia y Medio Ambiente) Project Steering Committee: Member (2010-present)

Swedish Council for Work Life Research:

Member, Priority Committee on Chemical Health Risks (1997-1998)

U.N. Environment Programme:

Member, Global Mercury Assessment Working Group (2002)

World Health Organization:

Temporary Adviser or Consultant on numerous occasions, five times elected Rapporteur

PROFESSIONAL SOCIETIES:

American Association for the Advancement of Science (Fellow, 1994)

American Public Health Association

Collegium Ramazzini (Fellow, 1987; Member of the Executive Council, 2005-2013)

Danish Medical Association: Member, Prevention Council (2011-2014); Danish Societies of Clinical Chemistry, Epidemiology, Occupational Medicine and Community Medicine

Faroese Society of Science and Letters

International Commission on Occupational Health

International Epidemiological Association

International Society for Environmental Epidemiology

Society of Occupational and Environmental Health

EDITORIAL BOARDS:

American Journal of Industrial Medicine (1987-)

Applied Organometal Chemistry (1985-1991)

Arbejdsmiljø (Occupational Environment, in Danish, 1983-1990)

Archives of Environmental Health (*European Editor*, 1986-1992)
 Archives of Toxicology (1987-present)
 Biomarkers (1996-2001)
 Critical Reviews in Toxicology (1985-2012)
 Danish Medical Bulletin (1994-2003)
 Environmental Health (*Editor-in-Chief*, 2002- present)
 Environmental Health Perspectives (2003- present)
 Environmental Research (1981-1994, *Associate Editor*, 1995- present)
 Industrial Health (2000-2005)
 International Journal of Hygiene and Environmental Health (2001- present)
 International Journal of Occupational and Environmental Health (1994- present)
 International Journal of Occupational Medicine & Environmental Health (1991- present)
 Journal of Clean Technology, Environmental Toxicology, and Occupational Medicine (1992-1998)
 Journal of Environmental Medicine (1998-1999)
 Naturens Verden (Natural Science, in Danish) (1987-1991)
 Ugeskrift for Laeger (Danish Medical Journal, in Danish) (1991-2007)

MAJOR RESEARCH INTERESTS:

Dr. Grandjean's environmental epidemiology research focuses especially on delayed effects of developmental exposure to environmental chemicals. Studies on marine contaminants were initiated with Dr. Pal Weihe in the Faroe Islands in the mid-1980s; prospective cohort studies on almost 3,000 Faroese children have focused on neurotoxicity, but the most recent projects have also examined general development and immunotoxicity. The results have inspired downward revisions of methylmercury exposure limits internationally. Other recent studies have targeted age-related functional deficits and degenerative diseases, such as Parkinson's disease, cardiovascular disease, and diabetes in regard to life-time exposure to methylmercury and persistent lipophilic contaminants. Other efforts relate to endocrine disruption caused by organochlorine substances; carcinogenicity of exposure to zeolite and other mineral fibers; percutaneous absorption of chemicals, and carcinogenicity and neurotoxicity of fluoride exposure. Dr. Grandjean has also published on research ethics, genetic susceptibility, the setting of exposure limits, and the impact of the precautionary principle on prevention and research.

RESEARCH SUPPORT:

2000-2006 NIEHS	PI: Philippe Grandjean
Mercury associated neurobehavioral deficit in children	
2001-2003 Nordic Arctic Research Programme (NARP)	PI: Philippe Grandjean
Changing patterns of biomagnified pollutants in the northern marine environment	
2001-2004 Danish Medical Research Council	PI: Philippe Grandjean
Exposure assessment for endocrine disruptors	
2002-2004 Danish Medical Research Council	PI: Philippe Grandjean
Environmental epidemiology research	
2003-2004 European Commission	PI: Philippe Grandjean
Assessment of Neurobehavioral Endpoints and Markers of Neurotoxicant Exposures (ANEMONE)	
2003-2005 Danish Medical Research Council	PI: Philippe Grandjean

Research in hormone related substances
2003-2006 NIEHS ES 11687 PI: Philippe Grandjean
Effects of perinatal disruptors in children
2003-2007 EPA STAR RD-83075801-0 PI: Philippe Grandjean
Children's vulnerability to environmental immunotoxicant
2004-2007 NOAA NA04OAR4600207 PI: David Senn
Coastal eutrophication and hypoxia: implications for mercury methylation, mercury
biomagnification, and human health
2004-2011 NIEHS ES12199 PI: Philippe Grandjean
Epidemiology of immunotoxicant exposure in children
2006-2011 NIEHS ES13692 PI: Philippe Grandjean
Health effects of lifetime exposure to food contaminants
2006-2011 European Commission (Coordinator, Staffan Skerfving, Sweden)
Public health impact of metals exposure PI: Philippe Grandjean
2006-2012 NIEHS ES14460 PI: Philippe Grandjean
Three-generation human study of reproductive effects of marine food contaminants
2007-2012 NIEHS ES14433 PI: Dariush Mozaffarian
Mercury, selenium, and risk of cardiovascular disease in women and men
2008-2012 Danish Council for Strategic Research PI: Philippe Grandjean
Environmental pollutant impact on antibody production against current and new childhood vaccines

Major Current Funding:

2007-2013 NIEHS ES009797 PI: Philippe Grandjean
Mercury associated neurobehavioral deficit in children
2011-2016 NIEHS ES012199 PI: Philippe Grandjean
Epidemiology of immunotoxicant exposure in children
2012-2017 NIEHS ES021993 and NSF OCE-1321612 PI: Philippe Grandjean
Immunotoxicity in Humans with Lifetime Exposure to Ocean Pollutants
2013-2018 NIEHS ES021477 PI: Philippe Grandjean
Glucose Metabolism in Adults Prenatally Exposed to Diabetogenic Pollutants
2013-2017 NIEHS ES023376 PI: Philippe Grandjean
Gut Microbiome in Adults with Early Life Exposures to Environmental Chemicals

TEACHING EXPERIENCE

1982- Professor of Environmental Medicine, Odense University / University of Southern
Denmark
1994-2002 Adjunct Professor of Public Health (Environmental Health) and Neurology, Boston
University School of Medicine, Boston
2003- Adjunct Professor of Environmental Health, Harvard School of Public Health, Boston

Numerous teaching assignments abroad, including guest lectures at many universities and related tasks, e.g. as external examiner, National University of Singapore (1995). Regular teacher at the École des hautes études en santé publique (French school of public health).

BIBLIOGRAPHY

Publications in international peer-reviewed journals

1. Grandjean P, Holma B. A history of lead retention in the Danish population. *Environ Biochem Physiol* 1973; 3: 268-73.
2. Grandjean P. Lead in Danes, historical and toxicological studies. *Environ Qual Saf* 1975; Suppl. Vol. 2: 6-75. PMID: 11003693. Grandjean P. Possible effect of lead on egg-shell thickness in kestrels 1874-1974. *Bull Environ Contam Toxicol* 1976; 16: 101-6. PMID: 963303
4. Grandjean P. Regional distribution of lead in human brains. *Toxicol Lett* 1978; 2: 65-9. 5. Nielsen T, Jensen KA, Grandjean P. Organic lead in normal human brains. *Nature (Lond.)* 1978; 274: 602-3. PMID: 79140
6. Grandjean P. Lead concentration in single hairs as a monitor of occupational lead exposure. *Int Arch Occup Environ Health* 1978; 42: 69-81. PMID: 721311
7. Grandjean P, Lintrup J. Erythrocyte-Zn-protoporphyrin as an indicator of lead exposure. *Scand J Clin Lab Invest* 1978; 38: 669-75. PMID: 715369
8. Grandjean P, Arnvig E, Beckmann J. Psychological dysfunctions of lead-exposed workers: Relation to biological parameters of exposure. *Scand J Work Environ Health* 1978; 4: 295-303. PMID: 734390
9. Grandjean P. Widening perspectives of lead toxicity, a review of health effects of lead exposure in adults. *Environ Res* 1978; 17: 303-21. (Also published as a special report to the U.S. National Institute of Environmental Health Sciences) PMID: 400972
10. Grandjean P. Occupational lead exposure in Denmark: Screening with the haematofluorometer. *Br J Ind Med* 1979; 36: 52-8. PMID: 1008492
11. Grandjean P, Nielsen OV, Shapiro IM. Lead retention in ancient Nubian and contemporary populations. *J Environ Path Toxicol* 1979; 2: 781-7. PMID: 370326
12. Grandjean P, Nielsen T. Organolead compounds, environmental health aspects. *Residue Rev* 1979; 72: 97-148. PMID: 388558
13. Arnvig E, Grandjean P, Beckmann J. Neuropsychological effect of heavy lead exposure determined with psychological tests. *Toxicol Lett* 1980; 5: 399-404. PMID: 19635390
14. Hertz MM, Bolwig TG, Grandjean P, Westergaard E. Lead poisoning and the blood-brain barrier. *Acta Neurol Scand* 1981; 63: 286-96. PMID: 7223359
15. Grandjean P, Selikoff IJ, Shen SK, Sundermann FW Jr. Nickel concentrations in plasma and urine of shipyard workers. *Am J Ind Med* 1981; 1: 181-9. PMID: 7342766
16. Olsen NB, Hollnagel H, Grandjean P. Indicators of lead exposure in an adult Danish suburban population. *Dan Med Bull* 1981; 28: 168-76. PMID: 7327002
17. Grandjean P, Olsen NB, Hollnagel H. Influence of smoking and alcohol consumption on blood lead levels. *Int Arch Occup Environ Health* 1981; 48: 391-7. PMID: 7298208
18. Grandjean P, Kon SH. Lead exposure of welders and bystanders in a ship repair yard. *Am J Ind Med* 1981; 2: 65-70. PMID: 7349036
19. Grandjean P, Lintrup J. Sources of variation in fluorometry of zinc-protoporphyrin in blood. *Scand J Work Environ Health* 1981; 7: 311-2. PMID: 7347917

20. Grandjean P, Olsen NB, Hollnagel H. Occupationally related lead exposure in the general population. *Scand J Work Environ Health* 1981; 7: 298-301. PMID: 6982510
21. Grandjean P. Occupational fluorosis through 50 years: clinical and epidemiological experiences. *Am J Ind Med* 1982; 3: 227-36. PMID: 7137176
22. Nielsen OV, Grandjean P, Bennike P. Chemical analyses of archaeological bone samples: Evidence for high lead exposure on the Faroe Islands. *J Dan Archaeol* 1982; 2: 145-8. (also published in Faroese: Blyggj i foroyingum, *Mondul* 1983; 9: 27-31)
23. Grandjean P. Storage depots in the body: Passive retention or time bomb? (Editorial) *Am J Ind Med* 1983; 4: 489-90. PMID:6650508
24. Grandjean P, Wulf HC, Niebuhr E. Sister chromatid exchange in response to variations in occupational lead exposure. *Environ Res* 1983; 32: 199-204. PMID:6617612
25. Grandjean P, Thomsen G. Reversibility of skeletal fluorosis. *Br J Ind Med* 1983; 40: 456-61. PMID:PMC1009220
26. Grandjean P. Lead poisoning: Hair analysis shows the calendar of events. *Hum Toxicol* 1984; 3: 223-8. PMID:6745962
27. Grandjean P, Hansen ON, Lyngbye K. Analysis of lead in circum-pulpal dentin of deciduous teeth. *Ann Clin Lab Sci* 1984; 14:270-5. PMID:6465830
28. Eskildsen J, Grandjean P. Lead exposure from lead pellets: Age-related accumulation in mute swans. *Toxicol Lett* 1984; 21: 225-9. PMID:6719507
29. Grandjean P, Juel K, Jensen OM. Mortality and cancer morbidity after heavy occupational fluoride exposure. *Am J Epidemiol* 1985; 121: 57-64. PMID:3964992
30. Lyngbye T, Hansen ON, Vangberg L, Grandjean P. Lead as a cause of SIDS. *N Engl J Med* 1985; 10: 954-5. PMID:4033730
31. Grandjean P. Reference intervals for toxic metals: Problems and prospects. *Ann Clin Lab Sci* 1986; 16: 67-74. PMID:3511837
32. Grandjean P, Bach E. Indirect exposures: The significance of bystanders at work and at home. *Am Ind Hyg Assoc J* 1986; 47: 819-24. PMID:3799485
33. Grandjean P, Lyngbye T, Hansen ON. Lead concentration in deciduous teeth: Variation related to tooth type and analytical technique. *J Toxicol Environ Health* 1986; 19: 437-45. PMID:3772989
34. Grandjean P. After Chernobyl (Editorial). *Arch Environ Health* 1986; 41: 277.
35. Andersen O, Grandjean P. Effects of inorganic and organic lead compounds on chromosomal length in human lymphocytes. *Appl Organomet Chem* 1987; 1: 15-19.
36. Grandjean P, Andersen O, Nielsen GD. Carcinogenicity of occupational nickel exposures: An evaluation of the epidemiological evidence. *Am J Ind Med* 1988; 13: 193-209. PMID:3281454
37. Christoffersen J, Christoffersen MR, Larsen R, Rostrup E, Tingsgaard P, Andersen O, Grandjean P. Interaction of cadmium ions with calcium hydroxyapatite crystals: A possible mechanism contributing to the pathogenesis of cadmium-induced diseases. *Calcif Tissue Int* 1988; 42: 331-9. PMID:2840183
38. Grandjean P, Berlin A, Gilbert M, Penning W. Preventing percutaneous absorption of industrial chemicals: The "skin" denotation. *Am J Ind Med* 1988; 14: 97-107. PMID:3044066

39. Lyngbye T, Hansen ON, Grandjean P. Bias resulting from non-participation in childhood epidemiological studies: A study of low-level lead exposure. *Scand J Soc Med* 1988; 16: 209-15.
40. Grandjean P. Ancient skeletons as silent witnesses of lead exposures in the past. *CRC Crit Rev Toxicol* 1988; 19:11-21. PMID:3056656
41. Lyngbye T, Hansen O, Grandjean P, Trillingsgaard A, Beese I. Traffic as a source of lead exposure in childhood. *Sci Total Environ* 1988; 71: 461-7. PMID:2457251
42. Madsen HHT, Skjødt T, Jørgensen PJ, Grandjean P. Blood lead levels in patients with lead shot retained in the appendix. *Acta Radiol* 1988; 29: 745-6. PMID:3190952
43. Andersen O, Grandjean P. Effects of tetraethylthiuram disulfide on the toxicokinetics of cadmium in mice. *Pharmacol Toxicol* 1989; 64: 210-5. PMID:2755922
44. Lyngbye T, Hansen ON, Grandjean P. Neurological deficits in children: Medical risk factors and lead exposure. *Neurotoxicol Teratol* 1989; 10: 531-7. PMID:2468990
45. Grandjean P, Hollnagel H, Hedegaard L, Christensen JM, Larsen S. Blood lead-blood pressure relationships: Alcohol intake and hemoglobin as confounders. *Am J Epidemiol* 1989; 129: 732-9. PMID:2468990
46. Hansen ON, Trillingsgaard A, Beese I, Lyngbye T, Grandjean P. A neuropsychological study of children with elevated dentine lead level: Assessment of the effect of lead in different socioeconomic groups. *Neurotoxicol Teratol* 1989; 11: 205-13. PMID:2787889
47. Grandjean P, Jensen BM, Sandø SH, Jørgensen PJ, Antonsen S. Delayed blood regeneration in lead exposure: An effect on reserve capacity. *Am J Publ Health* 1989; 79: 1385-8. PMID:PMCID:PMC1350180
48. Grandjean P. Bone analysis: Silent testimony of lead exposures in the past. *Medd Grønland Man Soc* 1989; 12: 156-60.
49. Grandjean P, Hørder M, Thomassen Y. Fluoride, aluminum and phosphate kinetics in cryolite workers. *J Occup Med* 1990;32:58-63. PMID:2324845
50. Grandjean P, Kristensen K, Jørgensen PJ, Nielsen GD, Andersen O. Trace element status in alcoholism before and during disulfiram treatment. *Ann Clin Lab Sci* 1990; 20: 28-35. PMID:2310170
51. Nielsen GD, Jepsen LV, Jørgensen PJ, Grandjean P, Brandrup F. Nickel-sensitive patients with vesicular hand eczema: Oral challenge with a diet naturally high in nickel. *Br J Dermatol* 1990; 122: 299-308. PMID:2322495
52. Lyngbye T, Hansen ON, Trillingsgaard A, Beese I, Grandjean P. Learning disabilities in children: significance of low-level lead-exposure and confounding factors. *Acta Paed Scand* 1990; 79: 352-60. PMID:2333751
53. Jensen BM, Sandø SH, Grandjean P, Wiggers P, Dalhøj J. Screening with zinc-protoporphyrin for iron deficiency in non-anemic female blood donors. *Clin Chem* 1990; 36: 846-8. PMID:2357820
54. Lyngbye T, Grandjean P, Hansen ON, Jørgensen PJ. Validity and interpretation of blood lead levels: A study of Danish school children. *Scand J Clin Lab Invest* 1990; 50: 441-9. PMID: 2392655

55. Bonde I, Beck H-I, Jørgensen PJ, Grandjean P, Brandrup F. Nickel in intercellular fluid, comparison between nickel-allergic patients and controls. *Acta Derm Venereol (Stockh)* 1990; 70: 300-3. PMID:1977253
56. Lyngbye T, Hansen ON, Grandjean P. Predictors of tooth-lead level with special reference to traffic. *Int Arch Occup Environ Health* 1990; 62: 417-22. PMID:1700966
57. Grandjean P, Jørgensen PJ. Retention of lead and cadmium in prehistoric and modern human teeth. *Environ Res* 1990; 53: 6-15. PMID:2226378
58. Lyngbye T, Hansen ON, Grandjean P. Lead concentration in deciduous teeth from Danish school children. *Dan Med Bull* 1991; 38: 89-93. PMID:2026055
59. Grandjean P, Jacobsen IA, Jørgensen PJ. Chronic lead poisoning treated with DMSA. *Pharmacol Toxicol* 1991; 68: 266-9. PMID:1650943
60. Grandjean P. Effects on reserve capacity, significance for exposure limits. *Sci Total Environ* 1991; 101: 25-32. PMID:2057767
61. Grandjean P, Jørgensen PJ, Viskum S. Temporal and interindividual variation in erythrocyte zinc-protoporphyrin in lead-exposed workers. *Br J Ind Med* 1991; 48: 254-7. PMID:1035365
62. Grandjean P, Sandoe SH, Kimbrough RD. Nonspecificity of clinical signs and symptoms caused by environmental chemicals. *Hum Exp Toxicol* 1991; 10: 167-73. PMID:1678944
63. Grandjean P, Lyngbye T, Hansen ON. Lessons from a Danish study on neuropsychological impairment related to lead exposure. *Environ Health Perspec* 1991; 94: 111-5. PMID:1567959
64. Grandjean P, Andersen O. Lung cancer in filling station attendants. *Am J Ind Med* 1991; 20: 763-8. PMID:1725242
65. Grandjean P, Weihe P, Jørgensen PJ, Clarkson T, Cernichiari E, Viderø T. Impact of maternal seafood diet on fetal exposure to mercury, selenium, and lead. *Arch Environ Health* 1992; 47: 185-95. PMID:1596101
66. Grandjean P, Nielsen GD, Jørgensen PJ, Hørder M. Reference intervals for trace elements in blood: Significance of risk factors. *Scand J Clin Lab Invest* 1992; 52: 321-337. PMID:1439518
67. Nordberg G, Brune D, Gerhardsson L, Grandjean P, Vesterberg O, Wester PO. The ICH and IUPAC international programme for establishing reference values of metals. *Sci Total Environ* 1992; 120: 17-21. PMID:1641636
68. Grandjean P, Olsen JH, Jensen OM, Juel K. Cancer incidence and mortality in workers exposed to fluoride. *J Natl Cancer Inst* 1992; 84: 1903-9. PMID:1460672
69. Grandjean P. Individual susceptibility to toxicity. *Toxicol Lett* 1992; 64/65: 43-51. PMID:1471195
70. Grandjean P. International research on the relation between health and the environment (summary in French). *Santé Publique* 1992; 4: 103-8.
71. Grandjean P. Symposium synthesis, Application of neurobehavioral methods in environmental and occupational health. *Environ Res* 1993; 60: 57-61.
72. Grandjean P, Weihe P. Neurobehavioral effects of intrauterine mercury exposure: potential sources of bias. *Environ Res* 1993; 61: 176-83. PMID:8472672
73. Damm D, Grandjean P, Lyngbye T, Trillingsgaard A, Hansen ON. Early lead exposure and neonatal jaundice: Relation to neurobehavioral performance at 15 years of age. *Neurotoxicol Teratol* 1993; 15: 173-81. PMID:8336678

74. Duffus JH and the IUPAC Working Party (Brown SS, de Fernicola N, Grandjean P, Herber RF, Morris CR, Sokal JA). Glossary for chemists of terms used in toxicology (IUPAC Recommendations 1993). *Pure Appl Chem* 1993; 65: 2003-2122.
75. Grandjean P, Andersen D. Scientific dishonesty: a Danish proposal for evaluation and prevention. *J Exposure Anal Environ Epidemiol* 1993; 3, Suppl. 1: 265-70. PMID:9857310
76. Grandjean P. International perspectives of lead exposure and lead toxicity. *Neurotoxicol* 1993; 24: 9-14. PMID:8247415
77. Olsen S, Grandjean P, Weihe P, Viderø T. Seafood intake in pregnancy as a determinant of birth weight: Evidence for a dose-dependent relationship. *J Epidemiol Comm Health* 1993; 47: 436-40. PMID:PMC1059854
78. Grandjean P, Jørgensen PJ, Weihe P. Human milk as a source of methylmercury exposure in infants. *Environ Health Perspec* 1994; 102: 74-7. PMID:PMC1567218
79. Dalgård C, Grandjean P, Jørgensen PJ, Weihe P. Mercury in the umbilical cord: Implications for risk assessment for Minamata disease. *Environ Health Perspec* 1994; 102: 548-50. PMID:PMC1569759
80. Grandjean P, Weihe P, Nielsen JB. Methylmercury: Significance of intrauterine and postnatal exposures. *Clin Chem* 1994; 40: 1395-1400. PMID:8013126
81. Grandjean P, Brown S, Reavey P, Young D. Biomarkers of chemical exposure: state of the art. *Clin Chem* 1994; 40: 1360-2. PMID:8013119
82. Nielsen JB, Andersen O, Grandjean P. Evaluation of mercury in hair, blood and muscle as biomarkers for methylmercury exposure in male and female mice. *Arch Toxicol* 1994; 68: 317-21. PMID:8085943
83. Johnson BL, Grandjean P, Amler R. Neurobehavioral testing and hazardous chemical sites. *Neurotoxicol Teratol* 1994; 16: 485-7. PMID:7845331
84. Grandjean P, Weihe P, White RF. Milestone development in infants exposed to methylmercury from human milk. *Neurotoxicol* 1995; 16: 27-33. PMID:7603642
85. Grandjean P. Individual susceptibility in occupational and environmental toxicology. *Toxicol Lett* 1995; 77: 105-8. PMID:7618123
86. Grandjean P. Biomarkers in epidemiology. *Clin Chem* 1995; 41: 1800-3. PMID:7497635
87. Grandjean P, Brown SS, Reavey P, Young DS. Biomarkers in environmental toxicology: State of the art. *Clin Chem* 1995; 41: 1902-4. PMID:7497652
88. Grandjean P, Weihe P, Needham LL, Burse VW, Patterson DG Jr, Sampson EJ, Jørgensen PJ, Vahter M. Relation of a seafood diet on mercury, selenium, arsenic, and PCBs and other organochlorines in human milk. *Environ Res* 1995; 71: 29-38. PMID:8757236
89. Grandjean P, Sorsa M. Ethical aspects of genetic predisposition to environmentally-related disease. *Sci Total Environ* 1996; 184: 37-43. PMID:8693344
90. Grandjean P, White RF, Weihe P. Neurobehavioral epidemiology: Application in risk assessment. *Environ Health Perspec* 1996; 104 (Suppl.4): 397-400. PMID:PMC1469607
91. Dahl R, White RF, Weihe P, Sorensen N, Letz R, Hudnell K, Otto DA, Grandjean P. Feasibility and validity of three computer-assisted neurobehavioral tests in 7-year old children. *Neurotoxicol Teratol* 1996; 18: 413-9. PMID:8866532

92. Toppari J, Larsen JC, Christiansen P, Giwercman A, Grandjean P, Guillette LJ, Jr, Jégou B, Jensen TK, Jouannet P, Keiding N, Leffers H, McLachlan JA, Meyer O, Müller J, Rajper-DeMeyts E, Scheike T, Sharpe R, Sumpter J, Skakkebaek NE. Male reproductive health and environmental xenoestrogens. *Environ Health Perspec* 1996; 104 (Suppl.4): 741-803. PMID:PMC1469672
93. Weihe P, Grandjean P, Debes F, White R. Health implications for Faroe Islanders of heavy metals and PCBs from pilot whales. *Sci Tot Environ* 1996; 186: 141-8. PMID:8685706
94. Guldager B, Jorgensen PJ, Grandjean P. Metal excretion and magnesium retention in patients with intermittent claudication treated with intravenous disodium EDTA. *Clin Chem* 1996; 42: 1938-42. PMID:8969629
95. Lynge E, Andersen A, Nilsson R, Barlow L, Pukkala E, Nordlinder R, Boffetta P, Grandjean P, Heikkilä P, Hörte L-G, Jakobsson R, Lundberg I, Moen B, Partanen T, Riise T. Risk of cancer and exposure to gasoline vapors. *Am J Epidemiol* 1997; 145: 449-58. PMID:9048519
96. Grandjean P. Impartiality in research (editorial). *Int J Occup Environ Hlth* 1997; 3: 158-60.
97. Andersen HR, Nielsen JB, Nielsen F, Grandjean P. Antioxidative enzyme activities in human erythrocytes. *Clin Chem* 1997; 43: 562-8. PMID:9105255
98. Nielsen F, Mikkelsen BB, Nielsen JB, Andersen HR, Grandjean P. Plasma-malondialdehyde as biomarker for oxidative stress: Reference interval and effects of lifestyle factors. *Clin Chem* 1997; 43: 1209-14. PMID:9216458
99. Grandjean P, Weihe P, White RF, Debes F, Araki S, Yokoyama K, Murata K, Sørensen N, Dahl R, Jorgensen PJ. Cognitive deficit in 7-year-old children with prenatal exposure to methylmercury. *Neurotoxicol Teratol* 1997; 19: 417-28. PMID:9392777
100. Grandjean P, Guldager B, Larsen IB, Holmstrup P, Jørgensen PJ. Placebo response in environmental disease: Chelation therapy of patients with symptoms related to amalgam fillings. *J Occup Environ Med* 1997; 39: 707-14. PMID:9273873
101. Andersen HR, Jeune B, Nybo H, Nielsen JB, Andersen-Ranberg K, Grandjean P. Low activity of superoxide dismutase and high activity of glutathione reductase in erythrocytes from centenarians. *Age and Ageing* 1998; 27: 643-8. PMID:12675104
102. Nielsen JB, Grandjean P, Jorgensen PJ. Predictors of blood lead concentrations in the lead-free petrol era. *Scand J Work Environ Health* 1998; 24: 153-6. (Also published as Nielsen JB, Grandjean P, Jorgensen PJ. Danskernes bly i blodet efter overgang til blyfri benzin. *Ugeskr Laeger* 1998; 160: 4768-71.) PMID:9630064
103. Grandjean P, Weihe P, White RF, Debes F. Cognitive performance of children prenatally exposed to "safe" levels of methylmercury. *Environ Res* 1998; 77: 165-72. PMID:9600810
104. Akagi H, Grandjean P, Takizawa Y, Weihe P. Methylmercury dose estimation from umbilical cord concentrations in patients with Minamata disease. *Environ Res* 1998; 77: 98-103. PMID:9600802
105. Høyer AP, Grandjean P, Jorgensen T, Brock JW, Hartvig HB. Organochlorine exposure and breast cancer. *Lancet* 1998; 352: 1816-20. (Also published in Danish, *Ugeskr Laeger* 2000; 162: 922-6.) PMID:9851382
106. Netterstrøm B, Grandjean P. Occupational and environmental medicine in Denmark. *Int Arch Occup Environ Health* 1998; 71: 3-6. PMID:9523242

107. Grandjean P, Weihe P. A new era of mercury hazards (editorial). *Environ Res* 1998; 77: 67.
108. Nielsen GD, Soderberg U, Jorgensen PJ, Templeton DM, Rasmussen SN, Andersen KE, Grandjean P. Absorption and retention of nickel from drinking water in relation to food intake and nickel sensitivity. *Toxicol Appl Pharmacol* 1999; 154: 67-75. PMID:9882593
109. Viskum S, Rabjerg L, Jorgensen PJ, Grandjean P. Improvement in semen quality associated with decreasing occupational lead exposure. *Am J Ind Med* 1999; 35: 257-63. PMID:9987558
110. Andersen HR, Andersson A-M, Arnold SF, Autrup H, Barfoed M, Beresford NA, Bjerregaard P, Christiansen LB, Gissel B, Hummel R, Jorgensen EB, Korsgaard B, Le Guevel R, Leffers H, McLachlan J, Moller A, Nielsen JB, Olea N, Oles-Karasko A, Pakdel F, Pedersen KL, Perez P, Skakkebok NE, Sonnenschein C, Soto AM, Sumpter JP, Thorpe SM, Grandjean P. Comparison of short-term estrogenicity tests for identification of hormone-disrupting chemicals. *Environ Health Perspect* 1999; 107 (Suppl. 1): 89-108. PMID:1566352
111. Sorensen N, Murata K, Budtz-Jorgensen E, Weihe P, Grandjean P. Prenatal methylmercury exposure as a cardiovascular risk factor at seven years of age. *Epidemiology* 1999; 10: 370-5. PMID:10401870
112. Jensen TK, Scheike T, Keiding N, Schaumburg I, Grandjean P. Fecundability in relation to body mass and menstrual cycle patterns. *Epidemiol* 1999; 10: 422-8. PMID:10401878
113. Murata K, Weihe P, Renzoni A, Debes F, Vasconcelos R, Zino F, Araki S, Jørgensen PJ, White RF, Grandjean P. Delayed evoked potentials in children exposed to methylmercury from seafood. *Neurotoxicol Teratol* 1999; 21: 343-8. PMID:10440477
114. Murata K, Weihe P, Araki S, Budtz-Jorgensen E, Grandjean P. Evoked potentials in Faroese children prenatally exposed to methylmercury. *Neurotoxicol Teratol* 1999; 21: 471-2. PMID:10440491
115. Grandjean P, White RF, Nielsen A, Cleary D, de Oliveira Santos EC. Mercury neurotoxicity in Amazonian children downstream from gold mining. *Environ Health Perspect* 1999; 107: 587-91. PMID:1566671
116. Grandjean P, Budtz-Jorgensen E, White RF, Jorgensen PJ, Weihe P, Debes F, Keiding N. Methylmercury exposure biomarkers as indicators of neurotoxicity in children aged 7 years. *Am J Epidemiol* 1999; 150: 301-5. PMID:10430235
117. Biernat H, Ellias SA, Wermuth L, Cleary D, de Oliveira Santos EC, Jorgensen PJ, Feldman RG, Grandjean P. Tremor frequency patterns in mercury vapor exposure, compared with early Parkinson's disease and essential tremor. *Neurotoxicology* 1999; 20: 945-52. PMID:10693975
118. Grandjean P. Mercury Risks: Controversy or Just Uncertainty? *Publ Health Rep* 1999; 114: 512-5. PMID:1308533
119. Høyer AP, Jørgensen T, Brock JW, Grandjean P. Organochlorine exposure and breast cancer survival. *J Clin Epidemiol* 2000; 53: 323-30. PMID:10760644
120. Jensen TK, Scheike T, Keiding N, Schaumburg I, Grandjean P. Selection bias in determining the age dependence of waiting time to pregnancy. *Am J Epidemiol* 2000; 152: 565-72. PMID:10997547

121. Steuerwald U, Weihe P, Jørgensen PJ, Bjerve K, Brock J, Heinzow B, Budtz-Jørgensen E, Grandjean P. Maternal seafood diet, methylmercury exposure, and neonatal neurologic function. *J Pediatr* 2000; 136: 599-605. PMID:10802490
122. Høyer AP, Jørgensen T, Grandjean P, Hartvig HB. Repeated measurements of organochlorine exposure and breast cancer risk (Denmark). *Cancer Causes Contr* 2000; 11: 177-84. PMID:10710203
123. Budtz-Jørgensen E, Grandjean P, Keiding N, White RF, Weihe P. Benchmark dose calculations of methylmercury-associated neurobehavioural deficits. *Toxicol Lett* 2000; 112-3: 193-9. PMID:10720731
124. Andersen HR, Nielsen JB, Grandjean P. Toxicologic evidence of developmental neurotoxicity of environmental chemicals. *Toxicology* 2000; 144: 121-7. PMID:10781879
125. Nielsen JB, Nielsen F, Jørgensen PJ, Grandjean P. Toxic metals and selenium in blood from pilot whale (*Globicephala melas*) and sperm whale (*Physeter catodon*). *Marine Pollut Bull* 2000; 40: 348-51.
126. Nielsen GD, Nielsen JB, Andersen KE, Grandjean P. Effects of industrial detergents on the barrier function of human skin. *Int J Occup Environ Health*. 2000; 6: 138-42. PMID:10828143
127. Grandjean P, Bjerve KS, Weihe P, Steuerwald U. Birth weight in a fishing community: significance of essential fatty acids and marine food contaminants. *Int J Epidemiol* 2001; 30: 1272-8.
128. Høyer AP, Jørgensen T, Rank F, Grandjean P. Organochlorine exposures influence on breast cancer risk and survival according to estrogen receptor status: a Danish cohort-nested case-control study. *BMC Cancer* 2001; 1: 8.
129. Budtz-Jørgensen E, Keiding N, Grandjean P. Benchmark dose calculation from epidemiological data. *Biometrics* 2001; 57: 698-706.
130. Grandjean P. Dieldrin-associated breast cancer risk. *Eur J Oncol* 2001; 6: 273-5.
131. Grandjean P, White RF, Sullivan K, Debes F, Murata K, Otto DA, Weihe P. Impact of contrast sensitivity performance on visually-presented neurobehavioral tests in mercury-exposed children. *Neurotoxicol Teratol* 2001; 23: 141-6.
132. Grandjean P, White RF. Neurobehavioral dysfunction as possible sentinel. *Hum Ecol Risk Assess* 2001; 7: 1079-89.
133. Grandjean P, Weihe P, Burse VW, Needham LL, Storr-Hansen E, Heinzow B, Debes F, Murata K, Simonsen H, Ellefsen P, Budtz-Jørgensen E, Keiding N, White RF. Neurobehavioral deficits associated with PCB in 7-year-old children prenatally exposed to seafood neurotoxicants. *Neurotoxicol Teratol* 2001; 23: 305-17. PMID:11485834
134. Murata K, Budtz-Jørgensen E, Grandjean P. Benchmark dose calculations for methylmercury-associated delays on evoked potential latencies in children. *Risk Anal* 2002; 22: 465-74. PMID: 12088226
135. Grandjean P, White RF, Weihe P, Jørgensen PJ. Neurotoxic risk caused by stable and variable exposure to methylmercury from seafood. *Ambul Pediatr* 2003; 3: 18-23. PMID: 12540249
136. Mol NM, Sørensen N, Weihe P, Andersson A-M, Jørgensen N, Skakkebæk NE, Keiding N, Grandjean P. Spermaturation and serum hormone concentrations at puberty

- age in boys prenatally exposed to polychlorinated biphenyls. *Eur J Endocrinol* 2002; 146: 357-63 PMID: 11888842
137. Weihe P, Hansen JC, Murata K, Debes F, Jørgensen PJ, Steuerwald U, White RF, Grandjean P. Neurobehavioral Performance of Inuit Children with Increased Prenatal Exposure to Methylmercury. *Int J Circumpolar Health* 2002; 61: 41-9. PMID: 12002946
138. Fångström B, Athanasiadou M, Grandjean P, Weihe P, Bergman Å. Hydroxylated PCB metabolites and PCBs in serum from pregnant Faroe Island women. *Environ Health Perspect* 2002; 110: 895-9. PMID: PMC1240989
139. Longnecker MP, Wolff MS, Gladen BC, Brock JW, Grandjean P, Jacobson JL, Korrick SA, Rogan WJ, Weisglas-Kuperus N, Hertz-Picciotto I, Ayotte P, Stewart P, Winneke G, Charles MJ, Jacobson SW, Dewailly E, Boersma ER, Altshul LM, Heinzow B, Pagano JJ, Jensen AA. Comparison of polychlorinated biphenyl (PCB) levels across studies of human neurodevelopment. *Environ Health Perspect* 2003; 111:65-70. PMID: PMC1241307
140. Budtz-Jørgensen E, Keiding N, Grandjean P, Weihe P, White RF. Statistical methods for the evaluation of health effects of prenatal mercury exposure. *Environmetrics* 2003; 14: 105-20.
141. Grandjean P. The Red Book, a red herring, and the red tape: A European perspective. *Hum Ecol Risk Assess* 2003; 9: 1291-5.
142. Grandjean P, Budtz-Jørgensen E, Steuerwald U, Heinzow B, Needham LL, Jørgensen PJ, Weihe P. Attenuated growth of breast-fed children exposed to increased concentrations of methylmercury and polychlorinated biphenyls. *FASEB J* 2003; 17: 699-701. PMID: 12586743
143. Grandjean P, Weihe P. Arachidonic acid status during pregnancy is associated with polychlorinated biphenyl exposure. *Am J Clin Nutr* 2003; 77: 715-19. PMID: 12600866
144. Budtz-Jørgensen E, Keiding N, Grandjean P, Weihe P, White RF. Consequences of exposure measurement error for confounder identification in environmental epidemiology. *Stat Med* 2003; 22: 3089-100. PMID: 12973789
145. Budtz-Jørgensen E, Keiding N, Grandjean P, Weihe P. Estimation of health effects of prenatal mercury exposure using structural equation models. *Environ Health* 2002; 1: 2. PMID: PMC149391
146. Murata K, Weihe P, Budtz-Jørgensen E, Jørgensen PJ, Grandjean P. Delayed brainstem auditory evoked potential latencies in 14-year-old children exposed to methylmercury. *J Pediatr* 2004; 144: 177-83. PMID: 14760257
147. Grandjean P, Murata K, Budtz-Jørgensen E, Weihe P. Cardiac autonomic activity in methylmercury neurotoxicity: 14-year follow-up of a Faroese birth cohort. *J Pediatr* 2004; 144: 169-76. PMID: 14760255
148. Rasmussen TH, Nielsen F, Andersen HR, Nielsen JB, Weihe P, Grandjean P. Assessment of xenoestrogenic exposure by a biomarker approach: application of the E-screen bioassay to determine estrogenic response of serum extracts. *Environ Health* 2003; 2: 12. PMID: PMC270076
149. Grandjean P. Implications of the Precautionary Principle for public health practice and research. *Eur J Oncol* 2003; Suppl.2: 17-9. Also published in *Int J Occup Med Environ Health* 2004; 17: 5-7. PMID: 15015918

150. Grandjean P, Olsen JH. Extended follow-up of cancer in fluoride-exposed workers. *J Natl Cancer Inst* 2004; 96: 802-3. PMID: 15150310
151. Grandjean P, Budtz-Jørgensen E, Keiding N, Weihe P. Underestimation of risk due to exposure misclassification. *Eur J Oncol* 2003; Suppl. 2: 165-72. Also published in *Int J Occup Med Environ Health* 2004; 17: 131-6. PMID: 15212216
152. Nielsen JB, Grandjean P. Criteria for skin notation in different countries. *Am J Industr Med* 2004; 45: 275-80. PMID: 14991854
153. Jensen TK, Grandjean P, Budtz-Jørgensen E, White RF, Debes F, Weihe P. Effects of breastfeeding on neuropsychological development in a community with methylmercury exposure from seafood. *J Expo Anal Environ Epidemiol* 2005; 15: 423-30. PMID: 15674318
154. Grandjean P. Implications of the precautionary principle for primary prevention and research. *Annu Rev Publ Health* 2004; 25: 199-223. PMID: 15015918
155. Budtz-Jørgensen E, Grandjean P, Jørgensen PJ, Weihe P, Keiding N. Association between mercury concentrations in blood and hair in methylmercury-exposed subjects at different ages. *Environ Res* 2004; 95: 385-93. PMID: 15220072
156. Weihe P, Grandjean P, Jørgensen PJ. Application of hair-mercury analysis to determine the impact of a seafood advisory. *Environ Res* 2005; 97: 200-7. PMID: 15533336
157. Budtz-Jørgensen E, Keiding N, Grandjean P. Effects of exposure imprecision on estimation of the benchmark dose. *Risk Anal* 2004; 24: 1689-96. PMID: 15660622
158. Grandjean P, Bailar JC, Gee D, Needleman HL, Ozonoff DM, Richter E, Soffritti M, Soskolne CL. Implications of the Precautionary Principle for research and policy-making. *Am J Ind Med* 2004; 45: 382-5.
159. Grandjean P. Non-precautionary aspects of toxicology. *Toxicol Appl Pharmacol* 2005; 207: S652-7. PMID: 15979671
160. Fängström B, Athanasiadou M, Athanassiadis I, Bignert A, Grandjean P, Weihe P, Bergman Å. Polybrominated diphenyl ethers and traditional organochlorine pollutants in fulmars (*Fulmarus glacialis*) from the Faroe Islands. *Chemosphere* 2005; 60: 836-43. PMID: 15992590
161. Grandjean P, Budtz-Jørgensen E, Jørgensen PJ, Weihe P. Umbilical cord mercury concentration as biomarker of prenatal exposure to methylmercury. *Environ Health Perspect* 2005; 113: 905-8. PMID: 1257654
162. Barr DB, Weihe P, Davis MD, Needham LL, Grandjean P. Serum polychlorinated biphenyl and organochlorine insecticide concentrations in a Faroese birth cohort. *Chemosphere* 2006; 62: 1167-82. PMID: 16169054
163. Halling J, Petersen MS, Damkier P, Nielsen F, Grandjean P, Weihe P, Lundgren S, Lundblad MS, Brøsen K. Polymorphism of CYP2D6, CYP2C19, CYP2C9 and CYP2C8 in the Faroese population. *Eur J Clin Pharmacol* 2005; 61: 491-7. PMID: 16025294
164. Coccini T, Randine G, Castoldi AF, Grandjean P, Ostendorp G, Heinzow B, Manzo L. Effects of developmental co-exposure to methylmercury and 2,2',4,4',5,5'-hexachlorobiphenyl (PCB153) on cholinergic muscarinic receptors in rat brain. *Neurotoxicology* 2006; 27: 468-77. PMID: 16455139

165. Fångström B, Strid A, Grandjean P, Weihe P, Bergman Å. A retrospective study of PBDEs and PCBs in human milk from the Faroe Islands. *Environ Health* 2005; 4: 12. PMID:PMC1226148
166. Fångström B, Hovander L, Bignert A, Athanassiadis I, Linderholm L, Grandjean P, Weihe P, Bergman Å. Concentrations of PBDEs, PCBs, and OH-PCBs in serum from seven-year-old children and their mothers during pregnancy. *Environ Sci Technol* 2005; 39: 9457-63. PMID: 16475322
167. Baris YI, Grandjean P. Prospective study of mesothelioma mortality in Turkish villages with exposure to fibrous zeolites. *J Natl Cancer Inst* 2006; 98: 414-7. PMID: 16537834
168. Debes F, Budtz-Jørgensen E, Weihe P, White RF, Grandjean P. Impact of prenatal methylmercury toxicity on neurobehavioral function at age 14 years. *Neurotoxicol Teratol* 2006; 28: 363-75. PMID:PMC1543702
169. Grandjean P, Landrigan PJ. Developmental neurotoxicity of industrial chemicals - A silent pandemic. *Lancet* 2006; 368: 2167-78. PMID: 17174709
170. Grandjean P, Harari R, Barr DB, Debes F. Pesticide exposure and stunting as independent predictors of neurobehavioral deficits in Ecuadorian school children. *Pediatrics* 2006; 117: 546-56. PMID: 16510633
171. Dietz R, Riget F, Born EW, Sonne C, Grandjean P, Kirkegaard M, Olsen MT, Asmund G, Renzoni A, Baagøe H, Andreasen C. Trends in mercury in hair of Greenlandic Polar Bears (*Ursus maritimus*) during 1892-2001. *Environ Sci Technol* 2006; 40: 1120-5. PMID: 16572764
172. Heilmann C, Grandjean P, Weihe P, Nielsen F, Budtz-Jørgensen E. Reduced antibody responses to vaccinations in children exposed to polychlorinated biphenyls. *PLoS Med* 2006; 3: e311. PMID:PMC1551916
173. Dakeishi M, Murata K, Grandjean P. Long-term consequences of arsenic poisoning during infancy due to contaminated milk powder. *Environ Health* 2006; 5: 31. PMID:PMC1635412
174. Petersen MS, Halling J, Damkier P, Nielsen F, Grandjean P, Weihe P, Brøsen K. Caffeine N3-demethylation (CYP1A2) in a population with an increased exposure to polychlorinated biphenyls. *Eur J Clin Pharmacol* 2006; 2006; 62: 1041-8. PMID: 17089110
175. Grandjean P, Murata K. Developmental arsenic neurotoxicity in retrospect (editorial). *Epidemiology* 2007; 18:25-26. PMID: 17179758
176. Budtz-Jørgensen E, Keiding N, Grandjean P, Weihe P. Confounder selection in environmental epidemiology: Assessment of health effects of prenatal mercury exposure. *Ann Epidemiol* 2007; 17: 27-35. PMID: 17027287
177. Grandjean P, Budtz-Jørgensen E. Total imprecision of exposure biomarkers: Implications for calculating exposure limits. *Am J Industr Med* 2007; 50: 712-9. PMID: PMC2855962
178. Grandjean P. Methylmercury toxicity and functional programming. *Reproduct Toxicol* 2007; 23: 414-20. PMID: 17408921
179. Murata K, Grandjean P, Dakeishi M. Neurophysiological evidence of methylmercury neurotoxicity. *Am J Industr Med* 2007; 50: 765-71. PMID: 17450510
180. Budtz-Jørgensen E, Grandjean P, Weihe P. Separation of risks and benefits of seafood intake. *Environ Health Perspect* 2007; 115: 323-7. PMID: PMC1849938

181. Andersen HR, Nielsen F, Nielsen JB, Kjaerstad MB, Baelum J, Grandjean P. Xeno-oestrogenic activity in serum as marker of occupational pesticide exposure. *Occup Environ Med* 2007; 64: 708-714. PMID: PMC2078395
182. Grandjean P, Ozonoff D. Environmental Health: the first five years. *Environ Health* 2007; 6: 27. PMID: PMC2000461
183. Grandjean P. Seven deadly sins of environmental epidemiology and the virtues of precaution. *Epidemiology* 2008; 19: 158-62. PMID: PMC2639782
184. Grandjean P, Choi A. The delayed appearance of a mercurial warning. *Epidemiology* 2008; 19: 10-1. PMID: 18091412
185. Grandjean P, Bellinger D, Bergman Å, Cordier S, Davey-Smith G, Eskenazi B, Gee D, Gray K, Hanson M, van den Hazel P, Heindel JJ, Heinzow B, HertzPicciotto I, Hu H, Huang TTK, Kold Jensen T, Landrigan PJ, McMillen IC, Murata K, Ritz B, Schoeters G, Skakkebaek NE, Skerfving S, Weihe P. The Faroes statement: Human health effects of developmental exposure to chemicals in our environment. *Basic Clin Pharmacol Toxicol* 2008; 102: 73-5. PMID: 18226057
186. Wermuth L, Bech S, Petersen MS, Joensen P, Weihe P, Grandjean P. High prevalence and incidence of Parkinson's disease in the Faroe Islands. *Acta Neurol Scand* 2008; 118: 126-31. PMID: 18294341
187. Petersen MS, Halling J, Damkier P, Nielsen F, Grandjean P, Weihe P, Brøsen K. Polychlorinated biphenyl (PCB) induction of the CYP3A4 enzyme activity in Healthy Faroese adults. *Toxicol Appl Pharmacol* 2007; 224: 202-6. PMID: 17692354
188. Choi AL, Budtz-Jørgensen E, Jørgensen PJ, Steuerwald U, Debes F, Weihe P, Grandjean P. Selenium as a potential protective factor against mercury developmental neurotoxicity. *Environ Res* 2008; 107: 45-52. PMID: PMC2538682
189. Halling J, Petersen MS, Broesen K, Weihe P, Grandjean P. Genetic predisposition to Parkinson's disease: CYP2D6 and HFE in the Faroe Islands. *Pharmacogenet Genomics* 2008; 18: 209-212. PMID: 18300942
190. Petersen MS, Weihe P, Choi A, Grandjean P. Increased prenatal exposure to methylmercury does not affect the risk of Parkinson's disease. *Neurotoxicology* 2008; 29: 591-5. PMID: 18550173
191. Petersen MS, Halling J, Bech S, Wermuth L, Weihe P, Nielsen F, Jørgensen PJ, Budtz-Jørgensen E, Grandjean P. Impact of dietary exposure to food contaminants on the risk of Parkinson's disease. *Neurotoxicology* 2008; 29: 584-90. PMID: 18455239
192. Andersen HR, Schmidt IM, Grandjean P, Jensen TK, Budtz-Jørgensen E, Kjaerstad MB, Baelum J, Nielsen JB, Skakkebaek NE, Main KM. Impaired reproductive development in sons of women occupationally exposed to pesticides during pregnancy. *Environ Health Perspect* 2008; 116: 566-572. PMID: PMC2290975
193. Grandjean P, Perez M. Developmental neurotoxicity: Implications of methylmercury research. *International Journal of Environment and Health* 2008; 2: 417-28.
194. Choi AL, Grandjean P. Methylmercury exposure and health effects in humans. *Environ Chem* 2008; 5: 112-20.

195. Choi A, Cordier S, Weihe P, Grandjean P. Negative confounding in the evaluation of toxicity: The case of methylmercury in fish and seafood. *Crit Rev Toxicol* 2008; 38: 877-93. PMID: [PMC2597522](#)
196. Weihe P, Kato K, Calafat AM, Nielsen F, Wanigatunga AA, Needham LL, Grandjean P. Serum concentrations of polyfluoroalkyl compounds in Faroese whale meat consumers. *Environ Sci Technol* 2008; 42: 6291-5. PMID: [PMC2543091](#)
197. Pouzaud F, Ibbou A, Blanchemanche S, Grandjean P, Krempf M, Philippe H-J, Verger P. Use of advanced cluster analysis to characterize seafood consumption patterns and methylmercury exposures among pregnant women. *J Exp Anal Environ Epidemiol* 2010; 20: 54-68. PMID: 19293844
198. Grandjean P, Budtz-Jørgensen E, Barr DB, Needham LL, Weihe P, Heinzow B. Elimination half-lives of polychlorinated biphenyl congeners in children. *Environ Sci Technol* 2008; 42: 6991-6. PMID: [PMC2600453](#)
199. Coccini T, Manzo L, Debes F, Weihe P, Grandjean P. Application of lymphocyte muscarinic receptors and platelet monoamine oxidase-B as biomarkers of CNS function in a Faroese children cohort prenatally exposed to methylmercury and PCBs. *Biomarkers* 2009; 14: 67-76. PMID: 19330584
200. Budtz-Jørgensen E, Debes F, Weihe P, Grandjean P. Statistical methods for the evaluation of health effects of prenatal mercury exposure. *Environmetrics* 2003; 14: 105-2.
201. Choi AL, Weihe P, Budtz-Jørgensen E, Jørgensen PJ, Salonen JT, Tuomainen T-P, Murata K, Nielsen HP, Petersen MS, Askham J, Grandjean P. Methylmercury exposure and adverse cardiovascular effects in Faroese whalingmen. *Environ Health Perspect* 2009; 117: 369-72. PMID: [PMC2661905](#)
202. Bjørling-Poulsen M, Andersen HR, Grandjean P. Potential developmental neurotoxicity of pesticides used in Europe. *Environ Health* 2008; 7: 50. PMID: [PMC2577708](#)
203. Chevrier C, Sullivan K, White RF, Comtois C, Cordier S, Grandjean P. Qualitative assessment of visuospatial errors in mercury-exposed Amazonian children. *Neurotoxicology* 2009; 30: 37-46. PMID: 18992767
204. Julvez J, Grandjean P. Neurodevelopmental toxicity risks due to occupational exposure to industrial chemicals during pregnancy. *Industr Health* 2009; 47: 459-68. PMID: 19834254
205. Blair A, Saracci R, Vineis P, Cocco P, Forastiere F, Grandjean P, Kogevinas M, Kriebel D, McMichael A, Pearce N, Porta M, Samet J, Sandler DP, Costantini RS, Vainio H. Epidemiology, public health and the rhetoric of false positives. *Environ Health Perspect* 2009; 117: 1809-13. PMID: [PMC2799452](#)
206. Grandjean P, Budtz-Jørgensen E. An ignored risk factor in toxicology: The total imprecision of exposure assessment. *Pure Appl Chem* 2010; 82: 383-91. PMID: [PMC2856963](#)
207. Yorifuji T, Tsuda T, Grandjean P. Unusual cancer excess after neonatal arsenic exposure from contaminated milk powder. *J Natl Cancer Inst* 2010; 102: 360-1. PMID: 20068193
208. Schlezinger JJ, Bernard PL, Haas A, Grandjean P, Weihe P, Sherr DH. Direct assessment of cumulative aryl hydrocarbon receptor agonist activity in sera from experimentally exposed mice and environmentally exposed humans. *Environ Health Perspect* 2010; 118: 693-8. PMID: [PMC2866687](#)

209. Harari R, Julvez J, Murata K, Barr D, Bellinger DC, Debes F, Grandjean P. Neurobehavioral deficits and increased blood pressure in school-age children prenatally exposed to pesticides. *Environ Health Perspect* 2010; 118: 890-6. PMID: [PMC2898869](#)
210. Dalgård C, Petersen MS, Schmedes AV, Brandslund I, Weihe P, Grandjean P. High latitude and marine diet: Vitamin D status in elderly Faroese. *Br J Nutr* 2010; 104: 914-8. PMID: 20441671
211. Heilmann C, Budtz-Jørgensen E, Nielsen F, Heinzow B, Weihe P, Grandjean P. Serum concentrations of antibodies against vaccine toxoids in children exposed perinatally to immunotoxicants. *Environ Health Perspect* 2010; 118: 1434-8. PMID: PMC2957925
212. Grandjean P, Poulsen LK, Heilmann C, Steuerwald U, Weihe P. Allergy and sensitization during childhood associated with prenatal and lactational exposure to marine pollutants. *Environ Health Perspect* 2010; 118: 1429-33. PMID: PMC2957924
213. Grandjean P, Henriksen JE, Choi AL, Petersen MS, Dalgård C, Nielsen F, Weihe P. Marine food pollutants as a risk factor for hypoinsulinemia and type 2 diabetes. *Epidemiology* 2011; 22: 410-7. PMID: PMC3107006
214. Yorifuji T, Debes F, Weihe P, Grandjean P. Prenatal exposure to lead and cognitive deficit in 7- and 14-year-old children in the presence of concomitant exposure to similar molar concentration of methylmercury. *Neurotoxicol Teratol* 2011; 33: 205-11. PMID: PMC3026894
215. Grandjean P. Even low-dose lead exposure is hazardous. *The Lancet* 2010; 375: 855-6. PMID: 20833288
216. Spulber S, Rantamäki T, Nikkilä O, Castrén E, Weihe P, Grandjean P, Ceccatelli S. Effects of maternal smoking and exposure to methylmercury on Brain-Derived Neurotrophic Factor (BDNF) concentrations in cord serum. *Toxicol Sci* 2010; 117: 263-9. PMID: PMC2940410
217. Mozaffarian D, Shi P, Morris JS, Spiegelman D, Grandjean P, Siscovick, Willett WC, Rimm EB. Mercury exposure and risk of cardiovascular disease in two U.S. cohorts. *N Engl J Med* 2011; 364: 1116-25. PMID: PMC3082949
218. Ozonoff DM, Grandjean P. Milestones and impact factors (editorial). *Environ Health* 2010; 9: 35. PMID: PMC2909227
219. Needham LL, Grandjean P, Heinzow B, Jørgensen PJ, Nielsen F, Patterson DG Jr, Sjödin A, Turner WE, Weihe P. Partition of environmental chemicals between maternal and fetal blood and tissues. *Environ Sci Technol* 2011; 45: 1121-6. PMID: PMC3031182
220. Yorifuji T, Grandjean P, Tsuda T, Doi H. Cancer excess after arsenic exposure from contaminated milk powder. *Environ Health Prev Med* 2011; 16: 164-70. PMID: PMC3078290
221. Grandjean P, Herz K. Methylmercury and brain development: Imprecision and underestimation of developmental neurotoxicity in humans. *Mt Sinai J Med* 2011; 78: 107-18. PMID: PMC3096460
222. Pichery C, Bellanger M, Zmirou-Navier D, Glorennec P, Hartemann P, Grandjean P. Childhood lead exposure in France: benefit estimation and partial cost-benefit analysis of lead hazard control. *Environ Health* 2011; 10: 44. PMID: PMC3123267

223. Wohlfahrt-Veje C, Main KM, Schmidt IM, Boas M, Jensen TK, Grandjean P, Skakkebaek NE, Andersen HR. Lower birth weight and increased body fat at school age in children prenatally exposed to modern pesticides: A prospective study. *Environ Health* 2011; 10: 79. PMID:PMC3196902
224. Dalgård C, Petersen MS, Weihe P, Grandjean P. Vitamin D status in relation to type 2 diabetes development. *Diabetes Care* 2011; 34: 1284-8. PMID:PMC3114341
225. Julvez J, Debes F, Weihe P, Choi AL, Grandjean P. Thyroid dysfunction as a mediator of organochlorine neurotoxicity in preschool children. *Environ Health Perspect* 2011; 119:1429-35. PMID:PMC3230434
226. Audouze K, Grandjean P. Application of computational systems biology to explore environmental toxicity hazards. *Environ Health Perspect* 2011; 119: 1754-9. PMID:PMC3261980
227. Grandjean P, Andersen EW, Budtz-Jørgensen E, Nielsen F, Mølbak K, Weihe P, Heilmann C. Decreased serum vaccine antibody concentrations in children exposed to perfluorinated compounds. *JAMA* 2012; 307: 391-7. PMID:PMC2691055
228. Grandjean P, Eriksen ML, Ellegaard O, Wallin JA. The Matthew effect in environmental science publication: A bibliometric analysis of chemical substances in journal articles. *Environ Health* 2011; 10: 96. PMID:PMC3229577
229. Vestergaard S, Nielsen F, Andersson AM, Hjøllund NH, Grandjean P, Andersen HR, Jensen TK. Association between perfluorinated compounds and time to pregnancy in a prospective cohort of Danish couples attempting to conceive. *Human Reproduct* 2012; 27: 873-80. PMID:22246448
230. Karagas MR, Choi AL, Oken E, Horvat M, Schoeny R, Kamai E, Grandjean P, Korrick S. Evidence on the human health effects of low level methylmercury exposure. *Environ Health Perspect* 2012; 120: 799-806. PMID:PMC3385440
231. Grandjean P, Ozonoff D. Portrait of the journal as a young adult. *Environ Health*. 2012; 11: 30.
232. Budtz-Jørgensen E, Bellinger D, Lanphear B, Grandjean P, International Pooled Lead Study Investigators. An international pooled analysis for obtaining a benchmark dose for environmental lead exposure in children. *Risk Anal* 2013; 33: 450-61.
233. Færch K, Højlund K, Vind BF, Vaag A, Dalgård C, Nielsen F, Grandjean P. Increased serum concentrations of persistent organic pollutants among prediabetic individuals: potential role of altered substrate oxidation patterns. *J Clin Endocrinol Metab* 2012; 97: E1705-13.
234. Yorifuji T, Murata K, Bjerve K, Choi AL, Weihe P, Grandjean P. Visual evoked potentials in children prenatally exposed to methylmercury. *Neurotoxicology* 2013; 37: 15-8.
235. Pichery C, Bellanger M, Zmirou-Navier D, Fréry N, Cordier S, Roue-LeGall A, Hartemann P, Grandjean P. Economic evaluation of health consequences of prenatal methylmercury exposure in France. *Environ Health* 2012; 11: 53.
236. Andersen HR, Wohlfahrt-Veje C, Dalgård C, Christiansen L, Main KM, Christine Nellesmann C, Murata K, Jensen TK, Skakkebaek NE, Grandjean P. Paraoxonase 1 polymorphism and prenatal pesticide exposure associated with adverse cardiovascular risk profiles at school age. *PLoS ONE* 2012; 7(5): e36830.

237. Choi AL, Sun G, Zhang Y, Grandjean P. Developmental fluoride neurotoxicity: A systematic review and meta-analysis. *Environ Health Perspect* 2012; 120: 1362-8.
238. Mozaffarian D, Shi P, Morris JS, Grandjean P, Siscovick D, Spiegelman D, Willett W, Rimm E, Curhan G, Forman J. Mercury exposure and risk of hypertension in US men and women in two prospective cohorts. *Hypertension* 2012; 60: 645-52.
239. Wu H, Bertrand KA, Choi AL, Hu FB, Laden F, Grandjean P, Sun Q. Plasma levels of persistent organic pollutants and risk of type 2 diabetes: a prospective analysis in the Nurses' Health Study and meta-analysis. *Environ Health Perspect* 2013; 121: 153-61.
240. Barouki B, Gluckman PD, Grandjean P, Hanson M, Heindel JJ. Developmental origins of non-communicable diseases and dysfunctions: Implications for research and public health. *Environmental Health* 2012; 11: 42.
241. Julvez J, Davey-Smith G, Golding J, Ring S, St. Pourcain B, Gonzalez JR, Grandjean P. Genetic predisposition to cognitive deficit at age 8 years associated with prenatal methylmercury exposure. *Epidemiology* 2013; 24: 643-50.
242. Balbus JM, Barouki R, Birnbaum LS, Etzel RA, Gluckman PD, Grandjean P, Hancock C, Hanson MA, Heindel JJ, Hoffman K, Jensen GK, Keeling A, Neira M, Rabadán-Diehl C, Ralston J, Tang KC. Early-life prevention of non-communicable diseases (Comment). *Lancet* 2013; 381: 3-4.
243. Dietz R, Sonne C, Basu N, Braune B, O'Hara T, Letcher RJ, Scheuhammer T, Andersen M, Andreasen C, Andriashek D, Asmund G, Aubail A, Baagøe H, Born EW, Chan HM, Derocher AE, Grandjean P, Knott K, Kirkegaard M, Krey A, Lunn N, Messier F, Obbard M, Olsen MT, Ostertag S, Peacock E, Renzoni A, Rigét FF, Skaare JU, Stern G, Stirling I, Taylor M, Wiig O, Wilson S, Aars J. What are the toxicological effects of mercury in Arctic biota? *Sci Total Environ* 2013; 443: 775-790.
244. Bellanger M, Pichery C, Aerts D, Berglund M, Castaño A, Čejchanová M, Crettaz P, Davidson F, Esteban M, Fischer ME, Gurzau AE, Halzlova K, Katsonouri A, Knudsen LE, Kolossa-Gehring M, Koppen G, Ligocka D, Miklavčič A, Reis MF, Rudnai P, Tratnik JS, Weihe P, Budtz-Jørgensen E, Grandjean P. Economic benefits of methylmercury exposure control in Europe: Monetary value of neurotoxicity prevention. *Environ Health* 2013; 12: 3.
245. Halling J, Petersen MS, Jørgensen N, Jensen TK, Grandjean P, Weihe P. Semen quality and reproductive hormones in Faroese men – a cross-sectional population-based study of 481 men. *BMJ Open* 2013; 3: e001946.
246. Grandjean P, Budtz-Jørgensen E. Immunotoxicity of perfluorinated alkylates: Calculation of benchmark doses based on serum concentrations in children. *Environ Health* 2013; 12: 35.
247. Mozaffarian D, Shi P, Morris JS, Grandjean P, Siscovick DS, Spiegelman D, Hu FB. Methylmercury exposure and incident diabetes mellitus in US men and women in two prospective cohorts. *Diabetes Care* 2013; 36: 3578-84.
248. Audouze K, Brunak S, Grandjean P. Computational approach to chemical etiologies of diabetes. *Sci Comm* 2013; 3: 2712.
249. Grandjean P, Ozonoff D. Transparency and translation of science in a modern world. *Environ Health* 2013; 12: 70.

Books

1. Grandjean P, ed. Standards setting. Copenhagen: Occupational Health Foundation, 1977, 210 pp.
2. Grandjean P, Nielsen T. Organiske blyforbindelser, forurening og toksikologi (Organolead compounds, pollution and toxicology, in Danish). Report No. SNV PM 879. Stockholm: Naturvårdsverket, 1977, 78 pp.
3. Grandjean P. Occupational health aspects of construction work. EURO Reports and Studies 86. Copenhagen: World Health Organization, Regional Office for Europe, 1983, 28 pp. (also published in German, French and Russian)
4. Grandjean P, ed. Biological effects of organolead compounds. Boca Raton, FL: CRC Press, 1984, 278 pp.
5. Grandjean P, Tarkowski S, eds. Toxic oil syndrome: mass food poisoning in Spain. Copenhagen: World Health Organization, Regional Office for Europe, 1984, 92 pp. (also published in Spanish)
6. Grandjean P. Miljø og forebyggelse. (Environment and prevention, student's guide in Danish). Copenhagen: F.a.d.L.'s Forlag, 1984, 109 pp.
7. Gilioli R, Grandjean P, Johnson B, Seppäläinen AM, Tarkowski S, eds. Neurobehavioural methods in occupational and environmental health. Environmental Health No. 3. Copenhagen: World Health Organization, Regional Office for Europe, 1985, 209 pp.
8. Grandjean P, ed. Neurobehavioural methods in occupational and environmental health. Environmental Health No. 6. Copenhagen: World Health Organization, Regional Office for Europe, 1985, 72 pp.
9. Grandjean P, ed. Miljømedicin (Environmental medicine, textbook in Danish). Copenhagen: F.a.d.L.'s Forlag, 1986, 257 pp.
10. Grandjean P, ed. Trace elements in human health and disease: extended abstracts. Environmental Health No. 20. Copenhagen: World Health Organization, Regional Office for Europe, 1987, 230 pp.
11. Grandjean P, ed. Trace elements in human health and disease: symposium report. Environmental Health No. 26. Copenhagen: World Health Organization, Regional Office for Europe, 1987, 134 pp.
12. Grandjean P, Kimbrough RD, Rantanen J, Tarkowski S, Yrjänheikki E. Assessment of health risks in infants associated with exposure to PCBs, PCDDs and PCDFs in breast milk. Environmental Health No. 29. Copenhagen: World Health Organization, Regional Office for Europe, 1988, 116 pp.
13. Grandjean P, ed. Miljømedicin, 2. udg. (Environmental medicine, 2nd ed., textbook in Danish). Copenhagen: F.a.d.L.'s Forlag, 1988, 311 pp.
14. Kimbrough RD, Mahaffey KR, Grandjean P, Sandø SH, Ruttstein DD. Clinical Effects of Environmental Chemicals: A Software Approach to Etiologic Diagnosis. New York: Hemisphere, 1989, 110 pp. and one floppy disk.
15. Grandjean P. Skin Penetration: Hazardous Chemicals at Work. (Published on behalf of the Commission of the European Communities.) London: Taylor and Francis, 1990, 187 pp.
16. Grandjean P, ed. Ecogenetics: Genetic Predisposition to Toxic Effects of Chemicals. London: Chapman & Hall, 1991, 288 pp.

17. Grandjean P, ed. Miljø, sundhed og samfund (Environment, health and society, in Danish). Copenhagen: Nyt Nordisk Forlag, 1991, 453 pp.
18. Grandjean P, Brown SS, Reavey P, Young DS, Rej R, eds. Biomarkers of Chemical Exposure. Proceedings of the Arnold O. Beckman/IFCC European Conference on Environmental Toxicology. Clin Chem 1994; 40 (issue 7B).
19. Toppari J, Larsen JC, Christiansen P, Giwercman A, Grandjean P, Guillette LJ, Jr, Jégou B, Jensen TK, Jouannet P, Keiding N, Leffers H, McLachlan JA, Meyer O, Müller J, Rajper-DeMeyts E, Scheike T, Sumpter J, Skakkebaek N. Male reproductive health and environmental chemicals with estrogenic effects. Copenhagen: Danish Environmental Protection Agency, 1995, 166 pp.
20. Grandjean P, Brown SS, Reavey P, Young DS, Sampson E, eds. Biomarkers. Proceedings of the Second Arnold O. Beckman/IFCC European Conference on Environmental Toxicology. Clin Chem 1995; 41 (issue 12B).
21. Grandjean P. Farlig forurening (Dangerous pollution, in Danish). Copenhagen: Nyt Nordisk Forlag and National Board of Health, 1998, 174 pp.
22. Grandjean P, ed. Human health effects of environmental mercury exposure (special issue). Environ Res 1998; 77 (67-177).
23. Grandjean P, Sofritti M, Minardi F, Brazier J, eds. The Precautionary Principle. Implications for research and prevention in environmental and occupational health. Eur J Oncol Library 2003; 2: 1-245. Also published in Int J Occup Med Environ Health 2004; 17: 3-201.
24. Grandjean P, ed. Prenatal programming and toxicity. Basic Clin Pharmacol Toxicol. 2008; 102(2): 71-273.
25. Gee D, Grandjean P, Hansen SF, van den Hove S, MacGarvin M, Martin J, Nielsen G, Quist D, Stanners D. Late Lessons from Early Warnings, volume II (EEA Report No 1/2013). Copenhagen, European Environment Agency, 2013, 746 pp.
26. Grandjean P. Only one chance. How Environmental Pollution Impairs Brain Development – and How to Protect the Brains of the Next Generation. New York: Oxford University Press, 2013.

Other publications

1. Grandjean P. Bly i danskere, en historisk-toksikologisk undersøgelse (Lead in Danes, a historical and toxicological study; prize essay in Danish). Copenhagen: Institute of Hygiene, 1973.
2. Grandjean P, Fjerdingsstad E, Nielsen OV. Lead concentrations in mummified Nubian brains. In: Proceedings of the International Conference on Heavy Metals in the Environment, Toronto, October 27-31, 1975. Toronto, 1978; 3: 171-179.
3. Grandjean P. Blyforgiftning i går og i dag (Lead poisoning yesterday and today, in Danish). Ugeskr Laeger 1976; 138: 2587-8.
4. Grandjean P. Blyproblemer (Lead problems, Editorial in Danish). Ugeskr Laeger 1976; 138: 2580.
5. Grandjean P. Den hygiejniske grænseværdi for bly (The threshold limit value for lead, in Danish). Ugeskr Laeger 1976; 138: 3385.
6. Grandjean P, Fogh A, Petersen R. Zink-protoporfyrin koncentrationen i erythrocytter (ZPP) hos blyeksponerede mænd (Zinc-protoporphyrin concentration

- in the erythrocytes (ZPP) in men exposed to lead, in Danish). *Ugeskr Laeger* 1979; 141: 219-21.
7. Grandjean P. Lead content of scalp hair as an indicator of occupational lead exposure. In: Deichmann WM, ed. *Toxicology and Occupational Medicine*. Amsterdam: Elsevier, 1979, p.311-8.
 8. Grandjean P. Concerning anatomical sampling schemes and the weight basis of expression of trace element levels in human tissues (Letter-to-the-Editor). *Toxicol Lett* 1979; 3: 257-8.
 9. Grandjean P, Fischbein A. Ferrogene legemer og asbest (Ferruginous bodies and asbestos, Letter-to-the Editor, in Danish). *Ugeskr Laeger* 1979; 141: 1859.
 10. Grandjean P. Health aspects of atmospheric lead pollution. In: *Bly och Bilavgaser (Lead and car exhausts)* Stockholm: Royal Academy of Sciences, 1979, p. 25-40.
 11. Grandjean P. Widening perspectives of lead toxicity. DMSc. dissertation, University of Copenhagen. Copenhagen: F.a.d.L.'s Forlag, 1979.
 12. Grandjean P, Arnvig E, Beckmann J. Psychological dysfunctions in males occupationally exposed to inorganic lead. In: *Proceedings of the International Conference on Management and control of Heavy Metals in the Environment*, London, September 18-21, 1979. Edinburgh: CEP Consultants, 1979, p. 85-88.
 13. Shapiro IM, Grandjean P, Nielsen OV. Lead levels in bones and teeth of children of ancient Nubia. In: Needleman HL, ed. *Low Level Lead Exposure, The Clinical Implications of Current Research*. New York: Raven, 1980, p. 35-41.
 14. Grandjean P. Manganese. Iron. Selenium. Copper. Zinc. Aluminum. In: Last JM, ed. *Maxcy-Rosenau Preventive Medicine and Public Health*, 11th ed. New York: Appleton-Century-Crofts, 1980, p.677-81.
 15. Grandjean P, Fischbein A. Lead. In: Last JM, ed. *Maxcy-Rosenau Preventive Medicine and Public Health*, 11th ed. New York: Appleton-Century-Crofts, 1980, p.648-55.
 16. Advisory Committee on Mercury (Grandjean P, Executive Secretary). *Mercury in the Hackensack Meadowlands*. Report to Hon. Brendan Byrne, Governor of New Jersey. New York: Mount Sinai School of Medicine, 1980.
 17. Grandjean P. Bly i blodet og motionsløb (Lead in blood and jogging, Letter-to-the-Editor, in Danish). *Ugeskr Laeger* 1980; 142: 1429.
 18. Grandjean P, Sunderman FW Jr, Shen SK, Selikoff IJ. Measurement of nickel in plasma and urine of shipyard workers. In Brown SS, Sunderman FW Jr, eds. *Nickel Toxicology*. London: Academic Press, 1980, p. 107-9.
 19. Grandjean P. Blood lead concentrations reconsidered. *Nature (Lond.)* 1981; 291: 188.
 20. Grandjean P. Erhvervssygdomme hos familiemedlemmer (Occupational diseases in relatives, Letter-to-the-Editor, in Danish). *Ugeskr Laeger*. 1981; 143: 1098.
 21. Grandjean P. Indirekte eksponering i arbejdsanamnesen (Indirect or "bystander's" exposure in the occupational history, in Danish). *Ugeskr Laeger* 1981; 143: 2464-5.
 22. Grandjean P, Beckmann J. Symptoms and signs of lead neurotoxicity. In: Davies DS, Brown SS, eds. *Chemical Indices and Mechanisms of Organ-directed Toxicity*. Oxford: Pergamon, 1981, p. 253-6.

23. Grandjean P. Biologiske prøver. Arbejdstilsynets vejledning nr. 1. (Biological samples, Guidelines from the Labour Inspection Service, in Danish). Copenhagen: Arbejdstilsynet, 1981.
24. Fischbein A, Grandjean P. Asbest, fremtidige sundhedsmæssige aspekter. Rapport nr. 5 fra Arbejds miljøinstituttet. (Asbestos, future health aspects, report from the National Institute of Occupational Health, in Danish). Copenhagen: Arbejdstilsynet, 1981.
25. Mørup I-L, Grandjean P. Biologisk monitorering i arbejdsmiljøet (Biological monitoring in the workplace, in Danish) Ugeskr Laeger 1982; 144: 661-2.
26. Monitoring and Epidemiology. Health Aspects of the Control of Chemicals, Interim Document 8 (Grandjean P, Principal Adviser). Copenhagen: World Health Organization, Regional Office for Europe, 1982.
27. Grandjean P. Blyforureningens effekt pø mennesket (The effect of lead pollution on humans, in Danish). Ugeskr Laeger 1982; 144: 1880-1.
28. Grandjean P, Andersen O. Toxicity of lead additives (Letter-to-the-Editor). Lancet 1982; 2: 333-4.
29. Grandjean P. Behavioral toxicity of heavy metals. In: Zbinden G, Cuomo V, Racagni G, Weiss B, eds. Application of Behavioral Pharmacology in Toxicology. New York: Raven, 1982, p. 331-9.
30. Grandjean P. Health significance of organolead compounds. In: Rutter M, Jones RR, eds. Lead versus Health. Chichester: Wiley, 1983, p. 179-89.
31. Grandjean P. Miljømedicinske perspektiver, illustreret med grundstoffet fluor (Perspectives in environmental medicine, illustrated by the element fluorine, in Danish). Ugeskr Laeger 1983; 145: 1250-3.
32. Grandjean P. Forbudets pris (The price of the ban, Letter-to-the-Editor, in Danish). Ugeskr Laeger 1983; 145: 1331.
33. Grandjean P. Health aspects of petrol lead additives. Working paper, Conference on Lead in Petrol organized by BEUC and EEB, Brussels, 10-11 May, 1983, 11 pp.
34. Grandjean P, Holst E. Arbejdsmedicinsk screening med ZPP-metoden (Occupational health screening for lead exposure by the ZPP method, in Danish). Ugeskr Laeger 1983; 145: 2960-3.
35. Grandjean P. Hvad ved vi om arbejdsbetingede metalforgiftninger? (What do we know about occupational metal intoxications? in Danish) Ugeskr Laeger 1983; 145: 3026-9.
36. Bach E, Christensen JM, Grandjean P, Olsen E. Indirekte og direkte erhvervsbetinget blybelastning. Miljøprojekter 50. (Indirect and direct occupational lead exposure, project report to the Agency of Environmental Protection, in Danish). Copenhagen: Miljøstyrelsen, 1983, 76 pp.
37. Grandjean P. Zuviel nickel in der Umwelt? (Too much nickel in the environment? in German) Die Umschau 1983; 83: 494-5.
38. Grandjean P, Beckmann J, Ditlev G. Relation between subjective symptoms and psychometric test results. In: Gilioli R, ed. Neurobehavioral Methods in Occupational Health. Oxford: Pergamon, 1983, p. 301-8.
39. Grandjean P. Human exposure to nickel. In: Sunderman FW Jr et al., eds. Nickel in the Human Environment. IARC Scientific Publications No. 53. Lyon: International Agency for Research on Cancer, 1984, p. 469-85.

40. Grandjean P. Monitoring of environmental exposures to toxic metals. In: Brown SS, Savory J, eds. *Clinical Chemistry and Chemical Toxicology of Metals*. London: Academic, 1983, p. 99-112.
41. Grandjean P, Thomsen G, Selikoff IJ. Absence of pneumoconiosis in cryolite workers. In: *Proceedings of the IVth International Pneumoconiosis Conference*, Bochum, Federal Republic of Germany, 20-23 September 1983. Bochum, 1984, p. 741-5.
42. Grandjean P. Håranalyser (Hair analyses, in Danish). *Ugeskr Laeger* 1984; 146: 2024-5.
43. Grandjean P. Organolead exposures and intoxications. In: Grandjean P, ed. *Biological Effects of Organolead Compounds*. Boca Raton, FL: CRC, 1984, p. 227-41.
44. Grandjean P, Andersen K. The immunological system as a target for toxic damage. *Ugeskr Laeger* 1985; 147: 1278-9.
45. Grandjean P. Long-term significance of industrial fluoride exposure: A study of Danish cryolite workers. In: Susheela AK, ed. *Fluoride Toxicity*. New Delhi: International Society for Fluoride Research, 1985: 5-16.
46. Grandjean P. Kviksølvriscici på Grønland (Mercury risks on Greenland, in Danish). *Ugeskr Laeger* 1985; 147: 2424-6.
47. Grandjean P, Tarkowski S. Preventive aspects of neurobehavioral research. *Environmental Health Series 3*. Copenhagen: World Health Organization, Regional Office for Europe, 1985, p. 1-3.
48. Grandjean P. Et sundt miljø (A healthy environment, in Danish). *Bibl Laeger* 1985; 147: 266-75.
49. Grandjean P. Asbest, et varsel om forebyggelsens nødvendighed (Asbestos, a warning concerning the necessity of prevention, in Danish). *Ugeskr Løger* 1985; 147: 3024-6.
50. Hansen ON, Trillingsgaard A, Beese I, Lyngbye T, Grandjean P. Neuropsychological and behavioural assessment of children with low-level lead exposure. In: Lekkas TD, ed. *Heavy Metals in the Environment*. International conference, Athens, September 1985. Edinburgh: CEP Consultants, 1985, p. 51-3.
51. Grandjean P, Lansdown R. The measurement of lead. In: Lansdown R, Yule W, eds. *The lead debate*. London: Croom Helm 1986, p. 41-53.
52. Grandjean P. Diseases associated with metals. In: Last JM, ed. *Maxcy-Rosenau Public Health and Preventive Medicine*, 12th ed. New York: Appleton-Century-Crofts, 1986, p. 587-615.
53. Grandjean P. Critical and optimal levels of toxic metals. *Acta Pharm Toxicol* 1986; 59, Suppl. 7: 20-23.
54. Grandjean P, Rosdahl N. Miljømedicin i nordisk perspektiv (Environmental medicine in a Nordic perspective, in Danish). *Ugeskr Laeger* 1986; 148: 104-5.
55. Grandjean P. Asbest-risici (Asbestos risks, Editorial in Danish). *Ugeskr Laeger* 1986; 148: 3321-2.
56. Grandjean P. Forebyggelse som formål (Prevention as a purpose, in Danish). In: Grandjean P, ed. *Miljømedicin*. Copenhagen: F.a.d.L.'s Forlag, 1986, p.9-14. (p.11-6 in 2nd ed., 1988).

57. Grandjean P. Miljøfaktorer (Environmental factors, in Danish). In: Grandjean P, ed. Miljømedicin. Copenhagen: F.a.d.L.'s Forlag, 1986, p.21-6. (p.23-30 in 2nd ed., 1988).
58. Grandjean P. Smitsomme sygdomme (Infectious diseases, in Danish). In: Grandjean P, ed. Miljømedicin. Copenhagen: F.a.d.L.'s Forlag, 1986, p.39-46. (p.43-51 in 2nd ed., 1988).
59. Grandjean P. Fast affald (Solid waste, in Danish). In: Grandjean P, ed. Miljømedicin. Copenhagen: F.a.d.L.'s Forlag, 1986, p.73-5. (p.76-9 in 2nd ed., 1988).
60. Grandjean P. Skadedyr (Pests, in Danish). In: Grandjean P, ed. Miljømedicin. Copenhagen: F.a.d.L.'s Forlag, 1986, p. 76-9. (p.52-7 in 2nd ed., 1988).
61. Grandjean P. Tryk og acceleration (Pressure and acceleration, in Danish). In: Grandjean P, ed. Miljømedicin. Copenhagen: F.a.d.L.'s Forlag, 1986, p.122-6. (p.120-3 in 2nd ed., 1988).
62. Møhlave L, Grandjean P. Stråling (Radiation, in Danish). In: Grandjean P, ed. Miljømedicin. Copenhagen: F.a.d.L.'s Forlag, 1986, p.127-34. (p.124-31 in 2nd ed., 1988).
63. Holt P, Grandjean P. Sundhedsadfærd og sundhedspædagogik (Health behavior and health education, in Danish). In: Grandjean P, ed. Miljømedicin. Copenhagen: F.a.d.L.'s Forlag, 1986, p.201-8. (p.248-54 in 2nd ed., 1988).
64. Grandjean P. Tobak, alkohol og narkotika (Tobacco, alcohol and narcotics, in Danish). In: Grandjean P, ed. Miljømedicin. Copenhagen: F.a.d.L.'s Forlag, 1986, p.230-6. (p.282-289 in 2nd ed., 1988).
65. Grandjean P and the Department of Environmental Medicine, Odense University: Health effects document on nickel. Toronto: Ontario Ministry of Labour, 1986, 204 pp.
66. Grandjean P. Att vara före sin tid (To be ahead of time, in Swedish). In: Borgström C et al., eds. Buller och Avgaser (Noise and exhausts). Stockholm: Raben & Sjögren, 1987, p. 133-6.
67. Brask BH, Grandjean P, Jørgensen OS, Trillingsgaard A. A case of pervasive developmental disorder in a boy with extremely high lead levels in deciduous teeth. In: Trace Elements in Human Health and Disease. Environmental Health 20. Copenhagen: World Health Organization, Regional Office for Europe, 1987, p.106-9.
68. Jensen BM, Sandø SH, Jørgensen PJ, Antonsen S, Grandjean P. Effects on reserve capacity: Inhibition of blood regeneration by lead. In: Trace Elements in Human Health and Disease. Environmental Health 20. Copenhagen: World Health Organization, Regional Office for Europe, 1987, p.200-3.
69. Lyngbye T., Hansen ON, Grandjean P. The influence of environmental factors on physical growth in school age: A study of low-level lead exposure. In: Trace Elements in Human Health and Disease. Environmental Health 20. Copenhagen: World Health Organization, Regional Office for Europe, 1987, p.94-7.
70. Nielsen GD, Andersen O, Grandjean P. Effects of diethyldithiocarbamate on toxicokinetics of ⁵⁷Ni in mice. In: Trace Elements in Human Health and Disease. Environmental Health 20. Copenhagen: World Health Organization, Regional Office for Europe, 1987, p.78-81.
71. Jørgensen F, Grandjean P, Juel K. Metalforurening af levnedsmidler (Metal contamination of food items, in Danish). Ugeskr Laeger 1987; 149: 3565-8.

72. Grandjean P, Rosdahl N. Forureningsstoffer i modermølk (Contaminants in mother's milk, in Danish). *Ugeskr Laeger* 1987; 149: 1222-3.
73. Grandjean P (WHO Rapporteur). Report on discussion. In: Walton WH, ed. *Man-Made Mineral Fibres in the Working Environment*. *Ann Occup Hyg* 1987; 71: 601-2, 681-2, 803.
74. Grandjean P. Miljømedicinsk forskning (Research in environmental medicine, in Danish). In: Andersen D et al., eds. *Løgevidenskabelig forskning*. Copenhagen: F.a.d.L.'s Forlag, 1988, p. 363-79.
75. Kimbrough RD, Grandjean P. Risk assessment: Extrapolation to individual risk. In: Woolhead AD, Bender MA, Leonard RC, eds. *Phenotypic Variation in Populations*. New York: Plenum, 1988, p. 245-53.
76. Grandjean P, Kilburn KH. Weights and measures, SI units (Editorial). *Arch Environ Health* 1988; 43: 5-6.
77. Dyck J, Grandjean P, Kraul I. Miljøgifte i og skalfortynding af æg af Havørn, der gjorde yngleforsøg i 1979 og 1980 (Environmental pollutants in and eggshell thinning of remnants of Danish White-tailed Eagle eggs, in Danish). *Dansk Orn Foren Tidsskr* 1988; 82: 53-5.
78. Andersen O, Grandjean P. Toksikokinetik (Toxicokinetics, in Danish). In: Grandjean P, ed. *Miljømedicin*, 2nd ed. Copenhagen: F.a.d.L.'s Forlag, 1988, p.149-56.
79. Andersen O, Grandjean P. Toksikodynamik (Toxicodynamics, in Danish). In: Grandjean P, ed. *Miljømedicin*, 2nd ed. Copenhagen: F.a.d.L.'s Forlag, 1988, p.157-64.
80. Nielsen GD, Grandjean P. Forebyggelse af kemiske eksponeringer (Prevention of chemical exposures, in Danish). In: Grandjean P, ed. *Miljømedicin*, 2nd ed. Copenhagen: F.a.d.L.'s Forlag, 1988, p.189-96.
81. Grandjean P. Bly, et varsel om forebyggelsens nødvendighed (Lead, a warning concerning the necessity of prevention, in Danish). *Ugeskr Løger* 1988; 150: 2299.
82. Grandjean P, Andersen O, Nielsen GD. Nickel. In: Alessio L, Berlin A, Boni M, Roi R, eds. *Biological Indicators for the Assessment of Human Exposure to Industrial Chemicals*, Vol 5 (EUR 11478 EN). Ispra: Commission of the European Communities, 1988, p.59-80.
83. Grandjean P. Forebyggelsens saglige grundlag (Scientific documentation for preventive needs, in Danish). *Ugeskr Laeger* 1989; 151: 199-201.
84. Kimbrough RD, Grandjean P. Occupational exposure. In: Kimbrough RD, Jensen AA. *Halogenated biphenyls, terphenyls, naphthalenes, dibenzodioxins and related products*, 2nd ed. Amsterdam: Elsevier 1989, p.485-507.
85. Hansen ON, Trillingsgaard A, Beese I, Lyngbye T, Grandjean P. Neuropsychological profile of children in relation to dentine level and socioeconomic group. In: Smith M, Grant LD, Sors AI, eds. *Lead exposure and child development: An international assessment*. London: Kluwer, 1989, p. 240-50.
86. Grandjean P, Nielsen GD, Andersen O. Human nickel exposure and toxicokinetics. In: Menné T, Maibach H, eds. *Nickel and the Skin*. Boca Raton, FL: CRC, 1989, p. 9-34.
87. Grandjean P, Nielsen JB. Carbon monoxide. In: Alessio L, Berlin A, Boni M, Roi R, eds. *Biological Indicators for the Assessment of Human Exposure to Industrial Chemicals*, Vol 6 (EUR 12174). Ispra: Commission of the European Communities, 1989, p. 23-34.

88. Madsen H, Poulsen L, Grandjean P. Risici ved højt kobberindhold i drikkevandet. (High copper content in drinking water and the risks involved, in Danish). Ugeskr Laeger 1990; 152: 1806-9.
89. Grandjean P. Synthesis. In: Johnson BL, ed. Advances in Neurobehavioral Toxicology. Chelsea, MI: Lewis, 1990, p. 457-62.
90. Grandjean P. Perspectives in environmental medicine. In: Symposium on Environment and Health R & D in the European Communities and in USSR. Paris: International Association of Medicine and Biology of the Environment 1990, p. 35-8.
91. Grandjean P. Constraints in biological monitoring. In: Aitio A, Aro A, Järvisalo J, Vainio H, eds. Trace Elements in Health and Disease. London: Royal Society of Chemistry, 1991, p. 65-73.
92. Wiggers P, Dalhøj J, Nielsen GD, Grandjean P, Hørder M. Jernmangel, jernberigelse og jerndepoter (Iron deficiency, iron storage and iron supplements, in Danish). Ugeskr Laeger 1991; 153: 646-8.
93. Grandjean P. Blyforureningens omkostninger (Expenses caused by lead pollution, Editorial in Danish). Ugeskr Laeger 1991; 153: 971-2.
94. Grandjean P. Significance for public health and research, Report of a WHO Meeting. In: Grandjean P, ed. Ecogenetics: Genetic Predisposition to Toxic Effects of Chemicals. London: Chapman & Hall, 1991, pp. 3-18.
95. Grandjean P. Ethical aspects of genetic predisposition to disease. In: Grandjean P, ed. Ecogenetics: Genetic Predisposition to Toxic Effects of Chemicals. London: Chapman & Hall, 1991, pp. 237-51.
96. Grandjean P, Andersen O. Dødelighed blandt tankpassere (Mortality among filling station attendants, in Danish). Ugeskr Laeger 1991; 153: 1361-3.
97. Grandjean P. Behovet for forebyggelse (The need for prevention, in Danish). In: Grandjean P, ed. Miljø, sundhed og samfund (Environment, health and society). Copenhagen: Nyt Nordisk Forlag, 1991, pp. 25-46.
98. Grandjean P. Forebyggelsens etik og virkemidler (The ethics and means of prevention, in Danish). In: Grandjean P, ed. Miljø, sundhed og samfund (Environment, health and society). Copenhagen: Nyt Nordisk Forlag, 1991, pp. 47-61.
99. Grandjean P. Mikroorganismer og skadedyr (Microorganisms and pests, in Danish). In: Grandjean P, ed. Miljø, sundhed og samfund (Environment, health and society). Copenhagen: Nyt Nordisk Forlag, 1991, pp. 116-41.
100. Grandjean P. Affald (Solid waste, in Danish). In: Grandjean P, ed. Miljø, sundhed og samfund (Environment, health and society). Copenhagen: Nyt Nordisk Forlag, 1991, pp. 155-61.
101. Andersen O, Grandjean P. Toksikologisk vurdering (Toxicological evaluation, in Danish). In: Grandjean P, ed. Miljø, sundhed og samfund (Environment, health and society). Copenhagen: Nyt Nordisk Forlag, 1991, pp. 208-27.
102. Grandjean P. Nydelsesmidler og narkotika (Stimulants and narcotics, in Danish). In: Grandjean P, ed. Miljø, sundhed og samfund (Environment, health and society). Copenhagen: Nyt Nordisk Forlag, 1991, pp. 249-84.
103. Mølhøve L, Grandjean P. Stråling og belysning (Radiation and illumination, in Danish). In: Grandjean P, ed. Miljø, sundhed og samfund (Environment, health and society). Copenhagen: Nyt Nordisk Forlag, 1991, pp. 320-41.

104. Grandjean P. Tryk og acceleration (Pressure and acceleration, in Danish). In: Grandjean P, ed. Miljø, sundhed og samfund (Environment, health and society). Copenhagen: Nyt Nordisk Forlag, 1991, pp. 348-55.
105. Grandjean P, Jacobsen IA, Jørgensen PJ, Lings S, Andersen O. Behandling af erhvervsbetinget kronisk blyforgiftning med DMSA (Treatment of chronic occupational lead poisoning with DMSA, in Danish). Ugeskr Laeger 1991; 153: 2897-9.
106. Grandjean P. Health significance of metals. In: Last JM, Wallace RB, eds. Maxcy-Rosenau-Last Public Health & Preventive Medicine, 13th ed. Norwalk, CT: Appleton & Lange, 1991, p. 381-401.
107. Grandjean P. Miljømedicin (Environmental medicine, in Danish). In: Siboni K, ed. Løgevidenskab ved Odense Universitet (Medical science at Odense University). Odense: Odense Universitetsforlag, 1991, pp. 169-77.
108. Grandjean P. Menneskelig sundhed (Human health, in Danish). In: Fenger J, Torp U, eds. Drivhuseffekt og klimaændringer - hvad kan det betyde for Danmark? (The greenhouse effect and climate change - implications for Denmark?). Copenhagen: Ministry of the Environment, 1992, pp. 229-33.
109. Grandjean P, Kilburn KH. From research to preventive action (Editorial). Arch Environ Health 1992; 47: 166.
110. Schmidt A, Hansen LE, Jensen AA, Christiansen K, Lange M, Nielsen K, Sortkjr O, Rasmussen B, Andersen O, Grandjean P, Løkkegaard K. Integrated assessment of environmental and occupational impacts of new materials. Proc Conf Adv Composites, San Diego, 5-7 March, 1991. ACGIH, 1992, pp. 21-6.
111. Grandjean P. Dentine lead and intelligence prior to school entry: A statistical sensitivity analysis (letter to the editors). J Clin Epidemiol 1993; 46: 403-4.
112. Grandjean P. Occupational and environmental health - common goals. European Bulletin on Environment and Health 1993; 1(3): 3-5. (Also published in English and French in International Commission on Occupational Health, Quarterly Newsletter 1994: 13(2): 1-10)
113. Grandjean P, Cardoso B, Guimaraes G. Mercury poisoning (letter). Lancet 1993; 342: 991.
114. Grandjean P, Olsen JH, Jensen OM, Juel K. Excess cancer incidence among workers exposed to fluoride. Scand J Work Environ Health 1993; 19, Suppl 1: 108-9.
115. Grandjean P. Medical research: Alternative views (Letter-to-the-editor). Science 1993; 262: 1497.
116. Grandjean P. Epidemiology of environmental hazards. Publ Health Rev 1993; 21: 255-62.
117. Grandjean P. Kloroformeksponering: risikoberegning ude at svømme. (Chloroform exposure: risk evaluation on deep water, in Danish). Ugeskr Løger 1994; 156: 328.
118. Weihe P, Grandjean P. Sources and magnitude of mercury exposure in the Faroe Islands, overall design of the cohort study. Proceedings of the international symposium on assessment of environmental pollution and health effects of methylmercury, Kumamoto, 1994, pp. 112-26.

119. White RF, Debes F, Dahl R, Grandjean P. Development and field testing of a neuropsychological test battery to assess the effects of methylmercury exposure in the Faroe Islands. *Ibid.*, pp. 127-40.
120. Araki S, Murata K, Yokoyama K, Okajima F, Grandjean P, Weihe P. Neuroelectrophysiological study of children in low-level methylmercury exposure in the Faroe Islands: Methodology and preliminary findings. *Ibid.*, pp. 141-51.
121. Grandjean P, Weihe P. Neurobehavioral effects of intrauterine methylmercury exposure: Bias problems in epidemiological studies. *Ibid.*, pp. 152-62.
122. Grandjean P. Environmental epidemiology and risk assessment (book review). *Am J Epidemiol* 1994; 11: 1126-7.
123. Grandjean P. Er elektromagnetiske felter farlige? (leder) (Are electromagnetic fields dangerous? editorial in Danish). *Ugeskr Laeger* 1994; 156: 2552.
124. Grandjean P. Uncertainties in environmental health: Implications for research and policy-making. In: Mehlman MA, Upton A, eds. *The identification and control of environmental and occupational diseases, A tribute to Professor Irving J. Selikoff (1915-1992)*. *Adv Modern Environ Toxicol* 1994; 23: 539-48.
125. Grandjean P. Fluorine. CEC Criteria Document for Occupational Exposure Limit Values. Luxembourg: Commission of the European Communities, 1994.
126. Grandjean P. Acetone. CEC Criteria Document for Occupational Exposure Limit Values. Luxembourg: Commission of the European Communities, 1995.
127. Grandjean P. Arbejdsmedicinsk censor, Singapore, 9.-17.3.1995 (External examiner in occupational medicine, Singapore, 9-17 March, 1995, in Danish). *Ugeskr Laeger* 1995; 157: 3071-2.
128. Grandjean P. Applications of biological markers. In: Berthon G, ed. *Handbook on Metal-Ligand Interactions in Biological Fluids, Vol. 1*. New York: Marcel Dekker, 1995, pp. 604-11.
129. White RF, Grandjean PA, Weihe P. An overview of human studies on CNS effects of methylmercury. *Proceedings of the National Forum on Mercury in Fish*. (Publication EPA 823-R-95-002). Washington, DC: U.S.Environmental Protection Agency, 1995, pp. 109-112.
130. Evered D, Grandjean P, Hirt B, Koeman JH, Kromhout D, Pettersson U, Smith J, Thelle D. Evaluation of the National Public Health Institute of Finland. (Publications of the Academy of Finland 9/95) Helsinki: Painatuskeskus, 1995.
131. Laursen E, Grandjean P. Mangan, leversvigt og misfarvning af vasketøjet (Manganese, liver failure, and discoloration of the laundry, in Danish). *Ugeskr Laeger* 1996; 158: 434-5.
132. Grandjean P. Gamle miljøproblemer og nye udfordringer (leder) (Old environmental problems and new challenges, editorial in Danish). *Ugeskr Laeger* 1996; 158: 1495.
133. Grandjean P. Kompensation til ofre for miljøforurening (kronik) (Compensation for victims of environmental pollution, guest editorial in Danish). *Ugeskr Laeger* 1996; 158: 3198-3200.
134. Hugod C, Grandjean P. Kulmonoxidforurening (Carbon monoxide pollution, in Danish). *Ugeskr Laeger* 1996; 158: 3629-30.

135. Grandjean P, Nielsen JB. Løgers og løgestuderendes opfattelse af miljørisici (Perception of risks among physicians and medical students, in Danish). *Ugeskr Laeger* 1996; 158: 5291-5.
136. Nielsen GD, Andersen KE, Grandjean P. Detergenter pøvrkning af hudens funktion som barriere (Effects of detergents on the barrier function of the skin). København: Arbejds miljøfondet, 1997.
137. Grandjean P, Weihe P. Population studies in ethnic minorities. In: Eyfjörd J, Sorsa M, eds. Human biobanks - ethical and social issues. Copenhagen: Nordic Council of Ministers, 1997, pp. 111-6.
138. Grandjean P. Mercurial uncertainties in environmental health. *Ann N Y Acad Sci* 1997; 837: 239-45.
139. Weihe P, Grandjean P. Methylmercury risks (letter). *Science* 1998; 279: 639.
140. Grandjean P. Biomarkers. In Stellman JM, ed. *Encyclopaedia of Occupational Health and Safety*, 4th ed. Geneva: ILO, 1998, pp. 33.39-42.
141. Grandjean P. John Travolta, internettet og en skandaløs boganmeldelse. *Ugeskr Laeger* 1998; 160: 2403-4.
142. Nielsen U, Dahl R, White RF, Grandjean P. Anvendelse af computerbaseret neuropsykologisk testning af børn. *Ugeskr Laeger* 1998; 160: 3557-61.
143. Grandjean P. Health significance of metal exposures. In: Wallace RB, ed. *Maxcy-Rosenau-Last Public Health & Preventive Medicine*, 14th ed. Stamford, CT: Appleton & Lange, 1998, p. 493-508.
144. Castleman B, Dement J, Giannasi F, Frank AL, Frumkin H, Gochfeld M, Goldstein BD, Grandjean P, LaDou J, Lemen RA, Levy BS, Maltoni C, McDiarmid M, Silbergeld EK, Teitelbaum DT, Thebaud-Mony A, Wegman DH. *Salud Ocupacional*. *Int J Occup Med Environ Health* 1998;11(2):195-7
145. Grandjean P. Forskning fører til fyring. *Ugeskr Laeger* 1998; 160: 6084-5.
146. Grandjean P, White RF. Effects of methylmercury exposure on neurodevelopment (letter). *J Am Med Assoc* 1999; 281: 896.
147. Nielsen JB, Grandjean P. Mercury in hair - but from where? (Letter) *Lancet* 1999; 353: 502.
148. Grandjean P. Forebyggelsesforskning (Prevention research, in Danish). I: Almind G, Andersen D, Bock E, Havsteen B, Hørder M, Riis P, ed. *Sundhedsvidenskabelig forskning (Health research)*. København: F.a.d.L.'s Forlag, 1999, pp. 609-27.
149. Jørgensen N, Toppari J, Grandjean P, Skakkeboek NE. Environment and male reproductive function. In: Wang C, ed. "Male Reproductive Function" (Endocrine updates series). Boston: Kluwer, 1999, pp. 321-37.
150. Grandjean P, Nielsen U. Forurening og fosterudvikling (leder). *Ugeskr Løger* 1999; 161: 3814.
151. Budtz-Jørgensen E, Keiding N, Grandjean P, White RF, Weihe P. Methylmercury Neurotoxicity Independent of PCB Exposure (letter). *Environ Health Perspect* 1999; 107: A236-7.
152. Nielsen JB, Grandjean P. Mercury. In: Lippman M, ed. *Environmental Toxicants: Human Exposures and Their Health Effects*, 2nd ed. New York: Wiley, 1999, pp. 563-75.

153. Malm O, Grandjean P, Santos EO. Methylmercury toxicity in riverine children downstream from gold mining in the Amazon Basin, Brazil. *Frontiers in Fetal Health* 1999; 1 (6): 12-3.
154. Grandjean P. Malersyndrom, masseforgiftninger og miljømedicin. *Ugeskr Laeger* 2000; 162: 42-3.
155. Grandjean P. Løger og mediernes adfærd - Beluring eller medieflip? *Ugeskr Laeger*. 2000; 161: 4888.
156. Høyer AP, Jørgensen T, Grandjean P. Breast cancer and dieldrin (letter). *Lancet* 2000; 356: 1852-3.
157. Fängström B, Athanasiadou M, Bergman Å, Grandjean P, Weihe P. Levels of PCBs and hydroxylated PCB metabolites in blood from pregnant Faroe Island women. *Organohalogen Comp* 2000; 48: 21-4.
158. Arnesen S, Nielsen JB, Jacobsen JA, Strand J, Grandjean P. Butyltin-forbindelser - en risiko for danskere? *Miljø og Sundhed* 2000; 15: 14-6.
159. Özdemir Z, Grandjean P. Miljø og mesoteliom. *Ugeskr Laeger* 2001; 163 :2374.
160. De Guise S, Shaw SD, Barclay JS, Brock J, Brouwer A, Dewailly E, Fair PA, Fournier M, Grandjean P, Guillette LJ Jr, Hahn ME, Koopman- Esseboom C, Letcher RJ, Matz A, Norstrom RJ, Perkins CR, Lori Schwacke L, Skaare JU, Sowles J, St. Aubin DJ, Stegeman J, Whaley JE. Consensus Statement – Atlantic Coast Contaminants Workshop 2000. *Environ Health Perspect* 2001; 109: 1301-2.
161. Murata K, Weihe P, Araki S, Grandjean P. Delayed evoked potentials in children exposed to methylmercury from seafood: Madeira and Faroe Islands. In; *Proceedings of US-Japan workshop on human health effects of low dose methylmercury exposure*. Minamata: National Institute for Disease, 2001, pp. 90-106.
162. Grandjean P. Bloddonor og vCJD (Spørgsmål og svar). *Ugeskr Laeger* 2001; 163: 5389-90.
163. Fängström B, Athanasiadis I, Athanasiadou M, Grandjean P, Weihe P, Bergman Å. Hydroxylated PCB metabolites in non-hatched Faroe Island fulmar eggs. *Organohalogen Comp* 2001; 49: 112-5.
164. Grandjean P, White RF. Developmental effects of environmental neurotoxicants. In: Tamburlini G, von Ehrenstein O, Bertollini R, eds. *Children's health and environment*. Environmental issue report No. 29. Copenhagen: European Environment Agency, 2002, pp. 66-78.
165. Grandjean P, Jørgensen PJ, Weihe P. Validity of mercury exposure biomarkers. In: Wilson SH, Suk WA, Eds. *Biomarkers of Environmentally Associated Disease*. Boca Raton, FL, CRC Press/Lewis Publishers, 2002, pp. 235-47.
166. Grandjean P. Halve sandheder om halvledere (Semi-truths about semi conductors, in Danish). *Ugeskr Laeger* 2002; 164: 3868-9.
167. Axelson O, Castleman B, Epstein S, Franco G, Giannasi F, Grandjean P, et al. Implementation of WHO Guidelines on Disclosure of Interest by members of WHO Expert Panels. *Int J Occup Environ Health*. 2002; 8: 271-3.
168. Lanzarotti A, Jones KW, Clarkson TW, Grandjean P. Human health risks from methyl mercury in fish. *Science Highlights - National Synchrotron Light Source Activity Report*. Upton, NY: Brookhaven National Laboratory, 2002, pp. 97-9.

169. Weihe P, Debes F, White RF, Sørensen N, Budtz-Jørgensen E, Keiding N, Grandjean P. Miljøepidemiologisk forskning fører til sønkning af grønsevørdien for kviksølv. *Ugeskr Laeger* 2003; 165: 107-11.
170. Grandjean P. Når amningen sættes under anklage (debat). *Ugeskr Laeger* 2003; 165: 2413-5.
171. Keiding N, Budtz-Jørgensen E, Grandjean P. Prenatal methylmercury exposure in the Seychelles (letter). *Lancet* 2003; 362: 664-5. PMID: 12841006
172. Budtz-Jørgensen E, Keiding N, Grandjean P. Application of structural equation models for evaluating epidemiological data and for calculation of the benchmark dose. Proceedings of the ISI International Conference on Environmental Statistics and Health at Santiago de Compostela, July 2003, pp. 183-94.
173. Grandjean P. Adverse health effects of PCBs: Interpreting the epidemiological evidence. *Organohalogen Comp* 2003 (published on CD). URL: www.chef-project.dk
174. Weihe P, Hoppe H-W, Grandjean P. Sustained high concentrations of PCBs in Faroese pregnant women despite dietary intervention. *Organo-halogen Comp* 2003; 63: 389-92.
175. Heilmann C, Grandjean P, Weihe P. Decreased childhood vaccine response in children exposed to PCBs from maternal seafood diet. *Organohalogen Comp* 2003; 63: 397-400.
176. Barr DB, Weihe P, Needham LL, Davis MD, Roman W, Hurtz D III, Sclafani A, Thomas A, Preau J Jr, Grandjean P. PCBs and organochlorine pesticide concentrations in a Faroe Island 14-year old cohort: Measurement using new methodology and evaluation of correlations and patterns. *Organohalogen Comp* 2003; 63: 385-8.
177. Axelson O, Balbus JM, Cohen G, Davis D, Donnay A, Doolittle R, Duran BM, Egilman D, Epstein SS, Goldman L, Grandjean P, Hansen ES, Heltne P, Huff J, Infante P, Jacobson MF, Joshi TK, LaDou J, Landrigan PJ, Lee PR, Lockwood AH, MacGregor G, Melnick R, Messing K, Needleman H, Ozonoff D, Ravanesi B, Richter ED, Sass J, Schubert D, Suzuki D, Teitelbaum D, Temple NJ, Terracini B, Thompson A, Tickner J, Tomatis L, Upton AC, Whyatt RM, Wigmore D, Wilson T, Wing SB, Sharpe VA. Re: *Regulatory Toxicology and Pharmacology*. *Int J Occup Environ Health* 2003; 9: 386-9.
178. Grandjean P, Cordier S, Kjellström T. Developmental neurotoxicity associated with dietary exposure to methylmercury from seafood and freshwater fish. In: Bellinger D, ed. *Human developmental neurotoxicology*. New York: Marcel Dekker, 2006, pp. 25-42.
179. Grandjean P. Impact of scientific uncertainty on risk assessment for methylmercury in seafood. In: Eto K, Hachiya N, Sakamoto M, eds. *Proceedings of NIMD Forum 2003*. Minamata: the Institute of Minamata Disease, 2004, pp. 1-13.
180. Grandjean P, Jensen AA. Breastfeeding and the weanling's dilemma (Correspondence). *Am J Publ Health* 2004; 94: 1075. PMID: 15226118
181. Grandjean P, Cordier S, Kjellström T, Weihe P, Budtz-Jørgensen E. Health effects and risk assessments. In: Pirrone N, Mahaffey KR, ed. *Dynamics of mercury pollution on regional and global scales: atmospheric processes and human exposures around the world*. Norwell, MA: Springer, 2005, pp. 499-523.

182. Fångström B, Strid A, Athanassiadis I, Grandjean P, Weihe P, Bergman Å. A retrospective time trend study of PBDEs and PCBs in human milk from the Faroe Islands. *Organohalogen Comp* 2004; 66: 2829-33.
183. Grandjean P, Murata K, Budtz-Jørgensen E, Weihe P. The brainstem as a target of developmental methylmercury toxicity. *Materials and Geoenvironment* 2004; 51: 408-11.
184. Budtz-Jørgensen E, Grandjean P. Underestimation of human methylmercury toxicity due to exposure misclassification. *Materials and Geoenvironment* 2004; 51: 359-62.
185. Grandjean P, Jørgensen PJ. Measuring mercury concentration (letter). *Epidemiology* 2005; 16: 133.
186. Grandjean P, Harari R. Impacto de la Exposición a plaguicidas en el neuro-desarrollo. In: Harari R, comp. Seguridad, salud y ambiente en la floricultura. Quito: IFA, 2004, pp. 151-8.
187. Grandjean P, Klein G. Epidemiology 150 years before Snow (letter). *Epidemiology* 2005; 16: 271-2. PMID: 15703547
188. Grandjean P. Contaminants in fish oil (letter). *Am J Clin Nutr* 2005; 82: 1354.
190. Weihe P, Grandjean P. Dietary Advisories and Public Information. In: Eto K, ed. Recent Topics of Fetal Methylmercury Exposure and Its Effects (Proceedings of NIMD Forum 2006). Minamata, 2006, pp. 2-11.
191. Grandjean P, Budtz-Jørgensen E, Jørgensen PJ, Weihe P. Imprecision of cord tissue mercury and other biomarkers of prenatal methylmercury exposure, and the implications for exposure limits. In: Eto K, ed. Recent Topics of Fetal Methylmercury Exposure and Its Effects (Proceedings of NIMD Forum 2006). Minamata, 2006, pp. 76-89.
192. Skaalum Petersen M, Weihe P, Grandjean P. Retrospective Assessment of Prenatal Exposure to Methylmercury from Whaling Records. In: Eto K, ed. Recent Topics of Fetal Methylmercury Exposure and Its Effects (Proceedings of NIMD Forum 2006). Minamata, 2006, pp. 110-5.
193. Landrigan P, Nordberg M, Lucchini R, Nordberg G, Grandjean P, Iregren A, Alessio L. The Declaration of Brescia on Prevention of the Neurotoxicity of Metals. *Am J Ind Med* 2007; 50:709-11. PMID: 17036364
194. Grandjean P. Health significance of metal exposures. In: Wallace RB, ed. Maxcy-Rosenau-Last Public Health & Preventive Medicine, 15th ed. New York, NY: McGraw-Hill, 2007, pp.603-618.
194. Landrigan PJ, Kotelchuck D, Grandjean P. Principles for prevention of toxic effects from metals. In: Nordberg GF, Friberg L, Fowler B, Nordberg M, eds. Handbook on the toxicology of metals, 3rd ed. New York: Elsevier, 2007, pp. pp. 319-35.
195. Kjellström T, Grandjean P. Epidemiological methods for assessing dose-response and dose-effect relationships. In: Nordberg GF, Friberg L, Fowler B, Nordberg M, eds. Handbook on the toxicology of metals, 3rd ed. New York: Elsevier, 2007, pp. 147-61.
196. Grandjean P. Methylmercury toxicity and functional programming (correspondence). *Reproduct Toxicol* 2008; 25: 134. PMID: 18065192

197. Grandjean P. Early vulnerability, lifelong impacts. *San Francisco Medicine*. 2008; 81: 17-8.
198. Grandjean P, Keiding N. Precautionary principle. In: Melnick E, Everitt B, eds. *Encyclopedia of Quantitative Risk Assessment*. Chichester: Wiley, 2008 (3 pp.).
199. Budtz-Jørgensen E, Grandjean P. Mercury/methylmercury risk. In: Melnick E, Everitt B, eds. *Encyclopedia of Quantitative Risk Assessment*. Chichester: Wiley, 2008 (3 pp.).
200. Grandjean P. Mercury. In: Heggenhougen HK, ed. *Encyclopedia of Public Health*. Oxford: Elsevier, 2008, Vol. 4, pp. 434-42.
201. Grandjean P, Nielsen JB. Mercury. In: Lippman M, ed. *Environmental Toxicants: Human Exposures and Their Health Effects*, 3rd ed. New York: Wiley, 2009, pp. 811-22.
202. Grandjean P. Methylmercury toxicity and functional programming (correspondence). *Reproduct Toxicol* 2008; 25: 134. PMID: 18065193
203. Grandjean P, Heindel JJ. In utero and early-life conditions and adult health and disease (letter). *N Engl J Med* 2008; 359: 1523. PMID: 18832254
204. Budtz-Jørgensen E, Keiding N, Grandjean P. Approaches to handling uncertainty when setting environmental exposure standards. In: Baveye P, Mysiak J, Laba M, eds. *Uncertainties in environmental modelling and consequences for policy making*. Dordrecht, The Netherlands: Springer, 2009, pp. 267-80.
205. Straif K, Benbrahim-Tallaa L, Baan R, Grosse Y, Secretan B, El Ghissassi F, Bouvard V, Guha N, Freeman C, Galichet L, Cogliano V; WHO International Agency for Research on Cancer Monograph Working Group. A review of human carcinogens-part C: metals, arsenic, dusts, and fibres. *Lancet Oncol* 2009; 10: 453-4. PMID: 19418618
206. Takaro TK, Davis D, Van Rensburg S, Jroyo Aguilar RS, ... Grandjean P et al. (108 authors). Scientists appeal to Quebec Premier Charest to stop exporting asbestos to the developing world. *Int J Occup Environ Health* 2010 16: 241-8.
207. Darney S, Fowler B, Grandjean P, Heindel J, Mattison D, Slikker W Jr. Prenatal programming and toxicity II (PPTOX II): role of environmental stressors in the developmental origins of disease. *Reprod Toxicol* 2011; 31: 271. Also published in *Journal of Developmental Origins of Health and Disease* 2011; 2: 2.
208. Choi A, Grandjean P. Human health significance of dietary exposures to methylmercury. In: Liu G, Cai Y, O'Driscoll N, eds. *Environmental Chemistry and Toxicology of Mercury*. Chichester: Wiley, 2012, pp. 545-67.
209. Grandjean P. Exposure to environmental chemicals as a risk factor for diabetes development. In: Bourguignon J-P, Jégou B, Kerdelhué B, Toppari J, Christen Y, Eds. *Multi-System Endocrine Disruption*. Berlin: Springer 2011, pp. 91-9.
210. Grandjean P. Strengths and limitations of HBM – Imprecision matters. *Int J Hyg Environ Health* 2012; 215: 94. PMID:22197511
211. Grandjean P. Larry Needham and the partition ratio. *Chemosphere* 2011; 85: 142.
212. Weihe P, Grandjean P. Cohort studies of Faroese children concerning potential adverse health effects after the mothers' exposure to marine contaminants during pregnancy. *Acta Vet Scand* 2012; 54(Suppl 1): S7.

213. Fox DA, Grandjean P, de Groot D, Paule M. Developmental origins of adult diseases and neurotoxicity: Epidemiological and experimental studies. *Neurotoxicology* 2012; 33: 810-6. PMID:22245043
214. London L, Beseler C, Bouchard Mf, Bellinger DC, Colosio C, Grandjean P, Harari R, Kootbodien T, Kromhout H, Little F, Meijster T, Moretto A, Rohlman DS, Stallones L. Neurobehavioural and neurodevelopmental effects of pesticide exposures. *Neurotoxicology* 2012; 33: 887-96.
215. Grandjean P, Yorifuji T. Mercury (Chapter 8). In: Bingham E, Cochrane B, eds. *Patty's Toxicology*, 6th ed. New York: Wiley 2012, Vol. 1, pp 213-27.
216. Julvez J, Yorifuji T, Choi AL, Grandjean P. Epidemiological evidence on methylmercury neurotoxicity. In: Aschner M, Ceccatelli S, eds. *Methylmercury and Neurotoxicity*. Berlin: Springer, 2012, pp. 13-35.
217. Bal-Price AK, Coecke S, Costa L, Crofton KM, Fritsche E, Goldberg A, Grandjean P, Lein PJ, Li A, Lucchini R, Mundy WR, Padilla S, Persico A, Seiler AEM, Kreysa J. Conference Report: Advancing the Science of Developmental Neurotoxicity (DNT) Testing for Better Safety Evaluation. *Altex* 2012; 29: 202-15.
218. Grandjean P, Heilmann C. Perfluorinated compounds and immunotoxicity in children – Reply (Letter). *JAMA* 2012; 307: 1910-1.
219. Schug TT, Barouki R, Gluckman P, Grandjean P, Hanson M, Heindel JJ. PPTOX III: Environmental Stressors in the Developmental Origins of Disease: Evidence and Mechanisms. *Toxicol Sci* 2013; 131: 343-50.
220. Andersen HR, Wohlfahrt-Veje C, Debes F, Nielsen F, Jensen TK, Grandjean P, Main KM. Langtidseffekter af prænatal pesticideksponering (Long-term effects of prenatal pesticide exposure, in Danish). Copenhagen: Miljøstyrelsen (Danish Environmental Protection Agency), 2012.
221. Grandjean P. Blyforgiftning i forebyggelse og forskning (Leder) [Lead poisoning in prevention and research (Editorial)]. *Ugeskr Laeger* 2012; 174: 2693.
222. Grandjean P, Pichery C, Bellanger M, Budtz-Jørgensen E. Calculation of mercury's effects on neurodevelopment (letter). *Environ Health Perspect* 2012; 120: a452.
223. Grandjean P, Keiding N. (2013) Precautionary Principle. In: El-Shaarawi AH, Piegorisch W(eds), *Encyclopedia of Environmetrics*. Chichester, UK: John Wiley, 2013. DOI: 10.1002/9780470057339.vnn011.
224. Grandjean P. Science for precautionary decision-making. In: Gee D, Grandjean P, Hansen SF, van den Hove S, MacGarvin M, Martin J, Nielsen G, Quist D, Stanners D. *Late Lessons from Early Warnings*, volume II (EEA Report No 1/2013). Copenhagen, European Environment Agency, 2013, pp. 517-35.
225. Grandjean P. Opinion: Toxicants and the Brain. *The Scientist* 2013 (June 17): 36043.
226. Choi AL, Grandjean P, Sun G, Zhang Y. Developmental fluoride neurotoxicity: Choi et al. respond (Letter). *Environ Health Perspect* 2013; 121: A70.
227. Grandjean P. Opinion: Problems with Hidden COI. *The Scientist* 2013 (October 28): 37934.