Exposure to loud noise and risk of vestibular schwannoma: results from the INTERPHONE international case–control study ¹

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The INTERPHONE study was supported by funding from the European Fifth Framework Program, "Quality of Life and Management of Living Resources" (contract QLK4-CT-1999901563) and the International Union against Cancer (UICC). The UICC received funds for this purpose from the Mobile Manufacturers' Forum and GSM Association. Provision of funds to the INTERPHONE study investigators via the UICC was governed by agreements that guaranteed INTERPHONE's complete scientific independence. The terms of these agreements are publicly available at http://www.iarc.fr/en/research-groups/RAD/RCAd.html.

The Australian centre was supported by the Australian National Health and Medical Research Council (EME Grant 219129) with funds originally derived from mobile phone service license fees; Julianne Brown was partly supported by an Australian Postgraduate Award. Cancer Council NSW and Cancer Council Victoria provided most of the infrastructure for the project in Australia.

The Canadian centers in Ottawa/Vancouver were supported by a university-industry partnership grant from the Canadian Institutes of Health Research (CIHR), the latter including partial support from the Canadian Wireless Telecommunications Association. The CIHR university-industry partnerships program also includes provisions that ensure complete scientific independence of the investigators. D. Krewski is the Natural Sciences and Engineering Research Council of Canada Chair in Risk Science at the University of Ottawa.

The Canada – Montreal study was primarily funded by a grant from the Canadian Institutes of Health Research (project 15 MOP-42525). Additionally, Dr Siemiatycki's research team was partly funded by the Canada Research Chair programme and by the Guzzo-CRS Chair in Environment and Cancer. Dr Parent had a salary award from the Fonds de la recherche en santé du Québec.

Additional funding for the study in France was provided by l'Association pour la Recherche sur le Cancer (ARC) [Contrat No. 5142] and three network operators (Orange, SFR, Bouygues Télécom). The funds provided by the operators represented 5% of the total cost of the French study and were governed by contracts guaranteeing the complete scientific independence of the investigators.

The Finnish Interphone study received additional national funding from Emil Aaltonen Foundation and Academy of Finland (Grant No. 80921).

The German Interphone study received additional national funding from the "Deutsches Mobilfunkforschungsprogramm [German Mobile Phone Research Program]" of the German Federal Ministry of Environment, Nuclear Safety, and Nature Protection; the Ministry of Environment and Traffic of the state of Baden- Württemberg; the Ministry of Environment of the state of North Rhine-Westphalia; and the MAIFOR Programme of the University of Mainz.

The Japanese Interphone study was fully funded by the Ministry of Internal Affairs and Communications of Japan.

Funding in New Zealand for this project was provided by the Health Research Council of New Zealand, the Cancer Society of New Zealand, the Wellington Medical Research Foundation, the Hawke's Bay Medical Research Foundation and the Waikato Medical Research Foundation.

The Swedish center was additionally supported by the Swedish Research Council and the Swedish Cancer Society.

The UK North study received additional funding from the Health and Safety Executive, the Department of Health, the Mobile Telecommunications, Health and Research (MTHR) program, and the Scottish Executive. The University of Leeds received some financial support on behalf of the 4 centers of the 'UK North Study' from the UK Network Operators (O2, Orange, T-Mobile, Vodafone, '3') under legal signed contractual agreements which guaranteed complete independence for the scientific investigators.

The Southeast England Centre wishes to acknowledge additional funding from the Mobile Telecommunications, Health and Research (MTHR) programme. The views expressed in this publication are those of the authors and not necessarily of the funders.

Acknowledgements

The authors are grateful to Lesley Richardson (Montreal, Canada – formerly at IARC) for her major role in the coordination of the study; Emilie Combalot and Helene Tardy for their skilful data management at the coordination center; Dr Baruch Modan (Israel – deceased) for his assistance and enthusiasm in the design and setting up of this study; James Doughty (UK North), who performed miracles implementing the computer assisted personal interview in several languages and several versions, assisted by Roger Parslow (UK North); Jan Ivar Martinsen for additional programming work; Liz Findlay (UK North) who contributed a great deal to the development of materials and training of interviewers; the research assistants and interviewers in the different study centers who ensured that the study was carried out with care and consideration for the participants; the clinical practitioners, particularly neurosurgeons and ear, nose and throat surgeons, who permitted and facilitated our approaches to their patients; and the participants who gave so generously of their time. The Australian team would like to acknowledge the overall support given to study design and implementation by Associate Prof. Michael Besser and Prof. Andrew Kaye; the special support Associate Prof. Besser and Dr Paul Fagan gave to this study of acoustic neuroma. We thank also our fieldwork staff in Melbourne – Monique Kilkenny, Georgina Marr, Tracey McPhail, Fiona Phillips, Hayley Shaw, Yvonne Torn-Broers; and Sydney - Matthew Carroll, Sally Dunlop, Virginia MacDonald and Elizabeth Willows – and the many interviewers for their hard work, and the NSW and Victorian Cancer Registries for aiding case identification. The Canada - Montreal team acknowledges the diligent work of fieldwork staff including Marie-Claire Goulet, Sylvie Plante, Sally Campbell and the interviewer team. The following hospitals and physicians in Montreal permitted access to their patients: CHUM – Hôpital Notre-Dame (Dr Wieslaw Michel Bojanowski, Dr Jean Jacques Dufour, Dr François Lavigne, Dr Robert A. Moumdjian); Neurological Institute of Montreal (Dr Rolando Del Maestro, Dr Richard Leblanc); Hôpital du Sacré -Coeur de Montréal (Dr Marc F. Giroux); The Jewish General Hospital (Dr Gerard Mohr, Dr Jamie Miles Rappaport). The Canada – Ottawa center gratefully acknowledges the work of the interview team, particularly Lynn Pratt and Daniel Bedard for their leading roles in study coordination; participating clinicians at the Ottawa Hospital included Drs. Brien Benoit, Martin J. Corsten, André Lamothe, William Miller, Paul F. Odell, and David Schramm. The Danish Interphone team likes to thank Michael Kosteljanetz (Neurosurgical Department, Neuroscience Centre, University Hospital of Copenhagen), Hans Skovgaard Poulsen (Department of Radiation Biology, Finsen Centre, University Hospital of Copenhagen) and Jens Thomsen (Department of Otolaryngology- Head and Neck Surgery, Gentofte Hospital, University of Copenhagen, Hellerup). Furthermore, we like to thank Lars H. Thomassen for skilful computer assistance. The Finnish Interphone team acknowledges the following contributions research nurse Anu Outinen (STUK), Hannu Haapasalo MD, PhD (Tampere University Hospital, Dept of Pathology), chief physician Risto Sankila, MD, PhD (Finnish Cancer Registry), Prof. Juha Jääskeläinen (Helsinki University Hospital, Dept of Neurosurgery, currently Kuopio University Hospital), Prof. Matti Vapalahti (Kuopio University Hospital, Dept of Neurosurgery), Prof. John Koivukangas (Oulu University Hospital, Dept of Neurosurgery), chief physician Simo Valtanen (Turku University Hospital, Dept of Neurosurgery), chief physician Timo Kuurne (Tampere University Hospital, Dept of Neurosurgery). The French Interphone team would like to thank the French fieldwork team: Mary-Pierre Herrscher, Fatima Lamri, Agnès Boidart, Hélène Gire, Juliette Krassilchik, Judith Lenti, Delphine Maillac, Frédérique Sonnet, Flore Taguiev, Julie Frantz, France Castay, Florian Gay, for their excellent work; all the hospital services who assisted us in the ascertainment of cases: Lyon - Centre Hospitalier Lyon - Sud (Prof. Dubreuil), Hôpital Neurologique Pierre Wertheimer (Prof. Fisher, Prof. Vallée, Prof. Bret, Prof. Sindou, Prof. Deruty); Paris - Hôpital Foch (Prof. Chabolle), Hôpital Beaujon (Prof. Sterkers, Dr Bouccara), Hôpital Lariboisière (Prof. Tran Ba Huy), Marseille - Hôpital de la Timone (Prof. Peragut, Dr Regis), as well as all those in the departments of medical information and all the hospital personnel, particularly the secretaries and the staff in the medical archives, whose assistance proved essential to the success of the project. The German Interphone Group

would like to thank Stephanie Estel, Marianne Brömmel, Melanie Kaiser and Anna Wilms for organizing the field phase and all our interviewers for their skilful work. We thank the clinical Interphone team for their support and collaboration (Bielefeld: Prof. Falk Oppel (Neurosurgical Clinic), Dr Uwe Dietrich (Neuroradiology), Dr Volkmar Hans (Neuropathology); Heidelberg: Prof. Andreas Unterberg, Prof. Stefan Kunze, Dr Karsten Geletneky (Neurosurgical Clinic), Prof. Klaus Sator, Dr Jochen Fiebach (Neuroradiology), Prof. Marika Kiessling (Neuropathology); Mannheim: Prof. Peter Schmiedek, Dr Jochen Tüttenberg (Neurosurgical Clinic), Prof. Christoph Groden, Dino Podlesek (Neuroradiology), Prof. Uwe Bleyl, Dr Rainer Grobholz (Neuropathology); Mainz: Prof. Axel Perneczky (deceased), Prof. Nico Hopf, Dr Dorothee Koch (Neurosurgical Clinic), Prof. Wolf Mann, Prof. Nickalaos Marangos (ENT Clinic), Dr Wibke Müller-Forell (Neuroradiology), Prof. Hans Hilmar Göbel (Neuropathology). The Israeli center wishes to acknowledge the following neurosurgeons for the help they provided in patients recruitment and ascertainment: Prof. Eli Reichenthal (Soroka University Medical Center), Prof. Moshe Hadani and Dr Roberto Spiegelman (Chaim Sheba Medical Center), the late Prof. George Vaaknin (Tel-Aviv Medical Center), Prof. Zvi Harry Rappaport (Rabin Medical Center), Prof. Felix Umansky (Hadassah Hebrew University Medical Center), and Prof. Moshe Feinsod (Rambam Health Care Campus). We acknowledge the diligent work of the fieldwork and office staff including Etti Aviezer, Tehila Ben-Tal, Meirav Dolev, Yonit Deutch, Tamara Rodkin, Ahuva Zultan and the interviewer team. The Italian Interphone team (including Prof. Bruno Jandolo, Prof. Paolo Vecchia, Dr Stefano Martini, Dr Emanuela Rastelli, Dr Antonello Vidiri, Dr Rita Basili, Dr Caterina Carnovale Scalzo, Dr Edvina Galiè, Eng. Lucia Ardoino, Eng. Enrica Barbieri, Dr Cristiano Tesei, Massimo Lucibello and Rossella Rossi) wishes to thank all the neurosurgeons, ENT-surgeons, neuroradiologists, pathologists, and health managers contributing to the study: Prof. Umberto Agrillo, Dr Amalia Allocca Dr Mostafà Amini, Dr Cinzia Bernardi, Dr M. Bonamini, Dr Loredana Bove, Prof. Luigi Bozzao, Dr Alessandro Bozzao, Dr Mario Braga, Dr Fabrizio Breccia, Dr Velia Bruno, Dr Andrea Brunori, Dr Antonella Buffoni, Prof. Arnaldo Capelli, Prof. Giampaolo Cantore, Prof. Natale Cantucci, Dr Emanuela Caroli, Prof. Cosimo Cassano, Dr Alessandra Castelnuovo, Dr Costanza Cavuto, Prof. Lucia Cecconi, Dr Franco Cerquetani, Dr Carla Colacecchi, Dr Antonio Comberiati, Dr Valeria D'Alfonso, Dr Giovanni De Angelis, Dr Luca de Campora, Prof. Roberto Delfini, Dr Carlo Della Rocca, Prof. Marco De Vincentiis, Dr Domenica Di Stefano, Prof. Stefano Esposito, Prof. Alfredo Fabiano, Dr Francesco Federico, Prof. Luigi Ferrante, Dr Anna Rita Fetoni, Dr Letizia Feudi, Prof. Roberto Filipo, Prof. Roberto Floris, Prof. Felice Giangaspero, Dr Renato Gigli, Dr Marco Giordano, Prof. Gianfranco Gualdi, Prof. G. Guglielmi, Dr Massimo Iachetti, Prof. Giorgio Iannetti, Dr Maria Rosaria Limiti, Prof. Giulio Maira, Dr Valentina Manciocco, Dr Annunziato Mangiola, Dr Ferdinando Marandino, Dr Luisa Marangoni, Prof. Pasquale Marano, Prof. Maria Enrica Martini Neri, Dr Luciano Mastronardi, Dr Arianna Mattioni, Prof. Maurizio Maurizi, Dr Maria Concetta Mazzeo, Dr Giuseppe Natali, Dr Gaetano Nostro, Prof. Emanuele Occhipinti (deceased), Prof. Antonio Orlacchio, Prof. Augusto Orlandi, Prof. Fabrizio Ottaviani, Dr Salvatore Passafaro, Dr Francesco Saverio Pastore, Dr Laura Pennesi, Dr Claudio Maria Pianura, Prof. Roberto Pisa, Dr Chimene Pistolesi, Prof. Giuseppe Poladas, Dr Siavash Rahimi, Prof. Antonio Ricci, Dr Giovanna Ricci, Dr P. Rigotti, Dr Massimo Rimatori, Dr Rossana Romani, Prof. Giuseppe Santeusanio, Dr Sergio Santilli, Dr Marco Scarpinati, Dr Lauro Sciannamea, Prof. Luigi Sinibaldi, Prof. Giuseppe Spriano, Dr Maurizio Giovanni Vigili, Dr Antonello Vidiri, Dr Massimo Volpe. We are grateful to Dr Francesco Forastiere, Daniela D'Ippoliti and Stefania Palange (Epidemiologic Unit ASLRME) for their support in case ascertainment from secondary sources and control selection. We acknowledge the collaboration of the Italian mobile phone network operators in providing us with traffic data for the exposure validation studies. The Japanese Interphone team would like to thank Prof. Suminori Akiba (Kahoshima University), Dr Yuriko Kikuchi (Keio University), Prof. Masao Taki (Tokyo Metropolitan University), Drs. Soichi Watanabe and Kanako Wake (National Institute of Information and Communication Technology) for their contributions in planning and conducting the Interphone study in Japan. The Interphone team from New Zealand would like to acknowledge the assistance and support of the neurosurgeons and support staff at the neurosurgical units at Auckland Hospital (headed by Mr Edward Mee), Wellington Hospital (headed by Mr Martin Hunn) and Christchurch Hospital (headed by Mr Martin MacFarlane); the staff at the medical record departments at Auckland Hospital, Wellington Hospital and Christchurch Hospital; the staff at the New Zealand Health Information Service and the New Zealand Cancer Registry; Mr Martin Gledhill at the National Radiation Laboratory; the regional coordinators for the study, Ms Cara Marshall, Ms Sue Hawkins and Ms Janfrey Doak. The Norwegian Interphone team thanks the Cancer Registry of Norway, the hospital staff; especially Prof. Tryggve Lundar (Rikshospitalet University Hospital), Prof. Knut Wester (Haukeland University Hospital), Prof. Bjørn Magnæs (Ullevaal University Hospital) and Dr Johan Cappelen (St. Olav University Hospital). We also thank the interviewers especially Margareth Kaurin for the hard work and dedication. The Swedish Interphone center thanks the Swedish Regional Cancer Registries and the hospital staff; especially the following key persons at the hospitals:

Dr J. Boethius, Dr O. Flodmark, Prof. I. Langmoen, Dr A. Lilja, Dr T. Mathiesen, Dr I. Olsson Lindblom and Dr H. Stibler (Karolinska University Hospital), Dr J. Lycke, Dr A. Michanek and Prof. L. Pellettieri (Sahlgrenska University Hospital), Prof. T. Möller and Prof. L. Salford (Lund University Hospital). All the interviewers and study administrators from the UK North are thanked for their hard work and dedication. The UK North center wishes to acknowledge the support of the following neuropathologists, neuroradiologists, neurosurgeons, neurooncologists, clinical oncologists, neurologists, specialist nurses and administrators based in hospitals located in Scotland (Mr Barlow, Prof. I. Bone, Ms J. Brown, Mr J. Crowther, Miss R. Dolan, Mr Dunn, Mr M.O. Fitzpatrick, Mrs M. Fraser, Dr R. Grant, Dr A. Gregor, Mr Johnstone, Mr Lyndsay, Mrs S. Macnamara, Miss J. Mair, Mr R. Mills, Miss Myles, Mr B. O'Reilly, Mr V. Papanastassiou, Prof. R. Rampling, Mr Russell, Mr D. Sim, Mr P. Statham, Mr Steers, Mr Taylor, Prof Teasdale, Prof. I. Whittle), west Midlands (Dr J.M. Anderson, Dr Barbour, Dr C.R. Barraclough, Dr P. Bennett, Dr H.G. Boddie, Mr Brind, Dr Carev, Mr M. Choksey, Mr M. Christie, Dr R.N. Corston, Prof. G.S. Cruickshank, Dr A. Detta, Mr P. Dias, Dr S.J. Ellis, Mr G. Flint, Dr D.A. Francis, Mr A.H. Grubneac, Mr S.P. Harland, Dr C. Hawkins, Dr T. Heafield, Dr R.C. Hughes, Dr D.G. Jamieson, Dr A. Logan, Mr C.H.A. Meyer, Mrs R. Mitchell, Prof. K. Morrison, Dr P. Newman, Dr D. Nicholl, Dr S. Nightingale, Dr H.S. Pall, Mr J.R. Ponsford, Dr A. Shehu, Mr Singh, Dr J.A. Spillane, Mr P. Stanworth, Dr B. Summers, Mr A.R. Walsh, Mr J. Wasserberg, Prof. A.C. Williams, Dr J. Winer, Mr S. Zygmunt), Trent (Dr R.J. Abbott, Ms Sheila Adams, Mr Ashpole, Mr R.D.E. Battersby, Prof. L. Blumhardt, Mr P. Byrne, Miss M. Cartmil, Dr S.C. Coley, Dr P. Critchley, Dr Faraj, Dr A. Gibson, Dr P. Griffiths, Dr R. Grunwald, Dr T.J. Hodgson, Mr D.T. Hope, Dr S. Howell, Dr D. Jefferson, Mr D. Jellinek, Dr N. Jordan, Mr A. Kemeny, Dr M.C. Lawden, Prof. J. Lowe, Dr N. Messios, Ms Kirsty Pardoe, Dr S. Price, Dr I.F. Pye, Mr M. Radatz, Mr I. Robson, Dr K. Robinson, Dr C. Romanowski, Dr G. Sawle, Dr B. Sharrock, Prof. P. Shaw, Dr C. Smith, Dr W. Temperley, Dr G. Venables, Mr B. White, Mr A.M. Whiteley, Dr Wills) and West Yorkshire (Dr Al-Din, Dr D. Ash, Dr J. Bamford, Dr M. Bond, Dr G. Bonsor, Dr L. Bridges, Dr B. Carey, Dr Chakrabarty, Mr P. Chumas, Dr D. Dafalla, Dr H. Ford, Dr Gerrard, Dr Goulding, Dr J. Howe, Dr S. Jamieson, Dr Johnson, Dr Louizou, Mr P. Marks, Dr M. Nelson, Dr S. Omer, Mr N. Phillips, Mr S. Ross, Dr I. Rothwell, Dr H. Spokes, Dr J. Straiton, Mr G. Towns, Nr A. Tyagi, Mr P. Vanhille, Dr M. Busby). The Southeast England center thank the study participants, D. Hogben, A. Butlin, J. Owens, A. Hart, R. Knight, C. Parsley, M. Pelerin, K. Sampson, M. Snigorska and M. Swanwick for help in data collection, Prof. H. Møller, Mr B. Plewa and Mr S. Richards, from the Thames Cancer Registry, and the following consultants and their teams for their support: Mr G. Brookes, Mr A.D. Cheesman, Prof. M.J. Gleeson and Mr N.D. Kitchen (National Hospital for Neurology and Neurosurgery), Mr R. Bradford (Royal Free Hospital), Prof. M. Brada (Royal Marsden Hospital), Mr C. Hardwidge, Mr J.S. Norris and Dr M. Wilkins (Princess Royal Hospital), Mr M.M. Shah, Prof. A.J. Strong and Mr N. Thomas (King's College Hospital), Prof. A. Bell, Mr H. Marsh and Mr F. Johnston (St George's Hospital), Mr K.S. O'Neill and Mr N.D. Mendoza (Charing Cross Hospital), Mr R. MacFarlane (Addenbrooke's Hospital) and Mr A.R. Aspoas and Mr S. Bavetta (Oldchurch Hospital).

Supplemental Table S1. Odds Ratios for Vestibular Schwannoma According to Self-Reported Loud Noise Exposure at Work and During Leisure Time Activities, Stratified by Presence or Absence of Related Symptoms (No Symptom, Hearing Loss and of Tinnitus) at Interview, International Interphone Study, 2000-2004.

	Cases with no hearing problems at interview and their controls						Cases with hearing loss at interview and their controls							Cases with tinnitus at interview and their controls ^b					
	Cases		Controls			Cases Controls						Cases		Controls					
	N	%	N	%	ORª	95% CI	N	%	N	%	ORª	95% Cl	N	%	N	%	OR ^ª	95% Cl	
All noise exposure																			
Not exposed	46	61	85	58	1.0		159	58	316	61	1.0		338	50	844	65	1.0		
Exposed	30	39	61	42	0.9	0.4-1.9	114	42	205	39	1.0	0.7-1.5	332	50	462	35	2.0	1.6-2.5	
Work and leisure exposure																			
Not exposed	46	61	85	58	1.0		159	58	316	61	1.0		338	50	844	65	1.0		
Exposed during leisure activities	2	2	10	7	0.4	0122	20	10	20	F	1.0	1126	гэ	0	74	c	2.0	1 4 2 0	
	2	3	10	/	0.4	0.1-2.2	28	10	28	5	1.9	1.1-3.0	52	8	74	6	2.0	1.4-3.0	
Exposed at work only Exposed both at work and in	22	29	44	30	1.0	0.4-2.3	60	22	135	26	0.8	0.5-1.2	214	32	294	23	2.0	1.6-2.6	
leisure activities	6	8	7	5	1.5	0.4-5.4	26	10	42	8	1.0	0.6-1.9	66	10	94	7	2.0	1.4-3.0	
Time since first exposure – noise at v	vork																		
Not exposed	47	63	94	65	1.0		187	68	344	66	1.0		388	58	914	70	1.0		
<20 years	11	15	22	15	1.0	0.4-2.8	34	12	86	17	0.6	0.4-1.0	82	12	140	11	1.4	1.0-2.0	
20-29 years	8	11	13	9	1.3	0.4-4.0	26	10	45	9	0.9	0.5-1.6	91	14	120	9	1.9	1.4-2.6	
≥30 years	9	12	15	10	2.1	0.4- 10.7	26	10	46	9	1.0	0.5-1.7	107	16	124	10	2.4	1.7-3.4	
trend test p-value					0.37						0.60						<0.001		
Duration of exposure – noise at work																			
Not exposed	47	63	94	65	1.0		187	68	344	66	1.0		388	58	914	70	1.0		
≤ 5 years	6	8	19	13	0.4	0.1-1.5	24	9	58	11	0.7	0.4-1.2	86	13	122	9	1.7	1.3-2.4	

6-19 years	10	13	17	12	1.9	0.6-5.4	41	15	81	16	0.8	0.5-1.2	109	16	167	13	1.7	1.3-2.4
≥20 years	12	16	14	10	3.9	15.0	21	8	38	7	0.9	0.5-1.7	85	13	95	7	2.2	1.6-3.1
trend test p-value					0.05						0.36						<0.001	
Duration of exposure - leisure time																		
Not exposed	67	89	126	88	1.0		217	81	440	86	1.0		548	82	1122	87	1.0	
≤ 5 years	1	1	5	3	0.3	0.0-3.0 0.4-	15	6	20	4	1.5	0.7-3.2	35	5	51	4	1.6	1.0-2.5
6-19 years	3	4	4	3	2.1	12.4	19	7	29	6	1.3	0.7-2.6	53	8	57	4	1.9	1.3-2.9
≥20 years	4	5	8	6	1.0	0.2-4.1	18	7	20	4	1.6	0.8-3.2	30	5	60	5	1.1	0.7-1.8
trend test p-value					0.93						0.10						0.02	

^a Odds ratios from conditional logistic regressions with subjects matched by center, age and sex, and adjusted for education, marital status and smoking status. Exposures are truncated to 1 year before reference date. Cases and controls with missing data, and their matched partners excluded from these analyses.

^b Tinnitus with or without hearing loss.

Supplemental Figure S1. Country specific associations between vestibular schwannoma and self-reported loud noise exposure at work by time since first exposure (A) and duration of exposure (B), International Interphone study, 2000-2004.

Note: New Zealand not presented in Figure because separate analyses could not be conducted due to the low number of participants. Odds ratios from conditional logistic regressions with subjects matched by center, age and sex, and adjusted for education, marital status and smoking status. Exposures are truncated to 1 year before reference date.



S1A



Supplemental Material 1. Questionnaire.

Participants were first asked screening and detailed questions on use of mobile phone, of other communication devices, on jobs that could expose to electromagnetic fields or to ionising radiation. Then they answered the section on loud noise exposure below.

The interview also included to complete an occupational calendar on paper, in which all jobs lasting more than one year were recorded.

Loud noise

I would now like to talk about whether you have been exposed to loud noise in the past. By loud noise I mean, for example, noise from industrial machinery, large engines, nearby airport or highway exchange, rock music, explosions (*see showcard*)

- 9.1 Would you say you have ever been exposed to loud noise?
 - 1 □ yes
 2 □ no (go to section 10)
 9 □ don't remember (go to section 10)

If you have chosen SHORTENED LIST in section 7 go to question 9.19

- 9.2 Have you ever been exposed to loud noise at work?
 - 1 □ yes
 - $2 \square$ no (go to question 9.19)
 - 9 \square don't remember (go to question 9.19)
- 9.3 In which jobs (Enter job numbers separated by hyphens e.g. 12-4-9-21)_____

In the following, please fill in the job number.

Let's start with job [] (Say this sentence if more than one job)

- 9.4 What was the source of the noise? (enter 99 if don't remember and go to question 9.8)
- 9.5 Were you exposed to another source of noise in this job?
 - 1 \square yes; what was the source of noise?
 - $2 \square$ no (go to question 9.8)
 - 9
 don't remember (go to question 9.8)
- 9.6 Were you exposed to another source of noise in this job?
 - 1 □ yes; what was the source of noise?
 - 2
 no (go to question 9.8)
 - 9
 don't remember (go to question 9.8)
- 9.7 Were you exposed to another source of noise in this job
 - 1 \square yes; what was the source of noise?
 - $2 \square$ no (go to question 9.8)
 - 9
 and don't remember (go to question 9.8)
- 9.8 Would you say the noise in this job was MAINLY:
 - $1 \square$ persistent, such as working near a weaving loom
 - 2 \square intermittent, such as using jackhammers
 - 3
 infrequent but powerful, such as from explosions or blasts?
 - 9 🗆 don't know
- 9.9 Was equipment provided to protect you from the loud noise?
 - 1 □ yes
 - $2 \square$ no (go to question 9.11)
 - $9 \square$ don't remember (go to question 9.11)

9.10 How often did you use it?

- $1 \square$ most of the time
- 3 □ never
- 9 🗆 don't remember

9.11 Were you exposed to loud noise for the whole time you did job [_____] ?

- 1 □ yes
- $2 \square$ no (go to question 9.16)
- 9 \square don't remember (go to question 9.16)

Enter start and stop dates of job [] from the occupational calendar into the start and stop fields

9.12 Start date |_|_|

Stop date (*leave empty for 'still' reply*)

- 9.13 Between these dates, were there any years when you were not exposed to loud noise?
 - 1 □ yes
 - 2 🗆 no (*go to question 9.15*)
 - $9 \square$ don'tremember(go to question 9.15)
- 9.14 For how many years altogether? (enter 99 if don't remember)
- 9.15 On average, how frequently were you exposed to the loud noise while working?
 - 1
 more than 20 hours per week
 - 2

 between 10 and 20 hours per week
 - $3 \square$ less than 10 hours per week

 - 9 🗆 don't know

Go to next job (completing as many copies of form "Loud noise – full list of questions – at work, Pages to be completed for additional jobs" as necessary) if more than one job with noise; otherwise go to question outside work 9.19 or to section 10 as appropriate

9.16 When did you start getting exposed to loud noise in job [....]?

Tell me the year:	Start date: _ _ _
And when did you finish? (<i>leave empty for 'still' reply</i>)	Stop date: _ _ _

9.17 Between these dates, were there any years when you were not exposed to loud noise?

For how many years altogether?

| | | | | |

- 1 □ yes 2 □ no
- $9 \square$ don't remember
- 9.18 On average, how frequently were you exposed to the loud noise while working?
 - $1\square$ more than 20 hours per week
 - 2 $\hfill\square$ between 10 and 20 hours per week
 - $3 \square$ less than 10 hours per week
 - 4
 a several hours per month
 - 9 🗆 don't know

Go to next job (completing as many copies of form "Loud noise – full list of questions – at work, Pages to be completed for additional jobs" as necessary) if more than one job with noise; otherwise go to question outside work 9.19 or to section 10 as appropriate.

- 9.19 Have you ever regularly (that is every week for several years) been exposed to loud noise in activities such as:
 - shooting, radio controlled model airplanes (boats, cars), motorcycle races, kart.
 - modern music concerts (Rock,), discos, listening to music with headphones?

- · used noisy domestic equipment such as lawn mowers, electric drills, chainsaws
 - 1 □ yes
 - $2 \square$ no (go to question 9.24)
 - 9 \square don't remember (go to question 9.24)
- 9.20 Please tell me which activities these were: (enter 99 if don't remember)
- 9.21 When did you start taking part in these activities?

And when did you stop? (*leave empty for 'still' reply*)

Start date: |_|_|_| Stop date: |_|_|_|

- 9.22 Did you use equipment to protect yourself from the noise?
 - 1 □ yes
 - 2
 no (go to question 9.24)
 - 9 \square don't remember (go to question 9.24)
- 9.23 How often did you use it?
 - $1 \square$ most of the time
 - $2 \square$ occasionally
 - 3 □ never
 - 9 🗆 don't remember
- 9.24 Have you lived for 10 years or more of your life in a noisy environment (close to an airport, a high- speed train track, highway exchange)?
 - 1 □ yes
 - 2 🗆 no
 - 9 🗆 don't remember